A Comparative Study of the Effect of Teaching Geometry through Traditional Method and other Method on Educational Achievement of the students

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1. Introduction

Geometry, as a fundamental branch of mathematics, plays a crucial role in developing students' spatial reasoning skills and logical thinking abilities. Over the years, various teaching methods have been employed to impart geometric concepts to students, ranging from traditional chalk-and-talk approaches to more modern, interactive methodologies. This study aims to delve into the comparative effectiveness of teaching geometry through traditional methods against alternative approaches on the educational achievement of students. The significance of this research lies in its potential to shed light on which instructional techniques are most conducive to fostering students' understanding and proficiency in geometry. By comparing traditional teaching methods, which often emphasize rote memorization and procedural learning, with alternative methods that may incorporate visual aids, technology integration, or hands-on activities, we can discern which approach yields superior outcomes in terms of student learning and comprehension.

Furthermore, this study seeks to address the growing need for innovative pedagogical strategies in mathematics education. With the increasing emphasis on fostering critical thinking, problem-solving abilities, and real-world application of mathematical concepts, educators are continually exploring new ways to engage students and enhance their learning experiences. By evaluating the impact of different teaching methodologies on students' educational achievement in geometry, this research aims to provide valuable insights for educators, curriculum developers, and policymakers striving to optimize mathematics instruction in schools. Through a comprehensive examination of existing literature, empirical research, and practical classroom experiences, this study endeavours to contribute to the ongoing dialogue surrounding effective instructional practices in mathematics education. By identifying the strengths and limitations of various teaching methods, educators can make informed decisions about how best to facilitate students' learning and promote their success in geometry and beyond.

2. Objectives

1. To study the effect of experiments on the mathematics achievement of students of standard 9(First stage, second stage, totally)
2. To study genders effect on the student’s mathematics achievement of students of standard 9 (First stage, second stage, totally)
3. To study the effect of the area on the student’s mathematics achievement of students of standard 9(First stage, second stage, totally)

3. Population and sample

3.1 Population

There are 247 granted school and 33 non granted schools in Gandhinagar. Total number of schools are 280 in the present study. The population for the present study comprises of all the students of standard 9 studying in 280 Gujarati medium schools of Gandhinagar.

3.2 Sample

The Chiloda Siholi Group Secondary School, Chiloda, Dist. Gandhinagar from rural area and Sri Swaminarayan School, sector 20, Gandhinagar from urban are selected for the study. All standard_ 9 students of this two granted Guajarati medium school of Gandhinagar considered as sample for this study

4. Tools

In this study data were collected through the following tools.

1. Shri M. T. Patel Multitude Intelligence Test

This taste is constructed by Sri M.T. Patel for secondary level students

2. Mathematical Tool

In present study for practical work tool was used which was made up by Dr.Girabban Vora. It was related to Geometry.

1. Pre _test -post-test
2. Unit test -1 & 2 one and 2

5. Collection and Analysis of Data

About 200 students out of 235 students from 2 granted (urban and rural area) Guajarati medium schools, Gandhinagar gave Pre- test and M. T. Patel group test. Two equal groups are formed according to obtained mark of the students by intelligence test. Thus, two groups formed practical group and controlled group. Different educational methods are provided to the experimental group. Here Cycled practical method used.

So, that the students of standard -9A are after controlled group and the students of standard -9B was experimental group for Unit test_1 after first stage.

For second stage, the researcher selected students of standard -9A for experimental group and students of standard- 9B for controlled group for unit test 2. Finally all the four classes gave test after teaching and note out the results. Two equal groups are formed statically analysis of obtained data of the students. The influence of teaching method, gender of the students and area and their interaction are checked. In this study data were analysed with the help of ANOVA and ANCOVA. Level of the significance of the optional study checked by using t- table and F-table for t-value and F-value from that NULL hypothesis were checked.

At the end, in related to objectives Hypothesis are excepted or rerejected. Hypothesis were analysed and got finding.

Level of significance of the finding were found at the 0.05 and 0.01 level basis on that hypothesis were accepted or not accepted

Main rejected hypothesis was found that here is no effect of gender on educational achievement of the students learned by other teaching method.

6. Research Method

Present research study has been conducted by experimental method based on two similar groups of Post achievement test.

7. Findings

In the end of the first-round experiments analysis

1. After the end of first round experiment, the experiment group students got more marks in unit test than the controlled group.
2. The boys of the experiment group got more marks than the boys of controlled group in first unit.
3. In the first unit the girls of the experimental group got more marks than the control group.

4. In rural area the experimental groups got more marks than the controlled group in the unit test-1.
5. In urban area, the experimental group got more marks than the controlled group in unit-1.
6. The students of the experimental group from urban area got marks in the unit test-1 more than the students of the controlled group from the rural
7. There is no difference in marks in first unit between the boys and girls from the experimental group.
8. Analysis of the second-round experiment
9. After the end of the second round of the students of the experimental group got more marks in the unit test- 2 than students of the controlled group.
10. The boys of the experimental group got more marks than the controlled group in unit test-2
11. The girls of the experimental group got more marks than the girls of controlled group in unit test-2
12. The students of the experimental group from rural area got good marks in unit test -2 in comparison to controlled group of rural area.
13. The students of the experimental group from the urban area got good marks in unit test-2 in comparison to controlled group of urban area.
14. There is no difference average marks of students of rural and urban area in unit test-2.
15. There is no difference average mark of experimental group boys and girls in unit test -2.

8. Analysis of the whole experiment

1. After the end of the whole experiment the students of the experimental group got more marks in unit test _1&2.
2. The boys of the experimental group got more marks than the controlled group in unit test 1&2.
3. The girls of the experimental group got more marks than the girls of the controlled group in unit test 1&2.
4. The students of the experimental group from rural area got good marks in unit test 1&2 in comparison to controlled group of rural area.
5. The students of the experimental group and traditional group from the urban area got good marks in unit test 1&2
6. The students of the urban area got good marks more than the students of rural area in unit test 1&2
7. There may be no difference in average marks of experimental groups boys and girls in unit test 1&2
8. The analysis of effect of experiment on pre- test and post -test
9. The students of experimental group got pre-test marks more than post-test marks in comparison to the students of the controlled group.
10. The boys of experimental group got more marks in post test rather than pre -test in comparison to the boy of the controlled group.
11. The girls of the experimental group got more marks than the girls of the controlled group in post test than the pre-test.
12. The students of the experimental and traditional group of rural area got good marks in post test more than pre test
13. There is no difference in average mark in pre test and post test of the urban area students of the experimental and controlled group.
14. The students of the experimental group from rural and urban area got marks in post test more than pre test
15. The boys and girls of the experimental group got marks in post test more than in pre test.

9. Conclusion

The present study aimed to effect of teaching geometry through traditional method and other method on the educational achievement of the students. From the finding we come to know that other method is more effective for teaching of geometry. The study proved that teaching by other method prove as a treasurer and worthy so other method in teaching learning process to be processed and implemented.

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