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APPLICATION OF LIBRARY RESOURCES AND SPECIALIZED SERVICES FOR VEDIC MATHS TOWARDS QUALITATIVE AND QUANTITATIVE RESULTS OF SCHOOL STUDENTS: KV BILASPUR PERSPECTIVE

Rajesh Sharma
Librarian
Kendriya Vidyalaya, Bilaspur
& Research Scholar Dr. C.V. Raman
University Kargiroad Kota
Email: rajeshsharmakv@gmail.com

Dr. Sangeeta Singh
Head
Library Department
Dr C.V. Raman University
Kargiroad Kota Chhattisgarh

ABSTRACT

The present research paper reveals ways to inculcate the interest of maths among students. Various types of Vedic math tools and sources which were obtained from the latest hybrid services of Library, have been included in this paper. The main aim was to overcome fear of use of Math from students. Various occasion and celebrations involved in the application of Vedic Math such as Morning Assembly, Library week programmes, Annual Day, regular sessions, appended. This experimentation enabled to find out the uplift trend towards achieving quality. The paper emphasized use of specialized services of Library such as CAS, SDI. The data have been analyzed and presented in the form of table and 2-D Columns. Results and findings have been explained.

Keywords : *Library Sources, Library Services, Current Awareness Services, Selective Dissemination of Services, Olympiad, Quality Output, Library 2.0 Tools*

1. Introduction

Vedic Mathematics, with Ancient wisdom as its source, has powerful potentialities to achieve perfection of intelligence for young minds. With this, as an inspiration together with the personal experience gained during more than two decades of research in this domain, it is my firm conviction that the discipline of Mathematics deserves to be approached the Vedic Mathematics way. It has been noted by the author of this article that most often students fear the computation of maths, to know the shortest possible way to solve the problems, Vedic mathematics is more than 10 to 15 times or over 1500% times faster than the normal mathematics, Vedic mathematics becomes very useful for competitive examinations motivate us to undertake this project.

The Math and Library department of Kendriya Vidyalaya, Bilaspur taken this project in order to inculcate the interest of maths among students. Various types of Vedic math tools and sources were obtained from the latest hybrid services of Library Departments. The main aim was to overcome fear of use of Math from students. Various occasion and celebrations involved the use of Vedic Math such as Morning Assembly, Library week programmes, Annual Day, regular sessions. This experimentation enabled students to attract towards maths and utilization the use of it during various occasion such as solving their problems, exams, Olympiads and subsequently users save their valuable time.

Vedic Mathematics is the name given to the ancient system of Mathematics which was rediscovered from the Vedas between 1911 and 1918 by Sri Bharati Krsna Tirthaji (1884-1960). According to his research all of mathematics is based on sixteen Sutras or word-formulae.

The Sutras apply to and cover almost every branch of Mathematics. They apply even to complex problems involving a large number of mathematical operations. Application of the Sutras saves a lot of time and effort in solving the problems, compared to the formal methods presently in vogue. Though the solutions appear like magic, the application of the Sutras is perfectly logical and rational.

- Vedic Math is more than 10-15 times or over 1500% times faster than normal Mathematics
- Makes Math fun and enjoyable for students
- Increases their interest level in the subject.
- Vedic Math are very visual.

It eliminates Math's-phobia presents in student's mind.

Swami Bharati Krishna Tirtha (1884-1960), former Jagadguru Sankaracharya of Puri culled a set of 16 Sutras (aphorisms) and 13 Sub - Sutras (corollaries) from the Atharva Veda. He developed methods and techniques for amplifying the principles contained in the aphorisms and their corollaries, and called it Vedic Mathematics.

According to him, there has been considerable literature on Mathematics in the Veda-sakhas. Unfortunately, most of it has been lost to humanity as of now. This is evident from the fact that while, by the time of Patanjali, about 25 centuries ago, 1131 Veda-sakhas were known to the Vedic scholars, only about ten Veda-sakhas are presently in the knowledge of the Vedic scholars in the country.

2. Aim

Aim of the project, as is being visualized, is to attain Mathematics Literacy among students and to uplift the outcome with regard to quick mathematical computations, to remove math phobia and to develop interest of math among students along with to solve math in the shortest possible time, improve mathematical performances, to excel the various competitions, Olympiads by using Vedic Math skills, various library sources and services in this aspect.

3. Preparatory work

The following steps undertaken to implement the mentioned project of Vedic Mathematics using various resources of library department

- Identification of problem
- Identification of population for project
- Accumulation of Information Sources
- Accumulation of Human Sources of Information
- Identification of time slots for classes
- Conduction of various Vedic math tests
- Identification of various stages of projects
- Identification of various events to incorporate Vedic math for example Morning Assembly, Annual Day Programme, Celebration of National Mathematic Week, Mathematical Olympiads.
- Identification of SDI and CAS services of Library department

3. Hypothesis

1. There is significant relationship of application of Vedic math with qualitative and quantitative outcome of mathematical performance of students.

2. Inculcation of math skills and overcoming math phobia, speedy mathematical computations with the Application of Vedic Math

4. Variables

There are two variables. Sample size is 81 students of classes IX and X.

- Vedic Test
- Achievement Test- Math

5. Techniques : There are two techniques used for testing hypothesis.

- Correlations test used for testing hypothesis.
- The performance of students judged during morning assembly, Annual day, celebration of Mathematics week by conducting oral and written test for the students.
- Use of CAS and SDI services of library

6. Execution

The following methodology used to execute the project phase wise. We have conducted classes, included Vedic math in various programmes of Vidyalaya such as daily morning Assembly, Annual Day as per the details mentioned below:

A. During Morning Assembly: Daily magic tricks such as how to predict persons' date of birth, to predict how much money a person has in his pocket and how to find out how many brothers and sisters a person has, how to find answers without knowing the questions etc. for the development of interest towards math subsequently students were able to respond quickly with the help of application of Vedic math.

B. Conducting Classes: During this phase regular classes were taken where in 16 sutras and sub sutras were explained in depth in order to know the basics of mathematics and shortcuts. These 16 sutras were given by Jagat Guru Shankaracharya Shri Bharti Krishna Tirthaji Maharaja. These classes enabled students to love the math and they attracted towards math. These classes were taken throughout the academic session.

C. Annual Day: During Annual Day of the Vidyalaya a full open session for all the audience along with participants were taken upon application of Vedic math, wherein, a series of questions were asked by the audience and students were in position to solve very quickly and verbally. This has been regular feature of annual day program of Vidyalaya.

D. Conducting Test: After having sessions on Vedic math and sutras a separate test was taken. It is followed by a final test at the end of session. This helps us to know the progress of the students.

Some of the tricks which applied by the students are as follows:

- Multiplication with 999999999…… with any number
- Multiplication 11111111……. With any number
- Multiplication by 2 digits 3 digits 4 digits 5 digits 6 digits of any number
- Calendars of any years
- Divisions of 2 digits, 3 digits, 4 digits by any number
- Multiplication of numbers near bases
- Multiplications of decimals
- Square of two digits, three digits and 4 digits by any number
- Square root and cube roots of any perfect square and perfect cube numbers
- Simple equations, Quadratic equations, Cubic equations, Biquadrate equations, Simultaneous equations.
- Recurring Decimals
- HCF and LCM
- Various occasion and celebrations involved the use of Vedic Math such as Morning Assembly, Library week programmes, Annual Day, regular sessions.
- This experimentation enabled students to attract towards maths and utilization the use of it during various occasion such as solving their problems, exams, Olympiads and subsequently users save their valuable time and subsequently increase their interest in math.
- Uses various books and magazines to achieve this.
- Various resources and services like CAS and SDI of Library department applied

7. Result and Findings

A significant relationship established between application of Vedic mathematics and upliftment trend in qualitative and quantitative outcome of students using library resources and services. Hence hypotheses are proved.

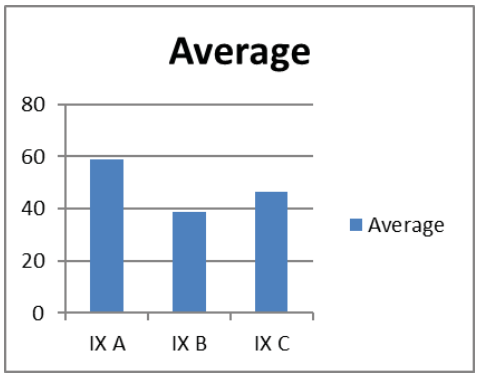
Inculcation of math skills and overcoming math phobia, speedy mathematical computations with the Application of Vedic Math sought, hence second hypotheses proved.

Data analysis shows the Correlation 0.986, hence there is strong relationship between application of Vedic math and qualitative and quantitative production of mathematical result of students.

The following data analysis for satisfying the hypothesis.

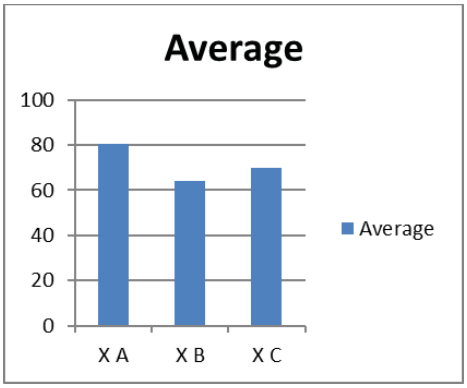
Application of Vedic Math for Qualitative and Quantiative Results using Library Resources and Services like CAS, SDI, Bibliography Services, Digital services.

Result of Class IX Math- Average		
Section	**Average**	**Number of Students**
IX A	58.77	59
IX B	38.74	58
IX C	46.38	58



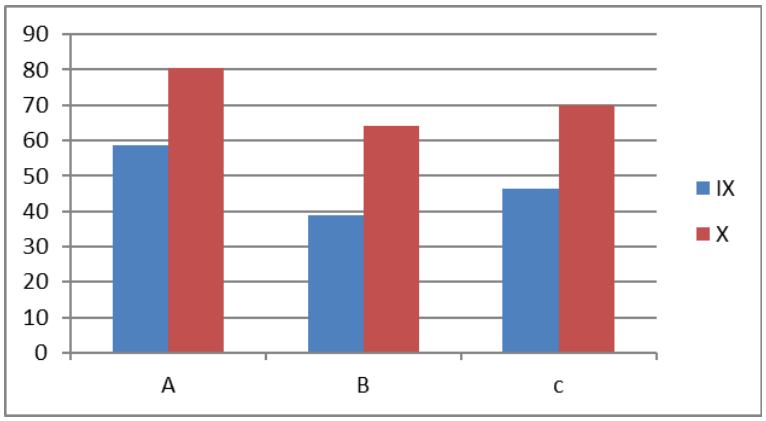
Result of Class X Math- Average and Use of Library resources and Services

Section	Average	Number of Students
X A	80.47	36
X B	64.26	30
X C	70.07	39



Comparison of IX and X Result due to Application of Vedic Mathematics and Library Services

	IX	X
A	58.77	80.47
B	38.74	64.26
C	46.38	70.07



Name of the Students	Vedic Math Test Marks	Mean	Subject Achievement Test Marks	Mean	a	b	axb	a2	b2
Aarkdeep Sarkar	89	70.71	98	75.17	18.29	22.83	417.5607	334.5241	521.2089
Adari Meghna	95	70.71	98	75.17	24.29	22.83	554.5407	590.0041	521.2089
Ambika Bole	47	70.71	51	75.17	-23.71	-24.17	573.0707	562.1641	584.1889
Aditi Singh	71	70.71	77	75.17	0.29	1.83	0.5307	0.0841	3.3489
Aditya Sahu	80	70.71	82	75.17	9.29	6.83	63.4507	86.3041	46.6489
Aniket Wani	89	70.71	95	75.17	18.29	19.83	362.6907	334.5241	393.2289
Anuradha Tripathi	92	70.71	98	75.17	21.29	22.83	486.0507	453.2641	521.2089
Ayush Mishra	92	70.71	95	75.17	21.29	19.83	422.1807	453.2641	393.2289
Ayushi Purty	88	70.71	91	75.17	17.29	15.83	273.7007	298.9441	250.5889
Badal Choudhary	58	70.71	60	75.17	-12.71	-15.17	192.8107	161.5441	230.1289
Daniel Lal	61	70.71	63	75.17	-9.71	-12.17	118.1707	94.2841	148.1089
E. Rama Krishna	77	70.71	78	75.17	6.29	2.83	17.8007	39.5641	8.0089
Harsh Pastor	91	70.71	95	75.17	20.29	19.83	402.3507	411.6841	393.2289
Arthreya Krishnakumar	98	70.71	99	75.17	27.29	23.83	650.3207	744.7441	567.8689
Kanak Kaushik	91	70.71	95	75.17	20.29	19.83	402.3507	411.6841	393.2289
Manjul Chaturvedi	89	70.71	90	75.17	18.29	14.83	271.2407	334.5241	219.9289
Monika Sharma	81	70.71	82	75.17	10.29	6.83	70.2807	105.8841	46.6489
Nitesh Kumar Khanna	90	70.71	98	75.17	19.29	22.83	440.3907	372.1041	521.2089
Nirjala Lahare	58	70.71	63	75.17	-12.71	-12.17	154.6807	161.5441	148.1089

Nikita Singh	28	70.71	33	75.17	-42.71	-42.17	1801.081	1824.144	1778.309
Nirjhar Mishra	88	70.71	98	75.17	17.29	22.83	394.7307	298.9441	521.2089
Priyanshu Kanwar	78	70.71	81	75.17	7.29	5.83	42.5007	53.1441	33.9889
Rishabh Kumar	89	70.71	95	75.17	18.29	19.83	362.6907	334.5241	393.2289
Rohit Kumar	48	70.71	54	75.17	-22.71	-21.17	480.7707	515.7441	448.1689
Tushar Kashyap	55	70.71	62	75.17	-15.71	-13.17	206.9007	246.8041	173.4489
Tushar Tamrakar	68	70.71	77	75.17	-2.71	1.83	-4.9593	7.3441	3.3489
U. Anjali	80	70.71	88	75.17	9.29	12.83	119.1907	86.3041	164.6089
Vivek Singh	70	70.71	79	75.17	-0.71	3.83	-2.7193	0.5041	14.6689
Prakash Kashyap	62	70.71	70	75.17	-8.71	-5.17	45.0307	75.8641	26.7289
Chirag Kumar Soni	50	70.71	52	75.17	-20.71	-23.17	479.8507	428.9041	536.8489
Neel Sharma	88	70.71	100	75.17	17.29	24.83	429.3107	298.9441	616.5289
Anurag Sinha	68	70.71	69	75.17	-2.71	-6.17	16.7207	7.3441	38.0689
Rohit Dubey	62	70.71	63	75.17	-8.71	-12.17	106.0007	75.8641	148.1089
Aparmit Tiwari	90	70.71	92	75.17	19.29	16.83	324.6507	372.1041	283.2489
Abhijeet Chatterjee	55	70.71	56	75.17	-15.71	-19.17	301.1607	246.8041	367.4889
Aditya Verma	57	70.71	58	75.17	-13.71	-17.17	235.4007	187.9641	294.8089
Aman Panda	92	70.71	95	75.17	21.29	19.83	422.1807	453.2641	393.2289
Amit Kumar Mahant	79	70.71	80	75.17	8.29	4.83	40.0407	68.7241	23.3289
Annu Thakur	50	70.71	60	75.17	-20.71	-15.17	314.1707	428.9041	230.1289
Ansh Bharadwaj Thakur	51	70.71	58	75.17	-19.71	-17.17	338.4207	388.4841	294.8089
Arnab Mondal	59	70.71	64	75.17	-11.71	-11.17	130.8007	137.1241	124.7689
Aryan Sahu	58	70.71	63	75.17	-12.71	-12.17	154.6807	161.5441	148.1089
Astha Gupta	88	70.71	95	75.17	17.29	19.83	342.8607	298.9441	393.2289
Atharva Yelkunchwar	67	70.71	71	75.17	-3.71	-4.17	15.4707	13.7641	17.3889
Akundi Vaibhav Vasu Kiran	82	70.71	89	75.17	11.29	13.83	156.1407	127.4641	191.2689
Ayush Parida	81	70.71	83	75.17	10.29	7.83	80.5707	105.8841	61.3089
Ayush Thakre	60	70.71	62	75.17	-10.71	-13.17	141.0507	114.7041	173.4489
Diksha Raj	52	70.71	56	75.17	-18.71	-19.17	358.6707	350.0641	367.4889
Divyanshu Sahoo	68	70.71	73	75.17	-2.71	-2.17	5.8807	7.3441	4.7089
Harsh Kumar Tiwari	55	70.71	57	75.17	-15.71	-18.17	285.4507	246.8041	330.1489
Himanshi Yadav	80	70.71	82	75.17	9.29	6.83	63.4507	86.3041	46.6489
Joena Chakraborty	81	70.71	82	75.17	10.29	6.83	70.2807	105.8841	46.6489
Jyoti Banjare	58	70.71	63	75.17	-12.71	-12.17	154.6807	161.5441	148.1089
Kamakshi Gupta	60	70.71	68	75.17	-10.71	-7.17	76.7907	114.7041	51.4089
Khushi Yadav	72	70.71	77	75.17	1.29	1.83	2.3607	1.6641	3.3489
Lakshee Rani	90	70.71	95	75.17	19.29	19.83	382.5207	372.1041	393.2289

Moumita Chatterjee	48	70.71	52	75.17	-22.71	-23.17	526.1907	515.7441	536.8489
Nafisa Nisat Chowdhury	78	70.71	84	75.17	7.29	8.83	64.3707	53.1441	77.9689
Nikhil Kumar Ahirwar	60	70.71	64	75.17	-10.71	-11.17	119.6307	114.7041	124.7689
Prachi Mishra	89	70.71	90	75.17	18.29	14.83	271.2407	334.5241	219.9289
Pragya Panjwani	50	70.71	51	75.17	-20.71	-24.17	500.5607	428.9041	584.1889
Priyanka Singh Shakya	60	70.71	65	75.17	-10.71	-10.17	108.9207	114.7041	103.4289
Priyanshu Sarangi	57	70.71	62	75.17	-13.71	-13.17	180.5607	187.9641	173.4489
Ranjit Mandal	43	70.71	47	75.17	-27.71	-28.17	780.5907	767.8441	793.5489
Richa Jagat	57	70.71	60	75.17	-13.71	-15.17	207.9807	187.9641	230.1289
Rimjhim Meshram	51	70.71	57	75.17	-19.71	-18.17	358.1307	388.4841	330.1489
Ritwika Bhowmick	69	70.71	72	75.17	-1.71	-3.17	5.4207	2.9241	10.0489
Riya Rathore	81	70.71	88	75.17	10.29	12.83	132.0207	105.8841	164.6089
R.Sri Sejal	61	70.71	64	75.17	-9.71	-11.17	108.4607	94.2841	124.7689
Shivam Anand	92	70.71	100	75.17	21.29	24.83	528.6307	453.2641	616.5289
Shailvika	38	70.71	41	75.17	-32.71	-34.17	1117.701	1069.944	1167.589
Suyash Dubey	52	70.71	64	75.17	-18.71	-11.17	208.9907	350.0641	124.7689
Swati Dewangan	80	70.71	85	75.17	9.29	9.83	91.3207	86.3041	96.6289
Mdaftab	56	70.71	61	75.17	-14.71	-14.17	208.4407	216.3841	200.7889
Ankita Soni	89	70.71	95	75.17	18.29	19.83	362.6907	334.5241	393.2289
Bhomik Kumar Baghel	65	70.71	66	75.17	-5.71	-9.17	52.3607	32.6041	84.0889
Divya Jyoti Samad	92	70.71	94	75.17	21.29	18.83	400.8907	453.2641	354.5689
Harshita Banjare	89	70.71	91	75.17	18.29	15.83	289.5307	334.5241	250.5889
Nohar Sahu	52	70.71	57	75.17	-18.71	-18.17	339.9607	350.0641	330.1489
P Krishna Bindu	79	70.71	82	75.17	8.29	6.83	56.6207	68.7241	46.6489
Neeraj Kumar Prabhakar	81	70.71	85	75.17	10.29	9.83	101.1507	105.8841	96.6289
Sruti Banjare	73	70.71	75	75.17	2.29	-0.17	-0.3893	5.2441	0.0289
	5798		6160				21870.94	21914.98	22432.97
Mean Calculated	70.71		75.17						

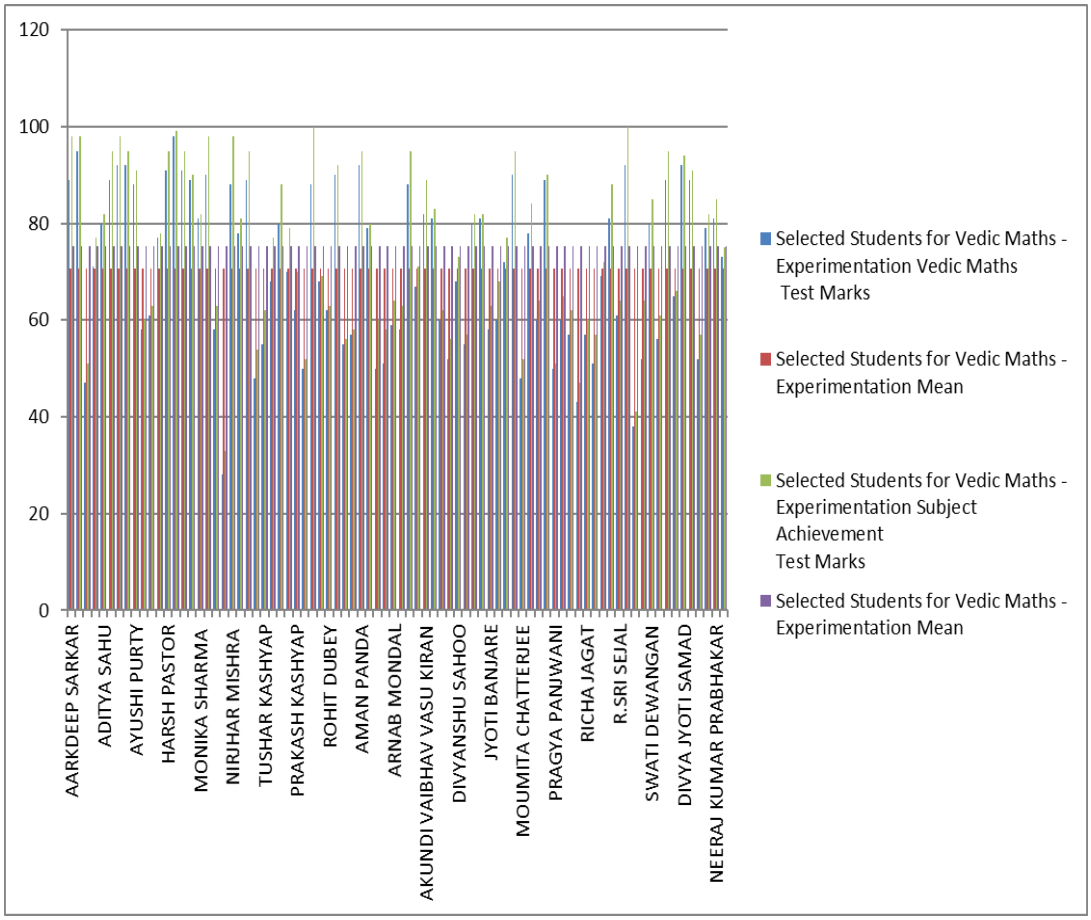
21870.94/√21914.98 *22432.97= 0.986

Correlation 0.986

$$r_{xy} = \frac{\sum_{i=1}^{n}(x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^{n}(x_i - \bar{x})^2 \sum_{i=1}^{n}(y_i - \bar{y})^2}}$$

Where:

Σ is Sigma, the symbol for "sum up"



Cost effectiveness : With very minimum cost students gets very high-quality oriented output. This minimum cost included the procurement of mentioned library sources and services.

8. Conclusion

The application of various library sources and specialized services towards Vedic Mathematics can definitely solve mathematical numerical calculations in faster way. Using Vedic Math tricks calculate 10-15 times faster than our usual methods. Students were able to overcome their mathematical phobia. They were also in a position to solve math in a very shortest possible time. Students, by using Vedic math skills not only updated their math skills but also excel in Olympiad and competitive exams. Hence it can be stated that with the application of Vedic math students were inculcated their mathematical skills and highly benefitted.

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