EFFECT OF VEDIC MATHEMATICS ON ACHIEVEMENT IN MATHEMATICS AMONG FIFTH GRADE STUDENTS

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INTRODUCTION: Mathematics is called mirror of our civilization. It shapes our culture as a pioneer that is why it is said, "Shut out mathematics from our daily life and all civilizations come to a standstill." It is wise to base our cause for mathematics on the common sense ground of everyday experience rather than on far-reaching theoretical considerations. Moreover, to draw the inferences that mathematics is an instrument of education found to be in conformity with the need of the human mind.

Mathematics is very valuable subject but teaching it is not totally free from defects. It is not at all difficult to locate children who are antagonistic to mathematics and children who appreciate the subject to the maximum extent possible. The mathematics teacher is conceived of, even now, as a hard task master. Children hate him and are even afraid of him. The teacher clings to traditional methods, thus power of thinking, understanding and retention are not developed in the students. The rules, formulae and set pattern are strictly enforced and student cannot adjust to this rigidity. So to remove all such difficulties the concept of Vedic Mathematics is introduced.

VEDIC MATHEMATICS:

Vedic Mathematics is given by Jagadguru Swami Sri Bharati Krishna Tirthaji Maharaja of Govardhana Matha, Puri (1884-1960). It is based on some mathematical formulae (Sutras). It is used to carrying out tedious and cumbersome arithmetical operations, and to a very large extent, executing them mentally. The simplicity of Vedic Mathematics that calculations can be carried out mentally. Pupils can invent their own methods. They are not limited to the one 'correct' method but leads to more creative, interesting and intelligent methods.

WHY VEDIC MATHS

The Sutras apply to and cover each and every part of each and every chapter of each and every branch of mathematics.

The Sutras are easy to understand, easy to apply and easy to remember and the whole work can be truthfully summarized in one word 'Mental'.

The time taken by the Vedic Method will be third, a fourth, a tenth or even a much smaller fraction of the time required according to modern western methods.

1.   The sums can be solved in a single and simple step.

In brief, Vedic Ganit is a blessing of the Vedas for the whole humanity for the following reasons:-

➢   It helps a person to solve mathematical problems 10-15 times faster.

➢   It helps in Intelligent guessing (knowing the answer without actually solving the problem)

➢   It reduces burden (Need to learn tables up to nine only)

➢   It is a magical tool to reduce scratch work and finger counting and improve mental calculation.

➢   It increases concentration

➢   It improves confidence

So Vedic Mathematics is used to enhance learning abilities of the students in mathematics.

A very few studies have been carried out to examine the effect of Vedic Mathematics on achievement in mathematics.

OBJECTIVES OF THE STUDY:

To study the effect of Vedic Mathematics in improving mathematical achievement of students of V grade.

To investigate if Vedic Mathematics causes any difference in the mathematical achievement of students at different levels of intelligence.

To investigate if Vedic Mathematics causes any difference in the mathematical achievement of boys and girls.

HYPOTHESES

1.   Significant differences exist between the mean achievement scores of experimental groups (taught with Vedic Mathematics) and controlled groups (taught with traditional method) in teaching Mathematics.

2.   Significant differences exist in the Mathematical Achievement of experimental group in relation to their level of intelligence.

3.   Sex variations do not exist in the Mathematical Achievement of students of experimental group.

DESIGN OF THE STUDY

Experimental research can be conducted under the frame work of several experimental designs. For the purpose of

present study, the experimenter selected equated group design. In this type of design, the relative effects of two treatments were compared on the basis of two groups which were equated in all relevant aspects. Under controlled conditions only a single factor or variable were manipulated or changed. The experimental factor were varied for one group (the experimental group) while the parallel group served as the controlled for evaluating the effectiveness, undergoing customary (usual) or non-experimental conditions.

Sample Selection

The technique of sampling was random and representative. A sample consisting of 180 students of 5th grade from three schools was selected. Out of 180 students, 90 students were boys and 90 students were girls selected for the purpose of study in order to confine the study to a specific age and educational level.

TABLE-1

SHOWING 't' VALUES OF EXPERIMENTAL GROUP AND CONTROLLED GROUP OF 5TH GRADE

Grade	Groups	N	Mean	S.D.	'r'	S.ED	Mean difference (D)	df	t-ratio	Remarks
5th	Experimental	90	15.44	5.51	0.52	0.67	7.88	177	11.76	Significant at 0.01 level
	Controlled	90	7.56	5.07						

Table-1 reveals that mean achievement scores of experimental and controlled group for 5th grade (ME=15.44, MC = 7.56) and their difference (ME – MC=7.88) is in favour of experimental group.

In other words, groups taught with Vedic Mathematics have higher mean achievement scores as compared to group taught with traditional method.

Thus, our hypothesis namely 'Significant differences exist between the mean achievement scores of experimental groups (taught with Vedic Mathematics) and controlled groups (taught with traditional method) in teaching Mathematics' was accepted.

TABLE-2(a)

'MEAN SCORES', 'S.D.' AND 't' VALUES OF HIGH INTELLIGENT AND AVERAGE INTELLIGENT STUDENTS OF 5TH GRADE

	Intelligence level	N	Mean	S.D.	S.ED	Mean Difference	df	t-ratio	Remarks
Experimental Group	High	14	20.28	2.43	0.72	4.41	70	6.12	Significant at 0.01 level
	Average	58	15.87	2.40					

TABLE-2 (b)

'MEAN SCORES', 'S.D.' AND 't' VALUES OF AVERAGE AND LOW INTELLIGENT STUDENTS OF 5TH GRADE

	Intelligence level	N	Mean	S.D.	S.ED	Mean Difference	df	t-ratio	Remarks
Experimental Group	Average	58	15.87	2.40	0.61	5.60	74	9.18	Significant at 0.01 level
	Low	18	10.27	2.25					

TABLE-2(c)
'MEAN SCORES', 'S.D.' AND 't' VALUES OF HIGH AND LOW INTELLIGENT STUDENTS OF 5TH GRADE

	Intelligence level	N	Mean	S.D.	S.ED	Mean Difference	df	t-ratio	Remarks
Experimental Group	High	14	20.28	2.43	0.84	10.01	30	11.90	Significant at 0.01 level
	Low	18	10.27	2.25					

On the perusal of table 2 (a),2(b) and 2(c) mean achievement scores of different intelligent groups differ significantly regarding their achievement in mathematics when taught with Vedic approach.

Hence, the hypothesis i.e. 'Significant differences exist in the Mathematical Achievement of experimental group in relation to their level of intelligence' stands accepted.

TABLE-3
t-RATIO OF EXPERIMENTAL GROUP's BOYS AND GIRLS OF 5TH GRADE

Grade	Groups	N	Mean	S.D.	S.ED	Mean Difference	df	t-ratio	Remarks
5th	P1	45	15.80	5.81	1.16	0.72	88	0.62	Insignificant at 0.05 level
	P2	45	15.08	5.18					

Mean scores of group P1 and P2 are 15.80 and 15.08 respectively and their mean difference of 0.72 is in favour of group P1. Calculated t-ratio (0.62) is insignificant, which clearly shows that boys and girls do not differ in the mean achievement scores when taught with Vedic Mathematics.

Hence, the third hypothesis that 'Sex variations do not exist in the mathematical achievement of students of experimental group' stands accepted.

EDUCATIONAL IMLICATIONS

Vedic Mathematics plays an important role in the achievement in mathematics of students because Vedic Mathematics solves the mathematical problems1015 times faster than other methods.
It reduces burden.
It increases concentration.
It improves confidence.
So, the teachers should use Vedic Mathematics in teaching mathematics along with other methods in the classroom which will definitely help the students to achieve better and solve the problems in shorter time.

REFERENCES:

[1] Agarwal, V.S.: Vedic Mathematics, MotilalBanarsidass Publishers, Delhi (2006).
[2] Bonde, L.V.: " Simplicity of Vedic Mathematics", InQuest of Bharateeya Shikshan, 13, (12), 2003.
[3] Buch, M.B. : Third Survey of Research in Education, Centre of Advance Study in Education,Baroda (1979).
[4] Buch, M.B.: Fourth Survey of Research in Education, Centre of Advance Study in Education, Baroda (1981).
[5] Chauhan S.S.:   Advanced Educational Psychology (Sixth revised addition), Vikas Publishing House PvtLtd.,New Delhi (1996).
[6] Dayton G.M.: The design of Educational Experiment, McGraw Hill Book Company, New York (1970).
[7] Gakhar and Agarwal: "Effect of Mastery Learning on Achievement in Environmental Science", Educational Herald, 33 (1), 2002.
[8] Garrett, H.E.:   Statistics in Psychology and Education, Paragon International Publishers, New Delhi (2004).
[9] Gayathri, S.:   "A study of multimedia usage by Mathematics Teachers", Journal of Indian Education, 32 (3), 2006.
[10] Good, Carter V.:   Dictionary of Education, Second Edition, Mc. Graw Hill Book Company, New York (1959).
[11] Kapoor, J.N.:   "The So-called Vedic Maths", Journal of Mathematical Education, 5 (4), 1989.
12] [Kapoor, S.K.: Learn and Teach Vedic Mathematics, Lotus Press, New Delhi (2006).
[13] Kumar, A. :   Vedic Mathematics Sutras, Upkar Parkashan, Agra (2002).
[14] Palaniswamy, P.: "The problems encountered by the IIIrd std. students in expanded notation and place value in Mathematics and Remedial Measures", In Quest of Bharateeya Shikshan, 13 (8), 2003.
[15] Shukla, K.S.:   "Vedic Mathematics- The Illusive title of Swamiji's Book", Journal of Mathematical Education, 5 (3), 1989
[16] Verma, D.P.: Vedic Ganit Nirdeshika, Vidya Bharti Parkashan, Kurukshetra (2005).