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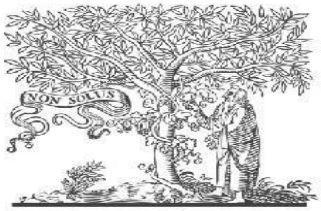

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ANALYZING THE CONTRIBUTION OF VEDIC MATHEMATICS TO THE MATHEMATICAL TEACHING IN CLASSROOM

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ABSTRACT
The findings from these studies suggest that Vedic mathematics can enhance students' mathematical abilities in various ways. It promotes quicker computation skills, encourages a deeper understanding of mathematical concepts, and fosters problem-solving capabilities. Furthermore, it has been observed that students learning Vedic mathematics tend to develop increased confidence in their mathematical skills, which can lead to improved overall performance in mathematics-related subjects. However, it is important to note that the effectiveness of Vedic mathematics may vary among students and may be influenced by factors such as the quality of instruction, individual learning styles, and cultural contexts. Therefore, while Vedic mathematics can offer a promising alternative to traditional procedures, its integration into mainstream education should be approached with careful consideration and ongoing research to fully understand its potential benefits. the use of Vedic mathematics alongside traditional procedures has demonstrated the potential to enhance students' mathematical skills, improve problem-solving abilities, and boost confidence in mathematical abilities. As the educational landscape continues to evolve, exploring innovative teaching methods like Vedic mathematics can contribute to a more holistic and effective approach to mathematics education for students. Needless to say, mathematics education is a sub-system of the education system in a country, which -in its turn - is a sub-system of the societal as well as the regional and the world (human) systems. But, however, in such general terms, as dealt with in this study, some kind of high level of abstraction is needed across some prospective analyses at the global, regional or national perspectives, whether they are dealing directly or indirectly with education.

KEYWORDS: Vedic Mathematical Methods, mathematics education, scenarios, Formulate, prospective

INTRODUCTION

The importance of Vedic Mathematics lies in the fact that any type of complex and critical multiplication or division can be done with simplicity. Through this system, students can resort to their own methods, without sticking to any one particular process. Vedic Mathematics presents in

front of us a rational and unified structure of mathematics, with harmonizing, easy methods, at par with what most mathematics teachers of today are perhaps looking for - something better to make geometry and calculus easier for pupils. He realized only sixteen sutras cover all branches of mathematics – arithmetic, algebra, geometry, trigonometry, physics, plain and spherical geometry, conics, calculus, both differential and integral, applied mathematics of various kinds, dynamics, hydrostatics, static, kinematics and all.

Whole Vedic Mathematics is one method of teaching Mathematics which makes the teaching of Mathematics interesting and will boost the interest of the students. In this direction the Sankaracharya of Govardhan Matha Puri Jagadguru Swami Sri Bharati Krishna Teerthaji Maharajaiii has explored the encoded Vedic mysteries and retrieved a set of mathematical sutras from the Vedic literatures. Swami Sri Bharati Krishna Teerthaji was a scholar extraordinaire and profound master of modern subjects including mathematics. Later after attaining sanyasa he went into solitude at Saradha Peeth in Sringeri and relentlessly pursued the study of Vedic scriptures with the consequence that he reconstructed a set of 16 sutras and 13 sub sutras from the Vedic text covering every branch and part of mathematics. We owe deeply to the Sankaracharya for his revelation to popularize Vedic Mathematics.

According to W. R. Borg, "The literature in any field forms the foundation upon which all future work will be built. If we fail to build the foundation of knowledge provided by the review of literature, our work is likely to be shallow and naïve and will often duplicate work that has already been done better by someone else." ii From this statement, it can be said that for clarification and proper solution of the problem selected by a researcher, the review of the research is essential. A summary of the writings of recognized authorities and of previous researches provides evidence that the researcher is familiar with what is already known and what is still unknown and untested. Since effective research is based upon past knowledge, this step helps to eliminate the duplication of what has been done, and provides useful hypotheses and helpful suggestions for significant research.

MATHEMATICAL INFORMATION IN THE VEDAS

The word "veda" has two basic meanings. The first, a literal translation of the Sanskrit word is "knowledge" (Veda). The second, and most common meaning f the word, refers to the sacred ancient literature of Hinduism, the Vedas, a collection of hymns, poetry and Hindu ceremonial formulae (Veda). Believed to be one of the oldest human written records, the Vedas date back over 4000 years (Gaskell, 2000).xi Tradition all, the were passed down orally and adapted from generation to generation by sacred sages called rishis before eventually emerging written in Vedic, an ancient form of Sanskrit. The Vedas are divided into four main sections: the Rig-Veda, sama-veda, Yajur-veda and the Atharva-veda, known collectively as the Samhitas (Veda). The first three, the Rig-Veda, Sama-Veda, and Yajur-veda are basically ritual handbooks

that were used by priests during the Vedic period (1500-500BCE) (Veda). Vedic mathematics is apparently part of the fourth Veda, Atharva-veda, which is distinct from the others in contains hymns, spells and magical incantations for personal and domestic use (Veda). Also, the Atharva-veda, which was written later than the other Vedas, was not always considered authoritative, but only became so after being accepted by the Brahmans, the highest order of Hindu priests (Veda). Collectively, the Vedas include architecture, astronomy etc. (Gaskell, 2000)xii . Although there is controversy about whether the Vedas themselves actually include reference to mathematics, the sophisticated mathematics has actually been traced back to the Vedic era. Ancient Indian Vedic civilizations are known for being skilled in geometry, algebra and computational mathematics complex enough to incorporate things like irrational numbers (Dutta, 2002). Furthermore, all ancient Indian mathematics literature is composed completely in verse; there was a tradition of composing terse sutras, like those of Vedic mathematics, to ensure that information would be preserved even if written records were damaged or lost (Dutta, 2002).xiii

Advantages and Benefits of Vedic Mathematics

• It reduces the burden of remembering large amount of stuff because it requires you to learn tables up to 9 only.

• It enables faster calculations when compared to the conventional method. Thus, the time that gets saved in the process can be used to answer more questions.

• It acts as a tool for reducing finger counting and starch work.

• It plays an important role in increasing concentration as well as improving confidence.

• It is very simple, direct totally unconventional, original and straight forward.

• It encourages mental calculations.

• It enriches our understanding of Mathematics and enables us to see links and continuity between different branches of maths.

• Vedic Mathematics system also gives us a set of checking procedures for Independent cross checking of whatever we do.

• It keeps the mind alert and lively because of the element of choice and flexibility at each.

• Holistic development of the human brain takes place through Vedic Mathematics along with multidimensional thinking.

• Vedic Mathematics system to quite an extent also helps us in developing our spiritual part of personality.

• It can introduce creativity in intelligent and smart students, while helping the slow-learners grasp the basic concepts of mathematics. More and more use of Vedic math can without any doubts generate interest in a subject that is generally dreaded by children.

The Sub Sutras of Vedic Mathematics

From the above table 1 it can be said that there are different kinds of formulas were used from the ancient time in India. In the Vedas There is also defined various number system, algebra, simple calculation, various interesting case of geometry Differential

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Calculus, trigonometry, integration, integral calculus in the ancient mathematical age. Comparison of Conventional Mathematics Vs Vedic Mathematics Comparison of Conventional Mathematics Vs Vedic Mathematics is described as follows.

Table 1 Comparison of Conventional Mathematics Vs Vedic Mathematics

Conventional Mathematics	Vedic Mathematics
Single way to solve a Mathematics calculation	Multiple ways to solve. Can device your own ways
Memorise Tables up to 20 at least	Memorise Tables only up to 9
Calculations are from right to left	Calculations are generally from left to right
Focus on finger counting and scratch work	Calculate Mentally
Algebra is difficult to understand	Child learns to reason naturally
Mathematics is complex	Vedic Mathematics is creative in approach
Mathematics is for grown ups	Any age group can solve problem
Mathematics has to be taught	Mathematics is intuitive

QUADRATIC EQUATIONS:

The general quadratic equation in variable x containing a, b and c as constants is a.x 2 + b.x + c = 0, a ≠ 0. The current method for solving quadratic equation is by using the quadratic formula,

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a};$$

by using the above formula, two values of x can be found out. The quadratic equation can also solved by using Vedic method which is superior to the current method.

Special type of Quadratic

Equations by using Vedic Sūtra: Quadratics of certain forms are solved using Sūtras more effortlessly and more speedily than the above method. The solution of quadratic equations by using different Sūtras and Sub-Sūtras are explained below:

First Special Type under Vilokanam Sub-Sūtra:

To solve the equation of the type in which L.H.S. is in the arrangement of either addition or subtraction of the two Reciprocals.

I.e. either $x + \frac{1}{x}$ or $x - \frac{1}{x}$

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According to Vilokanam Sub-Sūtra, we can split R.H.S. into the same form. Solve:

[1]

$$z+\frac{1}{z}=\frac{10}{3}$$

By using current method,

Taking L.C.M. we get,

$3z^2+3=10z$

$\therefore 3z^2-z-9z+3=0$

$\therefore z(3z-1)-3(3z-1)=0$

$\therefore (z-3)(3z-1)=0$

$z=3$ OR $z=1/3$

$\therefore$ Roots of given Quadratic equation are $z=3$ OR $z=1/3$

By using Vilokanam,

Here, the right side term is $\frac{10}{3}$ which can be written in the form of addition reciprocals $3+\frac{1}{3}$

$$\therefore z+\frac{1}{z}=3+\frac{1}{3}$$

$\therefore z=3$ OR $z=\frac{1}{3}$

$\therefore$ Roots of given Quadratic equation are $z=3$ OR $z=\frac{1}{3}$.

[2]

$$y+\frac{1}{y}=\frac{50}{7}$$

By using Vilokanam,

We observe that the right part of given equation is $\frac{50}{7}$, which we can write in the form of sum of two reciprocals $7+\frac{1}{7}$

$$\therefore y+\frac{1}{y}=7+\frac{1}{7}$$

$\therefore y=7$ OR $y=\frac{1}{7}$

$\therefore$ Roots of given Quadratic equation are $y=7$ OR $y=\frac{1}{7}$

[3]

$$\frac{y}{y+1}+\frac{y+1}{y}=\frac{26}{5}$$

By using Vilokanam,

Here, the right term = $\frac{26}{5}$ can be written in the form of two reciprocals $5+\frac{1}{5}$

$$\therefore \frac{y}{y+1}+\frac{y+1}{y}=5+\frac{1}{5}$$

$$\therefore \frac{y}{y+1}=5 \quad \text{OR} \quad \frac{y}{1+y}=\frac{1}{5}$$

$\therefore y=5+5y$ OR $5y=y+1$

$\therefore y=-\frac{5}{4}$ OR $y=\frac{1}{4}$ are roots of given quadratic equation.

CONCLUSION

The findings of the research indicate that there was a significant difference in the Mathematics accomplishment of male students in the ninth grade who were instructed using the Vedic mathematics aided teaching technique compared to those who were taught using the lecture approach. In the study, it was observed that the academic performance in Mathematics of male students in the 10th grade who received instruction using the Vedic mathematics aided teaching technique was superior to those who were taught using the lecture approach. According to the findings, the academic performance in Mathematics of female students in the 10th grade who received instruction using the Vedic mathematics aided teaching technique surpassed those who were taught using the lecture approach. The use of Vedic

mathematics as a pedagogical approach for instructional planning. The purpose of this study was to investigate the efficacy of using the Vedic mathematics aided teaching approach in the instruction of secondary school students. A specific topic within the secondary school mathematics curriculum was selected to include the use of Vedic mathematics as a teaching aid. Various sections from the 9th and 10th standard curriculum were chosen, and a meticulously designed 30-day teaching plan using Vedic mathematics was developed as the resultant product of this research. In the current study, the researcher assessed the efficacy of the Vedic Method as a teaching approach by measuring the academic performance of learners using an accomplishment exam after the deployment of the independent variable. In light of this matter, the researcher devised an assessment tool to measure academic performance.

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