

## EFFECT OF VEDIC MATHEMATICS ON STUDENTS' ACHIEVEMENT

**Sujata Ramteke**

Research Scholar, Gondwana University, Gadchiroli

**Rajshree Vaishnav**

Professor and Head, PG Dept of Education,  
RTM Nagpur University, Nagpur.

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### Abstract

*Vedic mathematics is the name given to the ancient system of Indian mathematics mentioned in ancient Vedic literature. The purpose of the present study is to study the effectiveness of the Vedic mathematics in terms of achievement for teaching mathematics. A sample of 200 students studying at Mahatma Gandhi centennial Sindhu High School and Omkarlal Sindhu High School, Nagpur were selected randomly and divided into two groups namely experimental and control group. The students of experimental group were taught through Vedic mathematics where as the control group were taught through traditional method of teaching. The pre and post test mean achievement score was compared using t-test. It is found that the student taught through Vedic mathematics performed better than the students taught through traditional method for mathematics.*

**Keywords:** Effectiveness, Vedic mathematics, Achievement

Mathematics touches our life at every point everyone uses some form of mathematics directly or indirectly in his daily life. Mathematics plays a predominant role in our life and it has become an important factor for the progress of our present day world. Mathematics plays an important role in the proper organization and maintenance of social institution such as banks, co-operatives, railways, post office, transport, companies, navigation industries etc. Napoleon has rightly said, "The progress and the improvement of mathematics are linked with the prosperity of the state. Mathematics is a science of number, magnitude, space, measurement, logical reasoning. It helps to develop self confidence, reasoning, logical and critical thinking ability, self reliance, sense of appreciation, scientific attitude. It develops the ability of induction, deduction, analysis, synthesis and generalization. i.e. "Mathematics is the soul of all sciences".

**Origin of Vedic mathematics:** Vedic mathematics is the name given to the ancient system of Indian mathematics mentioned in the ancient Indian Vedic literature. It was rediscovered by Sri Bharati Krishna Tirthaji Maharaja from the sacred Veda during 1911 to 1918. This system has a unique technique of calculations based on sixteen sutra and thirteen upa-sutra or sub-sutra. In Sanskrit the ancient language of India, the term sutra means thread of knowledge or word formula. This sutra and upa sutra are simple one line formulae written in Sanskrit which are easy to remember.

**Advantages of Vedic mathematics:** Vedic mathematics enables faster calculation as compared to the conventional methods. It increases mental alertness and sharpens the mind. The techniques are simple and straight forward. Vedic mathematics increase concentration and self confidence. The easy methods remove the fear of mathematics. It reduces finger counting and dependence on calculator. It is a method for cross checking of solutions.

### Rationale of study

Vedic mathematics is a unique concept. It enables faster calculation when compared to the traditional method thus the time that gets saved in this process can be used to

answer more questions. Vedic mathematics helps in speed and accuracy in solving numerical, there by preparing school children to overcome the fear of maths. It is a mental tool for calculation that encourages the development and use of intuition an innovation, while giving the student a lot of flexibility fun and satisfaction. Therefore it is direct and easy to implement in schools.

### Objectives

To study the effectiveness of Vedic mathematics in terms of achievement of class 9th students for teaching mathematics; To compare the mean pre and post test mean achievement scores of students of class 9<sup>th</sup> for the subject mathematics studying through Vedic mathematics; To compare the post test mean achievement scores of students of class 9<sup>th</sup> taught through Vedic mathematic with those taught through traditional method for subject mathematics.

### Hypothesis

There will be no significant difference between pre and post test mean achievement score of class 9<sup>th</sup> students for subject mathematics taught through Vedic mathematics; There will be no significant difference between the post test mean achievement score of class 9<sup>th</sup> students for subject mathematics taught through Vedic mathematics with those taught through traditional method.

### Design of the study

Present study was experimental in nature. Pre-test post-test non equivalent group design was used for the study. Random sampling techniques were used for the selection of the sample. 200 students studying in two different schools namely Mahatma Gandhi Centennial Sindhu high school and Omkarlal Sindhu high school, Nagpur were selected randomly and divided in to two groups namely experimental and control group. The students of experimental group were taught through Vedic mathematics where as the control group were taught through traditional method of teaching. The number of student in each group was 100. The concept of roots and square roots was used. Self prepared criterion reference test for the subject mathematics was used as pre and post test for both the groups.

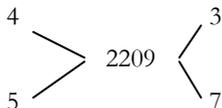
Formula of Vedic mathematics: Vedic mathematics system is used for teaching the concept of calculation of square and square roots for example numbers ending with digit 1 like 81, 21 we apply formula  $(a+b)^2 = a^2 + 2ab + b^2$ . here  $a=8, b=1$  than calculate  $A^2 = 8^2 = 64$ ,  $2ab = 2*8*1 = 16$ ,  $b^2 = 1^2 = 1$

$(a+b)^2 =$	$a^2$	$2ab$	$b^2$
$(8+1)^2$	$8^2$	$2*8*1$	$1^2$
	64	16	1
	6561		

For teaching square roots the no. are sequenced as

1.	$1^2=1$
2.	$2^2=4$
3.	$3^2=9$
4.	$4^2=16$
5.	$5^2=25$
6.	$6^2=36$
7.	$7^2=49$
8.	$8^2=64$
9.	$9^2=81$
10.	$10^2=100$

To calculate square root of 2209 we pair it like 22 and 09 the unit no is 9 which comes in the table at 3 and 7 no. place the other pair 22 comes between  $4^2$  and  $5^2$  now  $4 \times 5 = 20$  but no 22 is greater hence answer is 47



Procedure of the data collection: The self prepared criterion reference test CRT was given to the students of both the groups as pre test. The experimental group was taught through Vedic mathematics sutra for teaching the concept of roots and square roots where as control group was taught through traditional method. After completion of units the same CRT was used as post test. The mean pre and post achievement score of experimental group and post test score of experimental and control group was compared using t test.

**Table 1 Pre and post achievement score of Experimental group**

Test	N	Mean	S.D	t
Pre	100	11.18	2.409	5.968*
Post	100	13.09	2.182	

The calculate t value is greater than 0.01 and 0.05 level. It indicated that there is a significant difference the mean score of Pre and post test scores of Vedic Maths so the null hypothesis is rejected. Thus it could be said that Vedic mathematics is more effective method .there was a considerable positive change in the results of students through Vedic method of teaching .students have shown the positive attitude and interest towards the subject when taught through Vedic method .The teaching of Vedic math's is beneficial for the students in improving their achievement in mathematics it save calculation time during examination.

Hypothesis 2: There will be no significant difference between the post scores of students to be taught through Vedic mathematics and conventional method.

**Table 2 Post test score of Experimental and Control group**

Group	N	Mean	S.D	t
Control group	100	9.67	2.121	8.133*
Experimental group	100	12.11	2.167	

The calculate t value is greater than 0.01 and 0.05 level. It indicated that there is a significant difference the mean score of experimental group and control group of post test so the null hypothesis is rejected. Thus it could be said that Vedic method of teaching is more effective than the traditional method for teaching mathematics. Students of experimental group were performed better than that of students of control group in subject of mathematics. The students taught through Vedic mathematics performed significantly better than the students taught through traditional method for subject mathematics.

**Educational Implication:** Vedic mathematics emphasizes, meaningful learning than mechanical learning. Finding answer through Vedic mathematics may help to reduce the student's anxiety level. It increases concentration, as it encourages the mental calculations. This method develops better understanding among students and teachers. Vedic mathematics endures creativity among intelligent pupil, while helping the slow, learners to grasp the basic concepts of mathematics. Students can be motivated to the learn mathematics interestingly if the Vedic system of mathematics

will be included into our curriculum. Mathematics can be learnt and mastered with minimum effort in a very short span of time and can be translated into a playful and a blissful subject with the help of Vedic mathematics.

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