



Effectiveness of Short Techniques in the Teaching of Mathematics

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1. Introduction

Education is the integral part of one's life. Education teaches the human being how to live life and how to be happy in life. In the teaching learning process child is at the Centre and the teacher is just facilitator, guide. But in the present education system, teachers are at the Centre and students are taught using normal methods. Sometimes students are getting bored by this normal method and so many students are giving disrespect to Mathematics and they don't have interest in Mathematics subject just only due to the Conventional Mathematics teaching in classroom. So there is need of using different methods in classroom which can boost the interest of the students in Mathematics. Whole Teaching-Learning Material Mathematics is one method of teaching Mathematics which makes the teaching of Mathematics interesting and will boost the interest of the students.

2. Statement of the Problem

The title of the present study was verbalized as:

EFFECTIVENESS OF SHORT TECHNIQUES IN THE TEACHING OF MATHEMATICS

3. Objectives of the study

The following are the objectives of the study. These objectives are divided into two sections.

1. To study the text book of Mathematics of class-VI of Gujarati Medium School prescribed by Govt. of Gujarat, in order to select for Teaching Mathematics through Conventional Mathematical Techniques and Learning with Special Technique in the teaching of Mathematics.
2. To prepare teaching material accordingly plan of teaching Mathematics and to develop for Conventional Mathematical Techniques and gets its significance by experts.
3. To prepare teaching material accordingly plan of teaching Mathematics and to develop for Learning with Special Technique in the teaching of Mathematics and gets its significance by experts.
4. To prepare the test to measure achievement in Mathematics.
5. To study the effectiveness of learning through Conventional Mathematical Techniques and Learning with Special Technique in the teaching of Mathematics in relation to Mathematics in teaching Mathematics among the students at class-VI.

4. Operational Definition of terms

4.1 Effectiveness

The UNESCO definition of Effectiveness (educational) is: An output of specific review/analyses (*e.g.*, the *WASC Educational Effectiveness Review* or its *Reports on Institutional Effectiveness*) that measure (the quality of) the achievement of a specific educational goal or the degree to which a higher education institution can be expected to achieve specific requirements.

In the present study effectiveness implies the impact measured by student achievement in Mathematics with reference to Teaching-Learning Material Mathematical teaching approach.

5. Conventional Mathematical Techniques

Conventional Mathematics technique means the present teaching of mathematics in the classroom by the teacher as the traditional method of teaching in the classroom i.e. oral work, drill work, written work, assignment technique, programme learning, computer assisted instruction technique.

6. Experimental Group

Group of students taught through Learning with Special Technique in the teaching of Mathematics experiment considered as experimental group.

7. Control Group

Group of students taught through conventional teaching method during experiment was considered as control group.

8. Mathematics Achievement

Score on Mathematics achievement test developed by Investigator, was considered as the Mathematics achievement.

9. Achievement Test

After the teaching work of six unit of Mathematics subject for Standard VIII has been accomplished a teacher-made-test on related content was administrated in order to ascertain the effect of Learning with Special Technique in the teaching of Mathematics. This achievement test was of 60 marks contains objective as well as subjective type of items. Here, achievement test was considered as Post-test.

10. Questionnaire

In the present study researcher has constructed the Questionnaire to know the opinion of the students of experimental group on the developed Learning with Special Technique in the teaching of Mathematics. After the treatment through Learning with Special Technique in the teaching of Mathematics to the students of experimental group, the feelings and experience of a student's were collected. These reaction and experience of the students during experiment were termed as opinion.

11. Variables of the Study

Variables are the conditions or characteristics that the experimenter manipulates, controls or observes. The following variables were considered in the present study.

12. Independent Variables

The independent variables are the conditions or characteristics that the experimenter manipulates or controls in his attempt to certain their relationship to observed phenomena. In the present study, the investigator wanted to measure the effect of Conventional Mathematical Techniques, Learning with Special Technique in the teaching of Mathematics and Gender on students' achievement in Mathematics. So the following independent variables were considered for the present study.

- Conventional Mathematical Techniques
- Learning with Special Technique in the teaching of Mathematics
- Gender: Male and Female
- Habitat: Urban and rural

13. Hypotheses

Ho₁ There will be no significant difference between mean scores among the total sample students of class-VI after learning through Conventional Mathematical Techniques and Learning with Special Technique in the teaching of Mathematics in relation to Mathematics.

- Ho₂** There will be no significant difference between mean scores among the total sample of male students of class-VI after learning through Conventional Mathematical Techniques and Learning with Special Technique in the teaching of Mathematics in relation to Mathematics.
- Ho₃** There will be no significant difference between mean scores among the total sample of female students of class-VI after learning through Conventional Mathematical Techniques and Learning with Special Technique in the teaching of Mathematics in relation to Mathematics.
- Ho₄** There will be no significant difference between mean scores among the total sample of rural students of class-VI after learning through Conventional Mathematical Techniques and Learning with Special Technique in the teaching of Mathematics in relation to Mathematics.

14. Limitations of the study

- The research tool developed by the researcher herself.
- The nature of present research work is being experimental in nature is restricted only to Visnagar Taluka of Gujarat State.

15. Research Methodology and nature of the Study

Research design is an important part of research. The choice of research design depends upon purpose of the study, the resources available and the kind of data that the problem entails. Post-test Experimental research design is preferred when the researcher wants to observe the effects of independent variables on the dependent variable within certain controlled situations. In the present study the researcher has used post-test experimental research method.

Experimental method provides much control and therefore, establishes a systematic and logical association between manipulated factors and observed effects. The researcher defines a problem and proposes a tentative answer or hypotheses. The researcher tests the hypotheses and accepts or rejects it in the light of the controlled variable relationship that he has observed. (Post-test Non Equivalent True Experimental Control Group Design)

True – experimental designs are used in experimental situations in which it is not possible for the experimenter to assign subjects randomly to groups or exercise full control over the scheduling of experimental conditions. This design is often used where experimental and control groups are naturally assembled groups as intact classes which may be similar.

Analysis of co-variance is used to compensate for the lack of equivalency between the groups. The researcher discussed with different subject experts and with the research experts about the design of the study. One experimental and one control group only posttest design can be diagrammed.

16. Population of the study

“Population is the aggregate of all units possessing certain specified characteristics on which the sample seeks to draw inferences”. All the students of VIII standard of Gujarati Medium Secondary Schools of Visnagar City for the academic year 2016-2017 following the text Board syllabus constitutes the population for the present study.

17. Sample of the study

“The representative proportion of the population is called a sample”.

A sample is a small proportion of a population selected for observation and analysis. By observing the characteristics of the sample, one can make certain inferences about the characteristics of the population from which it is drawn.

The present study was experimental in nature. Researcher purposively selected Secondary School, Visnagar for control group. In the present study, from the available different sampling methods, the researcher has selected the following sampling methods:

1. Purposive Sampling
2. Random Sampling

From the above two methods of sample selection, samples were selected easily from the population.

18. Research Tools

18.1 Mathematics Achievement

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18.3 Questionnaire

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19. Data Analysis and Interpretation

The analysis of data was done by applying the following statistical techniques mean, standard deviation and t-test and Chi-Square test. Graphical representation of data was done as an aid to the understanding of phenomenon under study. The Teacher Made Test was administered as posttest and the data was collected as per the scoring key. Raw scores obtained from posttest were presented in tabular form for the purpose of interpretation. Mean, SD, F – test and ANOVA was counted for each group. Significant of difference between the mean scores of two groups were tested at 0.05 and 0.01 level and found out applying ANCOVA test.

20. Findings of the Study

Major findings of the study are as follows.

20.1 Major findings with reference to post-test of the experiment

1. Mean score of Learning with Special Technique in the teaching of Mathematics in relation to Mathematics found significant on the sample of total students. Thus, it has been observed that the mean score of the Experimental group of Learning with Special Technique in the teaching of Mathematics in relation to Mathematics were found significantly higher than the control group on the sample of total students.
2. Mean score of Learning with Special Technique in the teaching of Mathematics in relation to Mathematics found significant on the sample of total male students. Thus, it has been observed that the mean score of the Experimental group of Learning with Special Technique in the teaching of Mathematics in relation to Mathematics were found significantly higher than the control group on the sample of total male students.

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