



Construction and Try Out of Inquiry Training Model in Mathematics Subject for the Students of Standard 9

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Abstract:

In present study, the researcher had constructed Inquiry Training Model for several units of mathematics subject for the student of standard 9. The researcher had chosen 80 students as a sample from Ankur High School of Ahmedabad city. These students were divided in two different groups 40 in each. One group was experimental group and another was controlled group. Experimental group was treated with Inquiry Training Model and controlled group was treated with traditional teaching method. The results of post-test were compared using t-test. It was revealed that Inquiry training model was effective on boys but not as much effective on girls.

1. Introduction

What do you mean by teaching strategies? Teaching strategy is a generalized plan for a lesson; which includes structure, desire learners behavior in terms of goal of instruction and outline of planned tactics, necessary to implement the strategy. We all know autocratic style and permissive styles teaching strategy. From last two decades concept of model of teaching development in Western countries. The Greek philosopher used his own model question-answer. India ancient teachers developed the desirable change in the behaviors of the learner. These models prescribe different approaches to instructional process to bring changes in the behavior learning.

In mathematics some process skill are needed as observing, classifying and collecting data act as Prerequisites for integrated process usually taught in secondary schools like hypothesizing, controlling variables and defining operationally (Tobin and Capie, 1982) "Whether our focus in an classical education, the new maths or basics the ultimate goal of education has been to teach children to think critically and independently". Inquiry is an essential component of mathematics learning.

In present study, the researcher had constructed Inquiry Training Model for several units of mathematics for students of standard 9.

2. 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, and 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 standard 9.

3. Objectives

Objectives of the present study are as follows:

1. To construct Inquiry Training Model for several units in mathematics subject for the students of standard 9.

2. To study the effect of Inquiry Training Model on achievement in mathematics subject of students of standard 9.
3. To study the effect of Inquiry Training Model on achievement in mathematics subject of students of standard 9 in context of teaching method.
4. To study the effect of Inquiry Training Model on achievement in mathematics subject of students of standard 9 in context of gender.

4. Hypotheses

Hypotheses of present research are as follows:

- H₀₁** There is no significant difference between mean scores obtained in post-test of mathematics by students of experimental group and controlled group.
- H₀₂** There is no significant difference between mean scores obtained in post-test of mathematics by boys of experimental group and controlled group..
- H₀₃** There is no significant difference between mean scores obtained in post-test of mathematics by girls of experimental group and controlled group.

5. Limitations of the study

- 1.The present study was performed in Ankur High School of Ahmedabad city.
- 2.The present study was performed on the students of standard 9.
- 3.The researcher had constructed inquiry training model and post-test.

6. 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.

In inquiry training model the involvement and interaction of students are maximum. As the students are learning themselves by inquire information, they also satisfy their curiosity and thus their brain develops fruitfully. The major benefits of inquiry training model are as follows.

- This model nurture student passion and talents in a positive way.
- Inquiry training model empower students' voice and it also honor students' choice.
- This model motivates students to be engaged in educational activities.
- It fosters students' curiosity and love of learning.
- This model fortifies the importance of asking good questions.
- Inquiry training model enables students to take ownership of their learning and to reach their goals.
- This model solves the problems of tomorrow in the classrooms of today.

7. Inquiry Training Model

The researcher has constructed Inquiry Training Model for several units of mathematics subject of standard 9.

The researcher had chosen following units for this mode.

- Area of Parallelograms
- Volume of Cylinder
- Volume of Sphere
- Heron's Formula
- Volume of right circular Cone
- Volume of Cuboid
- Angle subtended by a Chord at a point

In inquiry training model the students inquire asking different questions and learn the topic.

8. Research method

There are different research methods to perform the study. In present study, the researcher had to check the effectiveness of a new teaching strategy with comparing it to traditional teaching strategy. The researcher had constructed Inquiry Training Model for several units of mathematics subject for the students of standard 9. The effectiveness of teaching through Inquiry Training Model would be compared with traditional teaching method. For this, the researcher had chosen experimental method to perform this study.

9. Experimental design

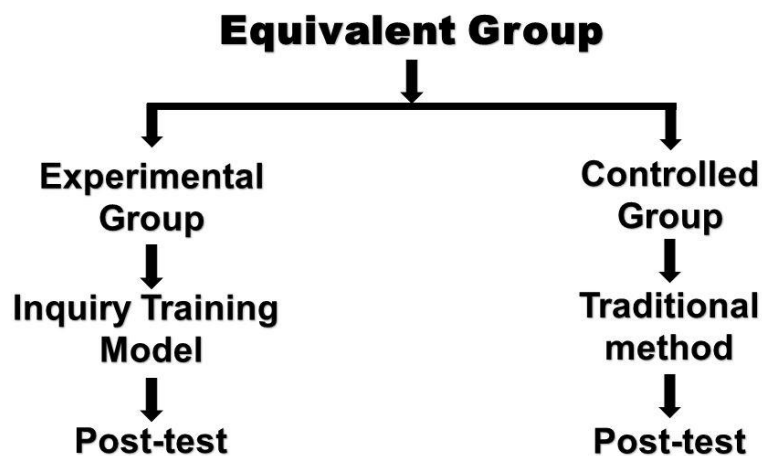


Figure 1.0: Experimental design

10. Sample of the study

In present study the researcher had chosen 80 students from Ankur High School, Ahmedabad as sample. These students were divided in two different equivalent groups. Experimental group and controlled group. In each group 40 students had been comprised. In experimental group, there were 25 boys and 15 girls and in controlled group, there were 32 boys and 8 girls.

11. Research tool

The researcher had used two different types of research tools for present study, teaching tool and data collection tool.

1. As teaching tool, Inquiry Training Model was constructed for several units of mathematics subject for the students of standard 9.
2. As a data collection, the researcher had constructed post-test in for chosen units of mathematics subject.

12. Data collection

For data collection, the researcher had a post-test on basis of preplanned blue print for chosen topic of mathematics subject. The post-test was given to both groups at the same time. Proper information regarding how to give responses was given before the post-test. The students were given 1 hour and 30 minutes was given to complete this test. After completion of test the answer sheets were collected and checked. The scores obtained by answer sheets were classified and tabulated.

13. Data analysis and interpretation

The researcher had constructed a post test in mathematics subject. The data was collected, classified and analyzed using statistical methods. The researcher had performed t-test to test the hypotheses. The results of analysis and interpretation are as follows.

H₀₁ There is no significant difference between mean scores obtained in post-test of mathematics by 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	39.60	8.89	2.02	2.79	0.01
Cont	40	30.98	9.17			

df	0.05	0.01
78	1.99	2.64

From above table it is seen that the mean scores of students of experimental group and controlled group are 39.60 and 30.98 respectively. Standard deviations are 8.89 and 9.17 and standard error of deviation is 2.02. Calculated t value is 2.79.

Table t value for df=78 are 1.99 and 2.64 at 0.05 and 0.01 levels respectively. Calculated t value is higher than table t value at both the levels. Therefore, it is said that hypothesis is rejected at 0.01 level and there is a significant difference between mean scores of post-test of students of experimental group and controlled group.

Mean score of students of experimental group is higher than the mean score of students of controlled group. Therefore, Inquiry Training Model is more effective than traditional teaching method.

H₀₂ There is no significant difference between mean scores obtained in post-test of mathematics by boys of experimental group and controlled group.

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

Boys	N	Mean	SD	SED	T	Significance
Exp	25	33.20	8.54	2.23	3.17	0.01
Cont	32	30.03	8.13			

Df	0.05	0.01
55	2.00	2.67

Mean score of boys of experimental group and controlled group are 33.20 and 30.03 respectively, standard deviation of boys of experimental group and controlled group are 8.54 and 8.13 and standard error of deviation is 2.23.

Calculated t-value is 3.17. For df=55, table t-values are 2.00 and 2.67 at 0.05 level and 0.01 level respectively. Calculated t-value is more than table t-value at 0.05 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 the boys of experimental group is more than that of boys of controlled group. Therefore, it is said that Inquiry Training Model is more effective than traditional teaching method on achievement in mathematics subject.

H₀₃ There is no significant difference between mean scores obtained in post-test of mathematics by girls of experimental group and controlled group.

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

Girls	N	Mean	SD	SED	T	Significance
Exp	15	42.27	6.32	4.70	1.60	NS
Cont	8	34.75	12.45			

df	0.05	0.01
21	2.08	2.83

Above table shows that mean of girls of experimental group and controlled group are 42.27 and 34.75 respectively, standard deviation of girls of experimental group and controlled group are 6.32 and 12.45 and standard error of deviation is 4.70.

Calculated t-value is 1.60. For $df=21$ table t-values are 2.08 and 2.83 at 0.05 level and 0.01 level respectively. Calculated t-value is less than table t-value at both levels. Therefore, hypothesis is not rejected and there is no significant difference between mean scores of post-test of girls of experimental group and controlled group. Therefore, it is said that Inquiry Training Model is not as effective as boys on achievement in mathematics subject.

14. Findings

1. It was found that Inquiry Training Model is more effective on achievement in mathematics subject of students of standard 9.
2. It was revealed that Inquiry Training Model is more effective on achievement in mathematics subject of boys of standard 9.
3. It was also surprisingly found that Inquiry Training Model is not as effective as boys on girls on achievement in mathematics subject of standard 9.

15. Conclusion

So, Inquiry Training Model is very active teaching strategy in which all students must took part actively in teaching learning process. The students inquired about problems aroused by teachers and to be solved them using acquired knowledge. In present study, the researcher had constructed Inquiry Training Model for several units of mathematics subject for the students of standard 9. The result revealed that it is very effective on boy but not as much effective on girls to solve mathematical problems.

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