



Effectiveness of Inquiry Training Model for Teaching Science

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Abstract

This study investigated the effectiveness of Inquiry Training Model over traditional teaching method for Science at VI grade level. A total of 60 students participated in the study. The researcher selected the two randomized groups each comprising 30 students & were labelled as experimental group & Control group. Students in the experimental group was subjected to treatment using Inquiry Training Model while students in the control group were taught using the traditional method of teaching for Science. The pre test was administered to students in both the groups before teaching commenced. After the treatment a post test was administered. The data was analysed using t test. Result revealed a statistical significant effect of Inquiry Training Model over traditional teaching method on academic achievement of students.

Key words: *Inquiry training model, Traditional method, Science*

Introduction:

Globally there is an overwhelming concern over the quality and relevance of education. Undoubtedly, quality of school education is direct consequence and outcome of the quality of teachers and teacher – education system. Though the place of teaching science is at the top of hierarchy of different subjects, the researches in this area have been relatively scanty. The teaching of science in schools generally conforms to the traditional methods & continues to be dominated by teacher by making it as dull & uninspiring as ever before. If we observe traditional classroom teaching we find that either teacher is delivering information or one of the students is reading from the text book & others are silently following him in their own text books. Traditional teaching is simply chalk talk approach in which students remain passive

learners. Instruction is ill organized & rote learning is heavily emphasized. Mostly the results of students are not satisfactory due to the presence of this approach. The present study sought to compare the effectiveness of the inquiry model & the traditional method in the teaching science at VI grade level. Some of the available research material relevant to this study is reviewed below.

Inquiry is a term used in science teaching that refers to a way of questioning, seeking knowledge or information or finding out about phenomena. It involves investigation, searching, defining a problem, formulating hypothesis, gathering & interpreting data & arriving at a conclusion.

Inquiry model was propounded by Suchman. The basic philosophies behind this model are-

1. Pupils inquire naturally when they puzzled.
2. They can be conscious of & learn to analyse their thinking strategies
3. New strategies can be taught directly & added to pupils.
4. Co-operative inquiry helps pupils to learn about the tentative, emergent nature of knowledge and to appreciate alternative explanation.

Suchman provided a systematic structure within which the pupils have to ask questions regarding why event happen the way they do, to collect data & process it logically and to arrive at plausible cause effect relationships. The inquiry training begins by presenting a puzzling event, an problem or phenomenon when pupils encounter such a situation, they are motivated to solve the puzzle. Such situation can be used to teach systematic procedures inquiry.

Since the subject of science occupies an important place in the school curriculum there is need to probe the effectiveness of inquiry training model & traditional method. Hence the investigator selected two models of teaching to find out their relative effectiveness on students achievement..

Objectives:

The study was designed to realise the following objectives

- 1) To study the effectiveness of inquiry training model on academic achievement of students in science for class VI
- 2) To compare the academic achievement of students studying through inquiry training model & traditional method for teaching science.

Hypothesis:

The following hypotheses were generated for the study

- 1) There will be no significant effect of inquiry training model on academic achievement of students.
- 2) There will be no significant difference between the academic achievement of students studying through inquiry training model and traditional method for teaching science.

Sample:

For the present study sample of 60 students was drawn from VI grade students from two schools at Nagpur city of Maharashtra state, India . Both the schools were affiliated to Central Board of Secondary Education, New Delhi.

Data collection & analysis:

In present study the sample was selected using purposive random sampling technique Pre-test-Post-test Control group design was employed. The subjects were assigned to the experimental & control group by random procedure. The self developed criterion reference test was used as pre and post test to know the achievement of both the group. The control group was taught through traditional method of teaching where as experimental group was taught using Inquiry training model. After completion of unit the same criterion reference test was administered as post test. The t-test was used to test the significance of the difference between two means scores of the students on criterion reference test for achievement

Results:

Table 1 t-test analysis of the performance of students of Experimental group

Test	Number of students	Mean	Standard Deviation	t value
Pre test	30	10.98	4.19	7.076*
Post test	30	17.66	6.03	

* Significant at .01 level

The calculated value of mean of Pre test is 10.98 and Post test is 17.66. The calculated value of t is 7.076 which is significant at .01 level of significance

Table 2. The performance of students of control and experimental group on post test

Group	Number of students	Mean	Standard deviation	t value
Control group	30	13.08	4.54	4.70*
Experimental group	30	17.66	6.03	

* Significant at .01 level

The Table no 2 indicates that mean value mean of Post test of control group is 13.08 and experimental group is 17.66. The calculated value of 't' is 4.70 is significant at .01 level. The student of the experimental group achieved more score at Post test than control group. The comparison between the

groups revealed that the performance of Experimental group was better than that of Control group. Hence it proves the effectiveness of inquiry training model in terms of achievement

Discussion:

The analysis & results of this study showed that the Inquiry Training Model brings about a significant difference in the achievement of the experiments subjects in the experimental groups when compared with those exposed to traditional method of teaching. This might be due to interactivensess and friendliness that the inquiry method provides to the students. In the inquiry method the science teacher will create a situation in the classroom in which students are asked to formulate their own ideas state their opinion on an important issue or to find things themselves. The inquiry based learning encourages collaboration in some form either through small group or whole class evaluations. The inquiry based learning enhances the quality of learning and leads to cognitive development through students engagement with complex and novel problem, teaches students complex processes and procedures such as planning and communication and supports authentic inquiry and autonomous learning for students.

Conclusion:

The calculated value of 't' is 7.076 which is significant at .01 level. Hence the null hypothesis is rejected. The student of the experimental group achieved more score at Post test than pre test hence it proves the effectiveness of inquiry training model in terms of achievement of students on pre and post test.

The calculated value of 't' score is 4.70 which is significant at at .01 level. so null hypothesis is rejected. The student of the experimental group achieved more score at Post test than control group hence it proves the effectiveness of inquiry training model in terms of achievement. The developed Inquiry training model for teaching science to the students of standard VI has proved effective in term of achievement of students than the traditional method

Inquiry training model have significant effect on students cognitive affective development & rate of learning. It also contribute in increasing the learners aptitude for learning the subject than traditional approach

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