

Effectiveness of Vedic Mathematics in Learning Subtraction at Standard IV

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Abstract

The study enlightens the effectiveness of Vedic Mathematics in learning Subtraction at standard IV.

Objectives of the study: [i] To find out the significant difference in achievement mean score between Pretest of Controlled group and Posttest of Controlled group. [ii] To find out the significant difference in achievement mean score between Pretest of Experimental group and Posttest of Experimental group. [iii] To find out the significant difference in achievement mean score between Posttest of Controlled group and Posttest of Experimental group. **Methodology:** Parallel group experimental method. **Samples:** Twenty four pupils studying in standard IV from Government Primary School, Kalveerampalayam, Coimbatore. Twelve students were considered as Controlled group and another twelve students were considered as Experimental group. **Tool:** Researcher's self-made Achievement test. **Reliability of the tool:** The reliability of the tool was calculated by split-half method and the calculated reliability value was 0.72. **Procedure of the study:** [i] Identification of the problem by administering a Pretest for both the group [ii] Teaching and learning activities through Vedic method and Conventional method. [iii] Administering Posttest. **Findings:** [i] There is no significant difference in achievement mean score between the Pretest of Controlled group and Posttest of Controlled group. [ii] There is a significant difference in achievement mean score between the Pretest of Experimental group and Posttest of Experimental group. [iii] There is a significant difference in achievement mean score between the Posttest of Controlled group and Posttest of Experimental group.

Keywords: Vedic method, Conventional method, Subtraction, Achievement.

Introduction

Mathematics is highly useful for explaining fundamental building blocks of daily life, from the pattern of cloth purchasing to calculate the distances of orbits from their respective planet. In today's rapidly changing world, it cannot be denied that for an individual to be competent in mathematics. The four fundamental operations - Addition, Subtraction, Multiplication and Division, and their relations are basic mathematical concepts to be taught at primary education level. Acquisition of those four basic operations and their relations enables students to develop their understanding for numbers and calculating strategies as well as associating them with daily life problems. In the primary level, the basic operations such as Addition, Subtraction, Multiplication and Divisions are most essential for an individual. It is sometimes difficult for the pupil those are in primary level to appreciate the importance of those four basic operation. Among basic operations,

Subtraction is considered a difficult mathematical operation. All pupils must acquire the skills of Subtraction so that they would be able to use Subtraction when they are faced with a situation that demands it. Hence, the researcher used Vedic method to develop the pupils' computation skill in Subtraction.

Need for the study

The main goal of mathematics education in primary school is joyful learning of mathematics. The children should learn to enjoy mathematics rather than avoid it. They should pose and solve meaningful problem with out errors. At primary level, it is important that the four basic operations in Arithmetic are to be familiarized. In Conventional method of teaching, pupils commit mistake in Subtraction with or without regrouping. Hence, the researcher used "Vedic method" for Subtraction to improve their computation skill without errors.

Objectives of the study

- To find out the significant difference in Achievement in Mathematics between Pretest of Controlled group and Posttest of Controlled group.
- To find out the significant difference in Achievement in Mathematics between Pretest of Experimental group and Posttest of Experimental group.
- To find out the significant difference in Achievement in Mathematics between Posttest of Controlled group and Posttest of Experimental group.

Hypotheses of the study

- There is no significant difference in Achievement in Mathematics between Pretest of Controlled group and Posttest of Controlled group.
- There is no significant difference in Achievement in Mathematics between Pretest of Experimental group and Posttest of Experimental group.
- There is no significant difference in Achievement in Mathematics between Posttest of Controlled group and Posttest of Experimental group.

Variables

The independent variable is Vedic method and the dependent variable is Achievement score.

Delimitations of the study

The responsibility of the researcher is to see that the study is conducted with maximum care in order to be reliable. However, the following delimitations could not be avoided in the present study. [i] The study is confined to 24 students of standard IV studying in Government Primary School, Kalveerampalayam, Coimbatore. [ii] The study is confined to learning Subtraction of two and three digit numbers only.

Methodology**Method**

Parallel group experimental method was adopted in the study.

Samples

A sample of 24 Students of standard IV, studying in the Government primary school, Kalveerampalayam in Coimbatore District was selected by simple random sampling technique. 12 students were considered as Controlled group and another 12 students were considered as Experimental group.

Tools

Researcher's self made Achievement test was used as a tool for the study. The achievement test consisted of 8 questions in subtraction.

Reliability and validity of tool

The reliability of the tool was found 0.72 at 0.01 significant level by split half method. The validity of the tool was established by juries' opinion. Hence the reliability and validity of the tool were established.

Procedure of the study

- Pre-test was conducted for the students in Subtraction. It contained 8 questions. Marks in the pre-test were awarded for correct working and correct final answers.
- According to the marks scored by the pupils, the pupils were grouped into two equal groups such as controlled group and experimental group.
- The next stage was the teaching and learning session. It consisted 4 hour sessions (one hour per day) and a one hour session for revision.
- Controlled group students were taught Subtraction by Conventional method and Experimental group students were taught Subtraction by Vedic method.
- Post-test was conducted after the teaching and learning sessions. Marks in the Posttest were awarded for correct working and correct final answers.

Statistical Technique

Spearman correlation coefficient and t-test were used to analyze the study.

Analysis

Hypothesis 1

There is no significant difference in Achievement mean score between the Pretest of Controlled group and Posttest of Controlled group in learning Subtraction.

Table 1 Showing achievement mean score between Pretest of Controlled group and Posttest of Controlled group.

Group	N	Mean	S.D	df	t-value	Significance
Pretest	12	2.500	2.393	11	1.662	Not significant
Post test	12	3.917	1.730			

It is evident from the above table that the calculated t-value 1.662 is less than the tabulated t-value 2.201. Null hypothesis is accepted at 0.05 level. Hence, there is no significant difference in achievement mean score between Pretest of Controlled group and Posttest of Controlled group in learning Subtraction. The students' achievement scores in Subtraction is not statistically increased by "Conventional method".

Hypothesis 2

There is no significant difference in achievement mean score between Pretest of Experimental group and Posttest of Experimental group in learning Subtraction.

Table 2 Showing achievement mean score between Pretest of Experimental group and Posttest of Experimental group.

Group	N	Mean	S.D	df	t-value	Significance
Pretest	12	2.750	2.301	11	6.642	Significant at 0.05 level
Posttest	12	7.417	0.793			

It is evident from the above table that the calculated t-value 6.642 is greater than the tabulated t-value 2.201. Null hypothesis is rejected at 0.05 level. Hence, there is a significant difference in achievement mean score between Pretest of Experimental group and Posttest of Experimental group in learning Subtraction. The students' achievement scores in Subtraction is increased by "Vedic method".

Hypothesis 3

There is no significant difference in achievement mean score between Posttest of Controlled group and Posttest of Experimental group in learning Subtraction

Table 3 Showing achievement mean score between Posttest of Controlled group and Posttest of Experimental group.

Group	N	Mean	S.D	df	t-value	Significance
Posttest of Controlled group	12	3.917	1.730	22	6.371	Significant at 0.05 level
Posttest of Experimental group	12	7.417	0.793			

It is evident from the above table that the calculated t-value 6.371 is greater than the tabulated t-value 2.074. Null hypothesis is rejected at 0.05 level. Hence, there is a significant difference in achievement mean score between Posttest of Controlled group and Posttest of Experimental group in learning Subtraction. The students' achievement scores in Subtraction is increased by "Vedic method" than by "Conventional method"

Findings

- There is no significant difference in achievement mean score between the Pretest of Controlled group and Posttest of Controlled group.
- There is a significant difference in achievement mean score between the Pretest of Experimental group and Posttest of Experimental group.
- There is a significant difference in achievement mean score between the Posttest of Controlled group and Posttest of Experimental group.

Educational Implications

- The Vedic mathematics can be used for teaching Arithmetic, Algebra, Geometry and Calculus and it can be extended to primary level, secondary level and higher secondary level.
- Slow learners can be improved by using Vedic Mathematics.

Conclusion

The result of the study reveals that learning through Vedic method helped to improve the achievement of students in the Subtraction. Vedic Mathematics is certainly more integrated, more efficient and more fun than Conventional Mathematics. Hence it is important that introducing Vedic method in teaching of Arithmetic at primary level. These types of innovative methods may overcome the difficulties faced by the learners in Mathematics and on future the Mathematics class may become an attractive one. Further research is needed to scientifically compare the effects of Vedic method in teaching other three basic operations such as Addition, Multiplication and Division.

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