# A Comparative Study between Conventional Teaching Methods and Innovative Methods in Science Discipline

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## ABSTRACT :

*The present study was conducted with the aim to compare the impact of conventional and innovative teaching methods on the achievement of the learners. This is experimental study with pre & post test design and null hypotheses were frame against the objectives. Two Groups (A and B) were form on the basis of IQ test and average IQ students were selected and randomly dropped in two groups A and B. The total sample of 44 students was taken (22 students in each Group). An experiment was conducted for 10 days and two hours per day (one hour for each group). Before the treatment achievement test for science which is teacher made test, was administered as a pretest and also administered on the same groups after the treatment as post test. A ten day's teaching program me was developed for both the groups. Group A was exposed with conventional teaching method as control group and Group B was exposed with innovative teaching method as experimental group.*

*The result of the study, the impact of conventional teaching method is positive on the achievement of the learners in science discipline. When we compare the effectiveness of these teaching methods, the innovative teaching methods are found more effective and have significant impact on the students' performance in comparison to conventional method.*

**Key Words:** Conventional Teaching Methods, Innovative Teaching Methods.

## INTRODUCTION :

A given method, which to one 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 it better.

**George W. Hunter**

There are various methods of science teaching through which we can initiate and promote learning. The word method has its Latin origin which means mode or way. It means teaching method is a way of delivering knowledge and transmitting of skills by the teacher to his pupils and their comprehension and application by them in the process of studying and learning become possible. In the very beginning, it may be pointed out that teaching learning is a very complex process which comprises teachers, students, instruction and illustrative with material and the permissive atmosphere in the setting of school. In a highly

restricted sense, It means what to teach and how to teach (or approach) it. When we teach with any method, it can be seen that every method has something to offer. According to I. D. Zuvrev (1967), each method is active as it does make pupil think and arouse pupil interest in the subject. These methods develop the abilities of comprehension, comparison, generalization and deduction. He, further, suggested that pupils should be taught to master method of studying, listening, observing, registering, and experimenting and so on.

We can add a step by suggesting that methods, techniques and approach to teaching either in isolation or in combination should provide ample opportunities to the pupils for realizing the process of objectives of teaching namely questioning, defining, observing, discovering, organizing, verifying, drawing inferences, applying knowledge, generalizing, understanding relationship, interpreting data, experimenting, discussing and communicating in precise terms and making operational definition. Their overall objective is to develop reflective atmosphere in the classroom and teacher can encourage reflective thinking at different level.

The present seen of our class room is that teachers and students depend upon text books page by page and word by word. Experimentation and demonstration are rarely done in the classroom. Productive thinking is at a low level. Students keep their eyes on examination all the time and try to cram facts to get good results. Science is taught at factual level alone. Pupils accept the teacher's word without questions. The teacher is aware of individual differences but does nothing to provide for them. Children do not generally speaking and raise problem. They learn the art of answering questions without much thinking and not sure of the answers they give are based on reason and if teacher changes the patterns or repeat, they change their pattern. Hence there are monopolies classroom activities and pupil, rarely, get active participation in the teaching learning process. Hence our education system is too much examination-dominated.

In order to make the classroom teaching more realistic, new fragment in teaching like discovery approach, Computer assisted programmed and use of education technology as audio visual method may be applied. As these innovative teaching methods are able to create actual studying atmosphere and productive thinking may be promoted and functional memory can developed. Implementation of innovative teaching method is a need of today especially in science teaching as to develop the child according to nature of discipline. Kothari commission has guided us a bit in this direction. There is need to be done by carrying out research on teaching methods on a large scale. This study is based on this important area as to see the impact of conventional method or innovative method. Through an experiment conducted in school setting.

When we review the previous researchers concern with the study .The following study were found, mention as:

Ajij, Talat (1990) studied the effectiveness of the information processing model of teaching in developing certain concepts in chemistry at the secondary stage and found that it has high effectively in comparison to conventional method. Jaimani, P. (1991) studied the effectiveness of the stimulation model of teaching through computer assisted instruction and found that effectiveness this model in teaching in higher than conventional method of teaching in physics. Singh, Ahluwalia and Verma (1991) also studied the effectiveness of Computer assisted instruction and conventional method in teaching of mathematics. Singh, R.D. (1992) Compare the effectiveness of teaching mathematics through computer assisted and conventional method on cognitive and non-cognitive variables and found that computer assisted instruction is more effective. Gold beck, Shearer and Others (1992) studied integrated programmed learning with conventional classroom teaching; they found that a few minutes a day of programmed learning integrated with conventional classroom teaching could raise student performances significantly higher than could be achieved by conventional teaching alone.

Mahapatra, B.C. (1995) studied about development of software package for teaching chemistry to class $9^{th}$ students of Madhyapradesh state and found that achievement of the 75 percent student was more that 60 percentage. Singh, Bharat (1995) compare the effectiveness of discussion method and traditional method at B.ED level and result showed that discussion method was more effective. Sansanwal, D.N. and Suri, Sonia (1995) compared lecture method and programmed learning material and lecture with programmed learning material in terms of achievement in organic chemistry of class $11^{th}$ students and results reveled that PLM and lecture with PLM is more effective than lecture method.

Joshi, Amerada & Mahapatra, B.C.(1997) studied effectiveness of computer software in terms of reasoning ability in science and it is found that reasoning ability was higher through computer software in comparison to conventional way. Sharma (2000) compared the effect of brainstorming and conventional teaching techniques on higher order learning outcomes in social science and finding stated that brainstorming was more effective. Yoldorom, Ozden and Absu (2001) compared the traditional and hypermedia learning environments on the chosen subjects in a control treatment group and pre and post test design in their study on acquiring and retaining knowledge and found that experimental group retained knowledge better than control group.

Santi, S. and Amalraj, A. (2002) studies effect of computer assisted instruction on achievement in science and found that computer is more effective tool. Mahmood (2004) conducted a study on CAI and traditional method and found CAI is more effective in all respect.

Sukla, Anuradha (2009) studied about interactive instruction and found that interactive learning includes the students to learn and know more by working with subject.

Uhumuavbi P.O. Mamudu, J.A. (2009) studied the effects on programmed instruction and demonstration method on students academic performance in science and found that performance of student improve with programmed instruction.

A review of the research studies on the methodology of teaching indicates that a few studies have made on CAI, programmed instruction and other type of teaching strategies; it seems that few studies were undergone. Hence there is more need to find out the effectiveness of innovative strategies.

**OBJECTIVES :** The objective of the study were

1. To Study the impact of Conventional teaching method on the achievement of the learners.
2. To Study the impact of innovative teaching method on the achievement of the learners.
3. To compare the impact of conventional teaching method and innovative teaching method the achievement of the learners.

**HYPOTHESES** :

1. The following Hypotheses were formulated to achieve the above objectives.
2. There is positive impact of conventional teaching methods on the achievement of learners.
3. There is positive impact of the innovative teaching methods on the achievement of the learners.
4. There exists no difference between the impact of conventional and innovative teaching methods in reference to the achievement of the learners.

**Delimitation of the study:** The delimitation of the study was

1. The study is limited to Hindi Medium students.
2. The study is limited to the ninth class students

3. The school situated in semi urban area and had all the facilities needed to conduct Experiment was selected.

**Sample of the Study:** The sample was selected from Bansure Tehsil in Alwar District. The 44 students of the class ninth were selected to conduct experiment. The experiment was conduct in Vivekananda Senior secondary school of Bansur Tehsil.

**Methodology to be adopted:** The experimental method was adopted to investigate this study and field experimental type research is assigned to study because in social science the pure experiment research can not be possible, in which pre and post test design was use.

**Variable of the study:** In this study the variables were as follows

1. Independent variable – Conventional teaching method and innovative teaching method.
2. Dependent variable – Achievements of the student in science discipline.

**Controlled conditions to conduct an experiment**

**The experiment was conducted as follows**

1. First of all mental ability test of Anup Jalota was administered to the students of class ninth approximately sixty in number, out of them on the basis of mental ability 44 students who were average in the mental ability selected for the experiment while higher and low mental ability student were left in order to made the group homogeneous.

2. Now two groups for the experiment were prepared. On the basis of toss, the two group A and B were formed. A group is assigned to conventional teaching method and B group is assigned to innovative teaching method.

3. An experiment was conducted for 10 days continuously and the teaching of two (one hour/ group) hour per day in both the group was done by experimenter

4. A ten day's teaching program me was developed for both the groups. For Teaching with both type methods, the content from ninth class Science book was selected in which four lessons were taken entitled Nuclear Chemistry from Chemistry portion (part-I) work, energy and power from physics portion (part-I) and excretion in plants and excretion in animals from biology portion (part-II).

5. An achievement test on the above selected topic was developed by framing blue print.

6. Before conducting an experiment a pre-test is administered and after the conducting the experiment of ten days a post test was administered in both the groups. So that the result could be calculated.

7. With in Conventional teaching method group lecture and lecture cum demonstration methods were adopted and in innovative teaching method group Programmed instruction, Computer assisted lesson and audio visual lesson were involved.

## RESULTS AND DISCUSSION :

To achieve the objectives the data is analyzed in the following way.

**Table No. 1 : Mean, SD and t-values**

| Groups | N | Mean | SD | DM | SEdm | t | Significance |
|---|---|---|---|---|---|---|---|
| **Pretest** | 22 | 52.62 | 4.47 | 9.07 | 1.55 | 5.58 | At 0.01 Level 2.69 & At 0.05 Level 2.02 for df 42 |
| **Protest** | 22 | 61.33 | 4.03 | | | | |

Table-1 shows that t- value is 5.85, which is significant at 0.05 levels and 0.01 level of confidence as 2.02 and 2.69.Hence the Hypothesis 1 is accepted.

**Table No. 2 : Mean, SD and t-values**

| Groups | N | Mean | SD | DM | SEdm | t | Significance |
|---|---|---|---|---|---|---|---|
| **Pretest** | 22 | 53.86 | 3.53 | 20.54 | 2.70 | 7.60 | At 0.01 Level 2.69 & At 0.05 Level 2.02 for df 42 |
| **Protest** | 22 | 74.40 | 5.30 | | | | |

Table-2 shows that the t value is 7.69, which is significant at both the level as 0.5 level of confidence 2.02 and at 0.01 level of confidence is 2.69. Hence hypothesis 2 is accepted.

**Table No. 3 Mean, SD and t-values**

| Groups | N | Mean | SD | DM | SEdm | t | Significance |
|---|---|---|---|---|---|---|---|
| **Pretest** | 22 | 61.33 | 4.30 | 13.11 | 1.719 | 7.603 | At 0.01 Level 2.69 & At 0.05 Level 2.02 for df 42 |
| **Protest** | 22 | 74.40 | 5.30 | | | | |

Table -3 shows that t value is 7.603 which is significant at both the levels. Hence hypothesis 3 is rejected.

**Interpretation**

The Interpretation of the result obtained as follows.

1. The Conventional teaching method has positive impact on achievement of learners. In science discipline, because through teaching learning process they (learners) always gain knowledge, Comprehend concept and Grows gradually as the mean of post test is higher.
2. The innovative teaching method has also positive impact on the achievement of learners in Science discipline. It is due to the fact that innovative teaching enhances the knowledge, comprehension and developed through interaction as mean of post test is higher.
3. On the comparison of Conventional and innovative teaching methods, the mean of ITM is higher than CTM. It is clearly stated that gaining of knowledge and comprehension of concept and facts is more through innovative teaching method because in ITM the pupils become more active and receptivity increased in comparison to conventional teaching method.

## CONCLUSION

The conclusion of the study is that innovative teaching methods are more effective than conventional method. Through innovative teaching methods pupils learn more and become active during the interaction.

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