



Effectiveness of Inquiry Training Model on Achievement in Mathematics Subject of Class-IX

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Abstract:

For students of secondary school, mathematics is little boring and tough subject according to one belief. In present study, the researcher had constructed an inquiry training model for several units in mathematics subject for the students of standard 9. The researcher had chosen 80 students and divided them to experimental and controlled groups. The experimental group was treated with inquiry training model while controlled group was treated with traditional teaching method. It was revealed that the inquiry training model was more effective than traditional teaching method.

1. Introduction

Teaching is not everybody's cup of tea sip. It is an art and skill to be learnt. It requires the knowledge of subject content, method, techniques and teaching aids to be used for making teaching interesting and effective. The selection of these methods and techniques depend on nature of task, learning, objectives, learner abilities and students entering behavior.

Now days, numbers of efforts are made to identify teaching skill for teachers to teach different subjects. Cognitive, effective and psychomotor behavior must be developed in a balanced and integrated fashion and for that models of teaching have great potentiality for achieving this goal of education.

In present study the researcher had studied the effectiveness of Inquiry Training Model on achievement in mathematics subject of students of standard 9.

2. Definitions of Inquiry Training Model

According to Richard Suchmen(1977)

“Inquiry Training Model is a scientific process which is desired to bring through exercise that compress the scientific process in students for small periods of time.”

This model increased understands of Accor creative thinking and skill for obtaining and analyzing information in students for establishment of facts, build concept and explanation of theories. In this model the students are active learners involved in exploration, questioning, problem solving inductive reasoning, invention, labeling and discovery. The students who had cleared Higher Primary examination of class VIII and got admission in secondary school are called students of Class IX.

3. Variables of the study

1.Independent variables

A.Teaching Model

- Inquiry training model
- Traditional teaching method

B.Gender

- Boys
- Girls

2.Dependent variables

Scores obtained in post test.

4. Objectives

Objectives of the present study are as follows:

1. To study the effect of inquiry training model on achievement in mathematics subject of students of Class IX.
2. To study the effect of inquiry training model on achievement in mathematics subject of students of Class IX in context of gender.

5. Hypotheses

Hypotheses of present research are as follows:

- H₀1** There is no significant difference between mean scores of post-tests of students of experimental group and controlled group.
- H₀2** There is no significant difference between mean scores of post-tests of boys of experimental group and controlled.
- H₀3** There is no significant difference between mean scores of post-tests of girls of experimental group and controlled.

6. Limitations of the study

1. The present study was conducted in N.R. Higher Secondary school of Ahmedabad city.
2. The present study was performed on students of standard 9.
3. The present study was performed on English medium students.

7. Importance of the study

There are specific objectives behind every research work. The research should be useful for students, teachers and society. In present education system most of the teachers teaching their contents through simple lecture methods in which involvements of students is very low. Interaction and activation of students in such type of method is zero. Students only hear their teachers throughout lecture. Sometimes they are not allowed to ask any questions. In such condition students only mug the content what the teacher has taught.

- The present study would be very useful to the teachers as it would introduce a new and effective teaching strategy.
- The student would understand the importance of inquiry or asking questions to teachers.
- Students can develop their insight through inquiry training model.
- Mathematics is believed to be a tough subject but using inquiry training model, it could be easy to understand.

8. Research method

In present study the researcher had to check the effectiveness of inquiry training model on achievement in mathematics subject of students of standard 9. The researcher had created teaching materials on the basis of inquiry training model for some units of mathematics subject of standard 9. For this purpose, the researcher had chosen experimental research method.

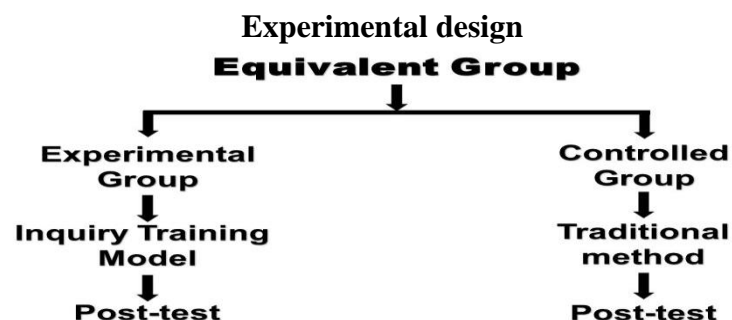


Figure 1.0: Experimental design

9. Sample of the study

For present study, the researcher had chosen experimental research method. The experimental design is mentioned above in figure 1.0. The researcher had chosen N. R. Higher Secondary School from Ahmedabad city to perform his study. He had chosen 80 students from this school. These students were divided in two different groups. One was experimental group and another was controlled group. Both groups were equivalent group having 40 students each. In experimental group, there were 24 boy and 16 girls and in controlled group there were 28 boys and 12 girls.

10. Research tool

There were two different research tools used by the researcher. Teaching tool and data collection tool.

- As teaching tool, the researcher had constructed inquiry training model for some units of mathematics subject for students of standard 9.
- For data collection, the researcher had constructed post-test in mathematics subject.

11. Data collection

As a data collection tool, the researcher had constructed a post-test which was an achievement test in mathematics subject for the students of standard 9. The test was having 50 marks. The test was given to both groups after completion of teaching with two different teaching strategies. The students were give 1 and a half hour to complete this test. Before giving the test, the students were given proper information about how to give the responses of test. After completion of test, the answer sheets were collected. The answer sheets were checked and scores were given against each answer sheet to the relative students. The scores were classified and tabulated and then analyzed using proper statistical methods.

12. Data analysis and interpretation

The researcher had constructed some hypotheses to be tested to reveal the results of the present study. The results of tested hypotheses are as follows.

H₀₁ There is no significant difference between mean scores of post-tests of students of experimental group and controlled group.

Table 1: Results of students of experimental group and controlled group

Group	N	Mean	SD	SED	T	Significance
Exp	40	19.95	7.7	1.67	7.68	0.01
Cont	40	12.28	7.72			

df	0.05	0.01
78	1.99	2.64

The mean score and standard deviation of experimental group are 19.95 and 7.7 respectively. The mean score and standard deviation of controlled group are 12.28 and 7.72 respectively. The standard error of deviation is 1.67. Calculated t value is 7.68.

For df=78, table t values are 1.99 and 2.64 at 0.05 and 0.01 levels respectively. Therefore, it is seen that calculated t value is higher than table t value at both the levels. Therefore, hypothesis is rejected and there is a significant difference between mean scores of experimental group and controlled group.

Moreover, mean score of students of experimental group is higher than that of controlled group. Therefore, it is said that inquiry training model is more effective that traditional teaching method on achievement in mathematics of students of standard 9.

H₀₂ There is no significant difference between mean scores of post-tests of boys of experimental group and controlled.

Table 2: Results of boys of experimental group and controlled group

Boys	N	Mean	SD	SED	T	Significance
Exp	24	18.79	7.63	1.97	3.50	0.01
Cont	28	11.89	6.37			

Df	0.05	0.01
50	2.01	2.68

The mean score and standard deviation of boys of experimental group are 18.79 and 7.63 respectively. The mean score and standard deviation of boys of controlled group are 11.89 and 6.37 respectively. The standard error of deviation is 1.97. Calculated t value is 3.50.

For df=50, table t values are 2.01 and 2.68 at 0.05 and 0.01 levels respectively. Therefore, it is seen that calculated t value is higher than table t value at both the levels. Therefore, hypothesis is rejected and there is a significant difference between mean scores of boys of experimental group and controlled group.

Moreover, mean score of boys of experimental group is higher than that of controlled group. Therefore, it is said that inquiry training model is more effective than that traditional teaching method on achievement in mathematics of boys of standard 9.

H₀₃ There is no significant difference between mean scores of post-tests of girls of experimental group and controlled.

Table 3: Results of girls of experimental group and controlled group

Girls	N	Mean	SD	SED	T	Significance
Exp	16	21.69	7.73	3.28	2.60	0.05
Cont	12	13.17	9.16			

Df	0.05	0.01
26	2.06	2.78

The mean score and standard deviation of girls of experimental group are 21.69 and 7.73 respectively. The mean score and standard deviation of girls of controlled group are 13.17 and 9.16 respectively. The standard error of deviation is 3.28. Calculated t value is 2.60.

For df=26, table t values are 2.06 and 2.78 at 0.05 and 0.01 levels respectively. Therefore, it is seen that calculated t value is higher than table t value at 0.05 and lower than table t value. Therefore, hypothesis is rejected and there is a significant difference between mean scores of girls of experimental group and controlled group.

Moreover, mean score of girls of experimental group is higher than that of controlled group. Therefore, it is said that inquiry training model is more effective than traditional teaching method on achievement in mathematics of girls of standard 9.

13. Findings

1. There was a significant difference between mean scores of students of experimental group and controlled group in post-test and mean score of students of experimental group is higher than that of controlled group. Therefore, it is said that inquiry training model is more effective than traditional teaching method.

2. Achievement of boys of experimental group is more than that of boys of controlled group in post-test.
3. Achievement of girls of experimental group is more than that of girls of controlled group in post-test.

14. Conclusion

In present study, the researcher had constructed inquiry training model for several units of mathematics subject of students of standard 9. The experimentation was performed on the students of N. R. Higher Secondary school. It was revealed that the inquiry training model was more effective on achievement in mathematics subject of students of standard 9.

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