

CURRENT UTILITY OF ANCIENT MATHEMATICS

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ABSTRACT: Mathematics is indispensable in all aspects of life. In the Indian context, mathematics is referred to a 'GANITHA'. The Shastras do not give any propositions but give the rules and procedures for calculations. Mathematics has its own special importance in today's scientific age, but nowadays the student's disinterests in mathematics and lack of their skill is reflected. If the simplified methods of ancient Vedic mathematics are included in the syllabus in place of general mathematics then students will be able to study mathematics with fun, the study presented is an effort in this direction.

Keywords: Vedic Mathematics, Ganitha, Shastras, Scientific.

INTRODUCTION

Vedic Mathematics is a collection of ancient tricks and techniques to execute arithmetic operations quickly and more efficiently. Vedic Math comes from the Vedas, more specifically the Atharva Veda. It was revived by Indian Mathematician Jagadguru Shri Bharati Krishna Tirthaji between 1911 and 1918. He published this work in a book called Vedic Mathematics in 1965. It comprises 16 sutras (formulae) and 13 sub sutras.

Vedic mathematics is a gift of Krishna Tirthaji ; it is a collection of invaluable techniques that can profoundly improve our speed, understanding, and performance in mathematics and other sciences. Vedic Math is not getting its due importance; it is a fantastic method. Vedic Math is a great technique to master calculations, being more efficient and accurate. Practicing Vedic math for 30 to 45 minutes a day will do wonders for anyone looking to better their abilities. Enhance your mental calculation.

Vedic Math is an ancient technique that simplifies multiplication, divisibility, complex numbers, squaring, cubing, square roots, cube roots, recurring decimals, and auxiliary fractions.

Mathematic curriculum

A meaningful connection should be established between our Indian culture and mathematics. Mathematics history of our culture should be integrated in the mathematics books from the primary level of education. At secondary and senior secondary levels, contribution of the other nation mathematics should be included. Relate the mathematics usage with the real life problems of the students. Ancient Indian mathematics should be introduced in our mathematics curriculum. Mathematics curriculum needs to be culturally relevant. Mathematics curriculum needs for skill development, to calculate, for future prospects, to develop logical thinking, in all sciences. The state of Mathematics in Education Policies:

1. Gandhiji include math in basic education in 1937
2. According to the National Education policy 1968 NCERT has adopted its curriculum for 10 years school
3. National education policy 1986.
4. Document of national curriculum 2005
5. New education

Benefits of Vedic Mathematics

Vedic math's provides answers in one line, as opposed to the several steps of traditional mathematics. There are six Vedanganas. The Jyotish Shastra is one of the six. Vedic Math forms part of this Jyotish Shastra. Vedic math consists of 3 segments or 'skandas' (branches). The beauty of Vedic Math lies in its simplicity; all calculations can be done on pen and paper. The approach to solve problems stimulates and sharpens the mind, memory, and focus. It improves creativity and promotes innovation.

Vedic Math is elementary and can be comprehended easily. Once a student begins to understand the basic concepts, they can get creative with their approach. Consequently, their understanding improves. It is flexible and applies to students of all ages. Using Vedic Math in competitive exams may give students an edge over the others.

Vedic Math has the following benefits:

- Makes elementary calculation 10-15 times faster
- Helps in accurate guessing
- Useful for all classes
- Reduces burden (need to learn tables up to 9 only)
- A magical tool to reduce finger counting and rough work
- Increases concentration
- Helps in reducing silly mistake

Reasons for lack of interest in mathematics

Extreme lack of basic knowledge, fall short of practice, some types of intelligence are required to understand some arguments, encourage the rote method from the current system, lack of supporting material, lack of social, economic and family mental peace, lack of full knowledge and effective language in teachers.

Reason of problem selection

The following challenges are in our country in the coming 20-30 years

1. Production of Petroleum products according to increasing demand in India
2. Facing the consequences of global warming and solving problems
3. End the ill effects of the global economy
4. Utilizing Natural resources
5. Impact of change in our country's population

Science and mathematics will be required to solve the above challenges.

OBJECTIVE OF THE STUDY

The aim of the study is to be solving student's mathematical problems. The method of teaching of current mathematics has to be analyzed in a simple and easy manner, to free the students from the fear of mathematics. Thousands of students leave the exam for fear of passing in mathematics. Therefore, to solve such problems at present new system of mathematics have to be studied.

What is the Vedic Mathematics?

Vedic mathematics had already started from Vedic period, but its existence is believed to be from the 20th century, in the 20th century there was a special interest in the Sanskrit text in European countries. Mathematical formulas were present in these textbooks; they were rejected because no one could find mathematics in these formulas. The revival of Vedic mathematics is no less than a miracle in the present time, its study is not only for mathematical proficiency and permission but it is also helpful in mental development, from ancient religious text to Vedic mathematics.

The roots of Indian mathematics can be traced back to the most sacred text of the Indian culture-'The Vedas'. As per Vedas -everything has to be precise, perfect and accurate, be it spellings, pronunciation, metres, construction etc. Our holy texts stand as a proof of how intense and profound was the ancient knowledge of our nation which needs to be revived and given due significance.

Therefore, one can easily understand the continuation of ancient to modern mathematics. This system is based on 16 Vedic formulas which deal with all kinds of Mathematical problems. These 16 formulas in Sanskrit language, which are easily memorized and solve any major Mathematical problem quickly.

Development of Vedic Math

Vedic math was immediately hailed as a new alternative system of mathematics, when a copy of the book reached London in the late 1960s. Some British mathematicians, including Kenneth Williams, Andrew Nicholas and Jeremy Pickles took interest in this new system.

They extended the introductory material of Bharati Krishna's book, and delivered lectures on it in London. And...

"In 1981, this was collated into a book entitled Introductory Lectures on Vedic Mathematics.

"A few successive trips to India by Andrew Nicholas between 1981 and 1987, renewed the interest on Vedic math, and scholars and teachers in India started taking it seriously.

METHODOLOGY

For the study of the presented research, I randomly selected 60-60 students of class 10th of four Inter colleges in Kotdwar city and divided the above students into two groups of 30 -30.

1. Controlled Group (Traditional Mathematics)
2. Experimental Group (Vedic Mathematics)

The students of the above group were studied on the following subject along with the time sections

- Product of digits and multiple terms
- square, square root, cube, cube root
- Mensuration, circle, square, cube, cuboid
- Solving simultaneous and Quadratic equations.

After that, for both the groups, 20 questions were taken on 40 marks test and analyzed by t-test.

Hypothesis

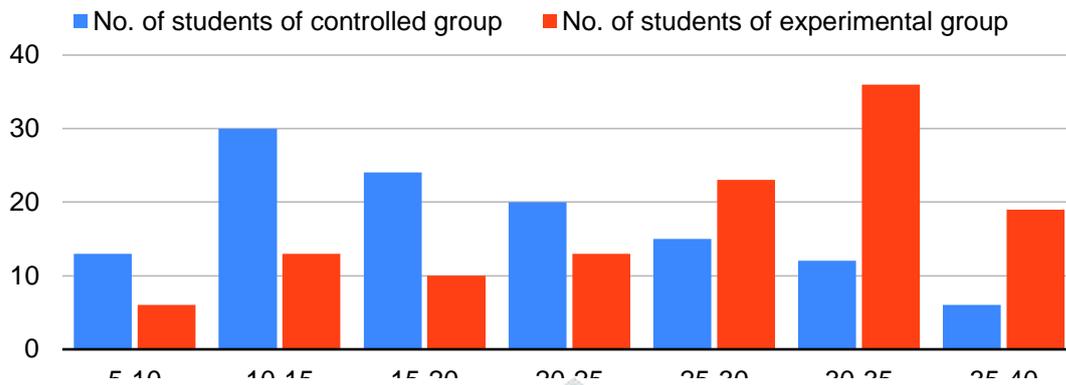
Ancient Vedic Mathematics methods have no effect on the following points:

- At the time of calculation
- On interest towards mathematics

- On computation ability
- On error number in computation

ANALYSIS

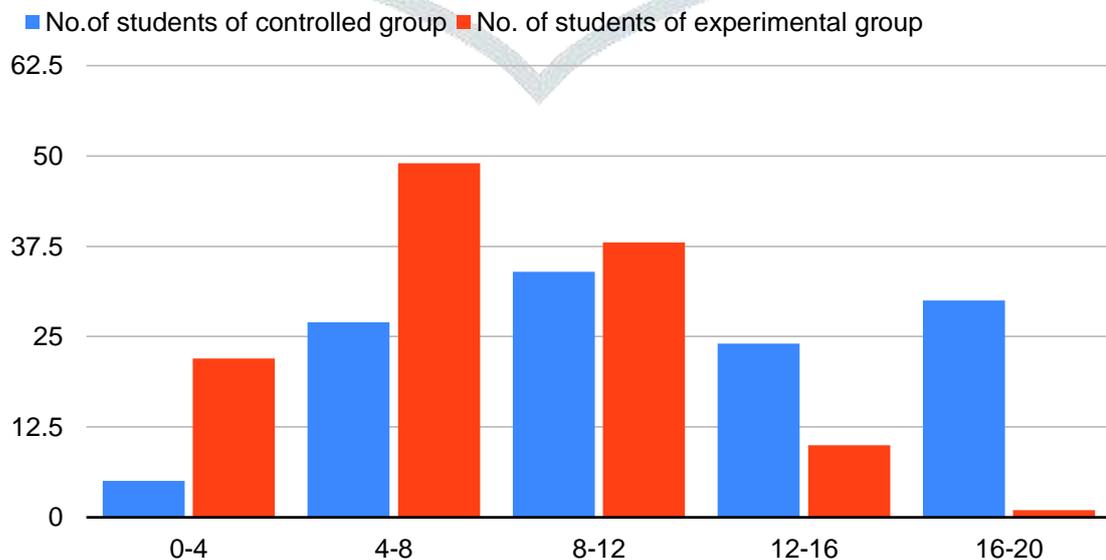
1. Comparative bar diagram of marks obtained from interest test



Result- To develop interest in mathematics after studying ancient Vedic mathematics.

2. Comparative bar diagram of errors made in solving questions in test

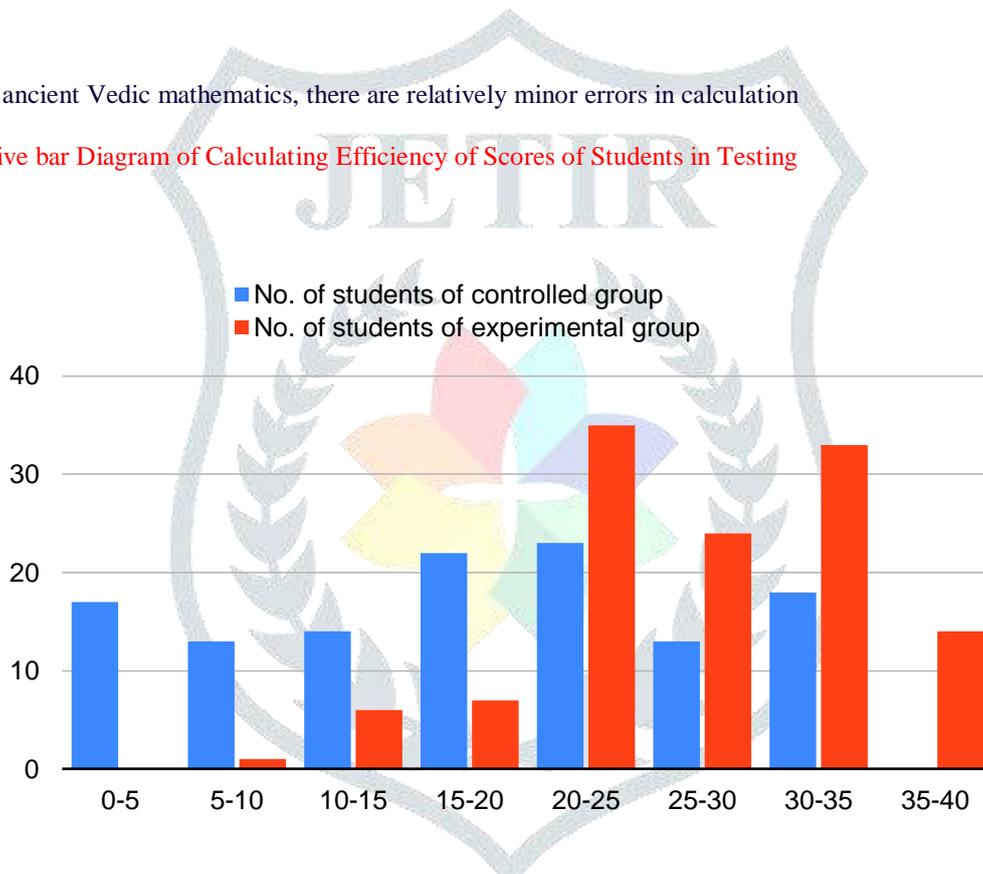
		Controlled group	Experimental group
No. of students		120	120
Mean(M)		19.75	26.58
Standard deviation(SD)		4.80	8.80
Standard Error(SED)		1.1	1.1
Critical ratio (C.R)		6.20	6.2
Degree of freedom(DF)		118	118
Significance	0.01	2.62	2.62
Significance.	0.05	1.98	1.98



		Controlled group	Experimental group
No. of students		120	120
Mean(M)		11.56	7.30
Standard deviation(SD)		4.80	3.56
Standard Error(SED)		0.53	0.53
Critical ratio (C.R)		8.11	8.11
Degree of freedom(DF)		118	118
Significance	0.01	2.62	2.62
Significance.	0.05	1.98	1.98

Result After studying ancient Vedic mathematics, there are relatively minor errors in calculation

3. Comparative bar Diagram of Calculating Efficiency of Scores of Students in Testing



		Controlled group	Experimental group
No. of students		120	120
Mean(M)		18	27.08
Standard deviation(SD)		9.7	6.75
Standard Error(SED)		1.07	1.07
Critical ratio (C.R)		8.48	8.48
Degree of freedom(DF)		118	118
Significance	0.01	2.62	2.62
Significance.	0.05	1.98	1.98

Result: After studying ancient Vedic mathematics there is an amazing increase in computation ability.

Suggestions

The syllabus of Mathematics should systematically incorporate the methods of Vedic Mathematics (New education policy 2020). There should be actual training of teachers and organized seminars, workshops from time to time for teachers and students. At the same time, the experiences of institutions already working in this field should also be taken advantage of, more research needs to be done in the field of ancient Vedic mathematics.

CONCLUSIONS

Modern Mathematics is still in development since the time of Euclid. It has been a journey of thousands of years from counting to mathematics, which has spread in various disciplines of the world. Early union verbs or arithmetic concepts originated in the Indian Vedas and zero is also a product of India. The roots of modern mathematics are Vedic, which we have forgotten in the year of ignorance, the long period of time, the influence of black education system in the dynasty.

Comparison between Vedic Mathematics and General Mathematics

	Vedic Mathematics	General Mathematics
Mathematical formulas	All operations are contained in only 16 sutras and 13 sub sutras	There are innumerable formulas.
Calculation	The calculation is based on mental picture technology	Most calculations are complex
The methodology	The methodology is simple, direct and verbal	The methodology is inconsistent and nonsensical
Approach	There is more than one simple way of finding and verifying answers	Variety of formulas is not possible to be fully used.
Practice	Its practice is simple, easy and enjoyable and its practice does not cause mental fatigue	Practice is extremely difficult, uncomfortable and boredom and mental fatigue.
Learning period	The learning period can be easily learned in its 1 or 2 months	The course takes more time to learn
Efficiency	Solving problems of large numbers gives an advantage in the efficiency of the experiment	There is no significant benefit in the efficiency of such an experiment.

Therefore, to bring the benefits of Vedic Mathematics to the masses, it needs to be included in the mathematics curriculum at every stage of education; students will not run away from Mathematics using Vedic Mathematics. Will not be afraid but will be able to study mathematics in simple and interesting game play. Calculating in pinches by Vedic Mathematics will not only help students in competitive examinations but also develop their level of deliberative thinking.

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