Teachers' Perception on Use of Vedic Mathematics in Schools: A Survey in the Bargarh District

Raj Ballav Panda,
NCERT Doctoral Fellow, Faculty of Education,
Banaras Hindu University, Varanasi
Meenakshi Singh,
Professor, Faculty of Education,
Banaras Hindu University, Varanasi

Abstract

The study examined teachers' perceptions of the use of Vedic Mathematics in school education. A descriptive survey was conducted among 78 teachers from Bargarh Block of Odisha, using a self-developed scale with a reliability coefficient of 0.816. Data were analyzed using descriptive statistics, percentages, and independent t-tests. The findings revealed a predominantly positive perception of Vedic Mathematics among teachers, with no significant differences based on teaching level, subject background, school type, gender, or location. A large proportion of teachers advocated for introducing Vedic Mathematics at the elementary level to enhance foundational numeracy, student engagement, and confidence. Notably, even teachers without formal training expressed interest in adopting and recommending Vedic Mathematics, indicating strong perceived pedagogical value. The results highlight teacher readiness for curricular inclusion and suggest the need for professional development and policy support to ensure meaningful classroom implementation.

Keywords-*Vedic Mathematics, Indian Knowledge System, Mathematics Education, Teachers' Perceptio*n

Introduction

Mathematics holds a central place in school education across the world due to its universal applicability and cognitive significance. It is widely regarded as a foundational subject essential for developing numeracy, logical reasoning, analytical thinking, and problem-solving competency among learners (Obradovic & Mishra, 2020). In India, mathematics has been integral to formal schooling for decades, forming a critical component of the curriculum at both primary and secondary levels. However, despite its importance, many students struggle to engage meaningfully with mathematics. National reports such as ASER (2023; 2024) highlight persistent gaps

in basic arithmetic and numeracy among school-aged children. Similar concerns are reflected internationally, where students often express fear, anxiety, and disengagement when learning mathematics (Mangarin & Caballes, 2024; Wang, 2021). Research attributes these challenges to factors including heavy reliance on rote memorization, lack of conceptual clarity, procedural overload, and teacher-centred instructional methods (Priyadarshini, 2024; Sharm & Bhardwaj, 2024). These difficulties underscore the need for innovative, learner-friendly pedagogical approaches that make mathematics meaningful, accessible, and less intimidating.

One such emerging pedagogical approach gaining prominence in recent years is Vedic Mathematics, a system of rapid mathematical techniques derived from ancient Indian knowledge. Traced to the work of Jagadguru Swami Bharati Krishna Tirthaji (1965), Vedic Mathematics is based on sixteen sutras and sub-sutras that simplify computational processes. The system emphasizes mental calculation, creativity, speed, accuracy, and flexibility in solving mathematical problems (Parajuli et al., 2020; Kaur et al., 2021). Research indicates that the application of Vedic methods helps learners handle arithmetic operations more efficiently and reduces dependence on memorized procedures (Kakkar, 2016; Chauhan & Ali, 2021). Studies further report that Vedic Mathematics encourages alternative strategies, fosters deeper engagement, and supports students with varying mathematical abilities (Katgeri, 2017; Shriki & Lavy, 2018; Devaraj, 2019). As a result, learners often perceive mathematics as more enjoyable, intuitive, and less stressful when taught through Vedic approaches (Shastri et al., 2017; Behera, 2021; Yogeshwari & Indu, 2022).

The increasing relevance of Vedic Mathematics is also reflected in contemporary educational reforms. The National Education Policy (NEP 2020) stresses the integration of Indian Knowledge Systems (IKS), competency-based learning, foundational numeracy development, and pedagogical innovation. Frameworks emerging from NEP, including the NCF 2023 and NIPUN Bharat Mission, advocate teaching approaches that cultivate reasoning, mental computation, and learner autonomy (NCERT, 2023; Pallathadka & Roy, 2025). In this context, Vedic Mathematics resonates with the policy shift toward meaningful learning, reduced cognitive load, and enhanced numerical proficiency. Globally as well, interest in mental-math frameworks and holistic numeracy programs has increased as educators seek methods that strengthen reasoning, fluency, and confidence in mathematics (Aviory et al., 2025; Feng et al., 2025). As a result, Vedic Mathematics has begun to find a place in school enrichment programs, Olympiad preparation, teacher-training workshops, and curriculum experimentation in various educational settings (Raikhola, 2024; Devaraj, 2019).

Despite growing evidence of its potential benefits, Vedic Mathematics continues to attract both support and criticism. Scholars report positive outcomes such

as improved computational speed, enhanced confidence, reduced math anxiety, and stronger problem-solving orientation among learners (Shastri et al., 2017; Pathak & Kumari, 2023). However, concerns persist regarding the consistency of instructional practices, the conceptual depth of certain techniques, limited empirical validation within mainstream pedagogy, and variability in teacher competence (Lee, 2024; Borji et al., 2021). Some critics argue that without adequate teacher preparation, the system risks being used as a set of shortcuts rather than a conceptual enrichment tool (Samuelsson, 2010; Stewart & Ball, 2023). These differing perspectives highlight the need to examine not only the pedagogical potential of Vedic Mathematics but also the readiness and perceptions of teachers who serve as key facilitators of classroom implementation.

Teachers occupy a pivotal role in shaping students' mathematical engagement, classroom experiences, and achievement outcomes. Their attitudes, beliefs, confidence, and instructional practices significantly influence students' motivation and learning trajectories (Wang & Eccles, 2013; Ryan et al., 2021). Successful integration of new pedagogical models, such as Vedic Mathematics, depends largely on teachers' acceptance, perceived usefulness, professional competence, and willingness to adopt and adapt innovative instructional methods (Stovner & Klette, 2022; Su et al., 2016).

While Vedic Mathematics has been increasingly acknowledged within policy, practice, and scholarship, systematic research exploring teachers' perceptions remains limited, particularly at the school level. A recent study by Pathak and Kumari (2023) explored the influence of various factors; including age, brain IQ, parents' economic status, and the perceptions of both parents and students regarding the importance of Vedic Mathematics. In Haryana, it was observed that teachers who are aware of the benefits of Vedic Mathematics have incorporated it into their teaching practices to enhance student interest and performance in mathematics (Kausik, 2022). The study also highlighted that even teachers without formal training in Vedic Mathematics express a keen interest in receiving training, believing it can significantly improve calculation speed. However, the absence of government guidelines on the integration of Vedic Mathematics into school curricula constrains them to traditional teaching methods.

The need for this study arises from the intersection of several critical factors in the context of Indian education. Firstly, the National Education Policy of 2020 places a strong emphasis on grounding the education system in Indian values and traditions, recognizing the wealth of knowledge within the country's heritage. Vedic Mathematics represents a unique and valuable component of this heritage, but its integration into the modern education system has been limited. Secondly, the demonstrated benefits of Vedic Mathematics in terms of improving students' mathematical abilities, reducing

fear of the subject, and making learning more enjoyable and effective, as evidenced by previous research, underscore its potential as a powerful teaching tool.

However, despite these merits, there appears to be a gap in terms of teachers' awareness and training in Vedic Mathematics. Many teachers express interest in acquiring these skills, but the absence of government guidelines hinders their ability to incorporate it into their teaching practices. Therefore, there is a growing need to understand how teachers perceive the relevance, applicability, and classroom usefulness of Vedic Mathematics. Such insights are critical for determining implementation feasibility, identifying professional development needs, informing curriculum planning, and shaping teacher-training frameworks aligned with NEP 2020 goals.

Thus, the present study seeks to address this gap by investigating teachers' perceptions of Vedic Mathematics, and their views on its potential benefits. By understanding these aspects, the study aims to provide valuable insights for education policymakers and institutions, helping them make informed decisions about the integration of Vedic Mathematics into the curriculum. Ultimately, the study's findings may contribute to the realization of NEP-2020's vision of a more holistic and Indian-rooted education system, benefiting both teachers and students alike.

Objectives

1. To explore the teachers' perception on the use of Vedic Mathematics in schools.
2. To compare the perception of teachers on Vedic Mathematics in relation to their stage of school (Elementary and Secondary), subject (Mathematics and Non-mathematics), type of school (Government and Private), gender (Male and Female), and location (Rural and Urban).
3. To know the opinion of the teachers on the use of Vedic Mathematics in Schools.

Hypotheses

1. There exists no significant difference in the perception of Elementary and Secondary school teachers on the use of Vedic Mathematics in schools.
2. There exists no significant difference in the perception of Mathematics and Non-mathematics teachers on the use of Vedic Mathematics in schools.
3. There exists no significant difference in the perception of Government and Private teachers on the use of Vedic Mathematics in schools.
4. There exists no significant difference in the perception of Male and Female teachers on the use of Vedic Mathematics in schools.
5. There exists no significant difference in the perception of Rural and Urban teachers on the use of Vedic Mathematics in schools.

Methodology and Procedure

This study used a descriptive survey method and focused on school teachers from the Bargarh district. The population included teachers working in different types of schools, at different teaching levels and in different locations. A questionnaire was developed to collect data after reviewing related literature and receiving feedback from experts. Initially, the tool contained 34 statements on a 5-point Likert scale, with response options ranging from strongly agree to strongly disagree. A factor analysis was then conducted, and based on the results; the questionnaire was refined and reduced to 25 items. The reliability of the final tool was assessed, and the reliability coefficient was found to be 0.816, indicating that the questionnaire was dependable and consistent. The study was delimited to the Bargarh Block of the district, and the final questionnaire was shared with more than 100 teachers using Google Forms to facilitate data collection. Participation in the study was voluntary. Teachers from 14 government schools and 8 private schools, totaling 22 schools from both rural and urban areas, participated in the survey. A total of 84 responses were received, out of which 78 were complete and included in the final analysis. The collected data were scored and analyzed using descriptive statistics. The hypotheses of the study were tested using independent sample t-tests, as this method was appropriate for comparing groups and drawing meaningful conclusions.

Result and Discussion

Table-1
Demographic Analysis

	Demography of Sample	N
Gender	Female	42
	Male	36
Location	Rural	43
	Urban	35
School Type	Government	55
	Private	23
Level	Elementary Teacher	38
	Secondary Teacher	40
Subject	Mathematics Teacher	41
	Other Subject Teacher	37
Training	Trained in Vedic Mathematics	8
	Untrained in Vedic Mathematics	70

Table 1 presents a comprehensive overview of the sample composition, highlighting key demographic characteristics. The sample consists of 42 female and 36 male participants. In terms of location, 43 teachers are from rural areas and 35 are from urban settings. With respect to school type, the majority (55) are employed in government schools, while 23 work in private schools. The sample further includes 38 elementary teachers and 40 secondary teachers, offering representation across teaching levels. Subject-wise, 41 participants teach mathematics, whereas 37 teach other subjects such as science, social science, or language. Regarding professional preparedness, only 8 teachers reported receiving formal training in Vedic Mathematics, while the majority (70) had not undergone such training. This detailed breakdown of the sample provides valuable insights into the diversity and distribution of teachers involved in the study, setting the foundation for a nuanced analysis of their perceptions of Vedic Mathematics.

Table-2
Perception of Teachers on Vedic Mathematics

N	Mean	SD
78	97.76	8.94

Table 2 provides key statistical indicators, revealing a sample mean of 97.76 and a standard deviation of 8.94. Utilizing these metrics, the level of perception is categorized across a spectrum ranging from the least favourable to the most favourable categories, as detailed in Table 3. These categorizations are essential in gauging the overall sentiment and variation in teachers' perceptions regarding Vedic Mathematics. The mean and standard deviation serve as crucial parameters in understanding the distribution and intensity of these perceptions within the surveyed sample.

Table-3
Level of Perception of Teachers on Vedic Mathematics

Level of Perception	Range	Frequency	Percentage
Least Favorable	72-79	4	5.13
Less Favorable	80-88	5	6.41
More Favorable	89-106	56	71.79
Most Favorable	107-115	13	16.67

Table 3 provides insights into teachers' perceptions of Vedic Mathematics, with approximately 71.79% expressing a favourable outlook, while an additional 16.67% hold the most favourable perception. In contrast, only 6.41% and 5.13% of teachers exhibit less and least favourable perceptions of Vedic Mathematics, respectively. The data illustrates that a substantial majority, comprising 88.46% of teachers, regardless of their training in Vedic Mathematics, teaching level, school type, gender or location, harbour favourable perceptions of Vedic Mathematics and acknowledge its associated benefits. This suggests a prevalent positive attitude among teachers towards the incorporation of Vedic Mathematics in their educational practices.

Table-4

Comparison of Perception of Elementary and Secondary Teachers

Variable	N	Mean	SD	df	t-value	Sig. Value
Elementary Teacher	38	98.34	9.22	76	0.549	0.585
Secondary Teacher	40	97.23	8.76			

The table 4 illustrates the mean perception scores for Vedic Mathematics, revealing values of 98.34 (SD = 9.22) for elementary teachers (N = 38) and 97.23 (SD = 8.76) for secondary teachers (N = 40). The computed t-value for this comparison is 0.549, and the associated significance value is 0.585, surpassing the conventional significance level of 0.05. This concludes that that there is no statistically significant difference in the mean perception scores between elementary and secondary teachers regarding Vedic Mathematics. The findings suggest that, based on the collected data, there is a comparable level of positive perception among both elementary and secondary teachers with respect to Vedic Mathematics. The absence of a significant difference underscores uniformity in the positive attitudes and perceptions of teachers across different educational levels concerning the integration of Vedic Mathematics into their teaching practices.

Table-5

Comparison of Perception of Mathematics and Non-mathematics Teachers

Variable	N	Mean	SD	df	t-value	Sig. Value
Other subject Teacher	37	98.24	7.82	76	0.442	0.66
Mathematics Teacher	41	97.34	9.93			

Table 5 reveals a distinction in the mean scores of teachers' perception of use of Vedic Mathematics, where mathematics teachers (N = 41) exhibit a mean perception score of 97.34 (SD = 97.34), while teachers of other subjects (N = 37) have a slightly higher mean value of 98.24 (SD = 98.24). The computed t-value for this comparison is 0.442, with a corresponding significance value of 0.66, surpassing the conventional significance level of 0.05. This results in the absence of a significant difference between the perceptions of mathematics teachers and those teaching other subjects. This outcome implies that, based on the collected data, there is no statistically significant contrast in the mean perception scores between teachers of mathematics and teachers of non-mathematics subjects regarding Vedic Mathematics. In essence, both groups of teachers hold a similar level of positive perception toward Vedic Mathematics. The findings emphasize uniformity in the positive attitudes and perceptions of teachers across various subjects when it comes to incorporating Vedic Mathematics into their teaching practices.

Table-6
Comparison of Perception of Government and Private Teachers

Variable	N	Mean	SD	df	t-value	Sig. Value
Government	55	97.42	11.04	76	0.533	0.595
Private	23	98.61	7.98			

Table 6 shows the comparison of government and private school teachers' perceptions. The government teachers (N=55) yield a mean score 97.42 (SD = 11.04) and private teachers (N = 23) have a mean score of 98.61 (SD = 7.98). The comparison yields a t score 0.533 with computed significant value 0.595 which is greater than the conventional value 0.05. Therefore, there is no significant difference in the perception of government and private school teachers, indicating uniformity in the perception of teachers about the use of Vedic mathematics in schools irrespective of the type of schools they teach.

Table-7
Comparison of Perception of Male and Female Teachers

Variable	N	Mean	SD	df	t-value	Sig. Value
Male	36	98.25	8.33	76	0.437	0.663
Female	42	97.36	9.52			

The table 7 presents a comparison of mean scores of teachers' perception with respect to their gender, revealing that male teachers (N = 36) have a mean score of 98.25 (SD = 8.33), while female teachers (N = 42) have a slightly lower mean score of 97.36 (SD = 9.52). The computed t-value for this comparison is 0.437, with a corresponding significance value of 0.663, which is greater than the conventional significance level of 0.05. Consequently, this outcome suggests that there is no statistically significant difference in the mean perception scores between male and female teachers regarding Vedic Mathematics. In other words, the data indicates a similar level of positive perception among both male and female teachers in relation to Vedic Mathematics. The findings underscore a gender-neutral perspective, emphasizing a consistent positive perception of Vedic Mathematics irrespective of the teacher's gender.

Table-8
Comparison of Perception of Rural and Urban Teachers

Variable	N	Mean	SD	df	t-value	Sig. Value
Rural	43	98.05	8.93	76	0.302	0.764
Urban	35	97.43	9.08			

The Table 8 indicates rural teachers (N = 43) have a mean score of 98.05 (SD = 8.033) and urban teacher (N = 35) have a mean score of 97.43 (SD = 9.08). The computed t value for the comparison is 0.30 and the corresponding p value is 0.764, which is greater than the conventional significant value 0.05. Therefore, there is no statistically significant difference between rural teachers and urban teachers on their perception scores. This indicates that teachers' perceptions did not differ based on whether they belong to rural or urban areas. These findings suggest that geographical location does not influence how teachers view Vedic Mathematics. Both rural and urban teachers demonstrated almost similar levels of perception, indicating uniformity in their understanding and exposure.

Table-9
Teachers' Opinion on Implementation of Vedic Mathematics in Schools

Training Status	Trained		Untrained	
Opinion	**Yes**	**No**	**Yes**	**No**
Uses Vedic Mathematics	8	0	13	57
Recommends use of Vedic Mathematics	8	0	65	5

Among the 78 respondents, 8 teachers reported receiving formal training in Vedic Mathematics, while the remaining 70 teachers indicated that they had not undergone any formal training in this method. Interestingly, the trained teachers not only incorporate Vedic Mathematics in their teaching practices but also actively endorse its utilization within schools. Conversely, the data also reveals that, among the untrained teachers, 13 have independently chosen to integrate Vedic Mathematics into their classes. This suggests a self-driven interest among these teachers to learn and apply Vedic Mathematics techniques in their teaching. Additionally, a noteworthy 65 untrained teachers, despite lacking formal training, express a favourable stance and recommend the incorporation of Vedic Mathematics at the school level. This indicates a widespread interest and recognition of the potential benefits of Vedic Mathematics, even among those who have not undergone formal training in the method.

Discussion

The findings of this study reveal a predominantly positive perception of Vedic Mathematics among teachers, irrespective of their teaching level, subject background, types of school, gender, or geographical location. More than 88% of participating teachers expressed favourable views, and a significant proportion endorsed its early curricular introduction at the elementary stage. This widespread acceptance suggests that teachers perceive Vedic Mathematics not merely as an additional mathematical strategy, but as a pedagogical resource with distinct advantages for improving learner engagement and performance.

A key reason for teachers' positive perception is the perceived effectiveness of Vedic Mathematics in addressing persistent challenges in mathematics learning, particularly low numeracy levels, fear of mathematics, and procedural dependency. National surveys, including ASER (2023; 2024), repeatedly highlight deficiencies in basic arithmetic and comprehension among Indian school children, especially at the foundational stage. International literature similarly documents widespread difficulties arising from rote learning, procedural overload, and limited conceptual understanding (Mangarin & Caballes, 2024; Abugri & Mereku, 2024).

Against this backdrop, Vedic Mathematics is perceived by teachers as a means to simplify computational processes, enhance student confidence, and make mathematics more accessible. Empirical studies show that Vedic techniques improve speed and accuracy and reduce learners' dependence on memorization (Chauhan & Ali, 2021; Kakkar, 2016). This aligns with teachers' interest in methods that can resolve learning difficulties and support low achievers, rather than merely accelerate high achievers.

Another reason for teacher preference relates to the motivational and affective benefits associated with Vedic Mathematics. Research indicates that learning mathematics through flexible, mental strategies contributes to reduced anxiety, improved confidence, and increased enjoyment (Shastri et al., 2017; Yogeshwari & Indu, 2022). Teachers' responses in this study likely reflect similar observations from their own practice. Existing literature suggest that alternative mathematical heuristics serve as powerful tools for developing positive dispositions toward the subject (Shriki & Lavy, 2018). In contexts where mathematics anxiety is prevalent and performance gaps are chronic, pedagogical approaches that improve engagement are especially valued.

The study also found no significant difference in perception between mathematics and non-mathematics teachers. This suggests that Vedic Mathematics is perceived not only as a suitable tool for specialists but as a cross-disciplinary pedagogical innovation. Teachers of other subjects recognised its potential to develop cognitive skills such as reasoning, attention, and mental flexibility. Research supports this belief: mathematics training contributes to improved logical thinking, working memory, and problem-solving abilities (Cresswell & Speelman, 2020; Cheng et al., 2022). Vedic Mathematics, through its emphasis on mental computation, aligns with this cognitive-developmental orientation.

Vedic Mathematics is also valued because it can help students develop both quick calculation skills and deeper understanding. Research shows that focusing only on procedures can limit real learning (Borji et al., 2021), but studies indicate that Vedic methods can improve speed while still encouraging meaningful thinking when taught properly (Katgeri, 2017; Parajuli et al., 2020). This balance matches teachers' preference for approaches that go beyond shortcuts and help students build strong overall mathematical skills.

Global and national policy frameworks advocate pedagogies that prioritize understanding, fluency, flexibility, and autonomy in learning (Oroszi, 2020; NCERT, 2023; Rhoney et al., 2024). From this perspective, Vedic Mathematics can be seen as a complementary pedagogical model that supports cognitive efficiency, self-efficacy, and adaptability. Its heuristic nature resonates with constructivist views of mathematics learning, where learners build meaning through strategy selection and creative reasoning rather than algorithmic compliance. Furthermore, its alignment with the Indian Knowledge System (IKS) framework reinforces teachers' cultural and pedagogical affinity with indigenous knowledge traditions. NEP 2020 explicitly encourages integration of IKS and innovations that enhance foundational numeracy.

Teachers' endorsement of early-grade implementation may reflect this policy influence, as well as recognition that foundational years are critical for habit formation and reducing anxiety (Barik, 2023; Surksha, 2023).

An interesting finding is that even untrained teachers not only held favourable views but some independently adopted Vedic Mathematics strategies. This indicates a perception of instructional relevance strong enough to motivate self-directed learning. Similar trends are noted elsewhere: teachers recognize benefits like faster calculation and improved student engagement, despite lack of formal institutional support (Kausik, 2022). Nonetheless, research warns that without pedagogical training, Vedic Mathematics risks being used as a procedural shortcut system rather than as a conceptual empowerment tool (Lee, 2024; Samuelsson, 2010).

Implications of the Study

The findings of this study, which revealed overwhelmingly positive teacher perceptions of Vedic Mathematics across demographic groups, carry several significant implications for curriculum planning, policy reform, teacher education, and classroom practice. These implications are particularly timely in the context of the National Education Policy (NEP 2020) and recent educational reforms that emphasize competency-based learning, foundational numeracy, and integration of Indian Knowledge Systems (NCERT, 2023).

- **Integration of Vedic Mathematics into the School Curriculum**
  Given the strong endorsement by teachers and their belief in its classroom utility, there is a clear need to consider structured integration of Vedic Mathematics into school curricula, particularly at the foundational and middle stages. Teachers in this study indicated that Vedic techniques could make mathematics more engaging, less intimidating, and more accessible for students. Similar findings from previous research suggest that Vedic approaches improve speed, confidence, and positive attitudes among learners (Chauhan & Ali, 2021; Yogeshwari & Indu, 2022). Introducing Vedic Mathematics as part of foundational numeracy can therefore support major national initiatives like NIPUN Bharat and competency-based assessment reforms.
- **Teacher Training and Professional Development**
  Although most teachers lacked formal training, many still expressed interest in using or recommending Vedic Mathematics. This suggests a strong professional demand for capacity building. Studies have shown that untrained teachers may use Vedic Mathematics as procedural shortcuts rather than as tools for conceptual enrichment

(Lee, 2024; Samuelsson, 2010). Therefore, professional development programs should focus not only on sutra-based techniques, but also on pedagogy, conceptual connections, differentiation strategies, and classroom integration. Training modules can be incorporated into pre-service teacher education, in-service workshops, and school-based professional learning communities.

- **Pedagogical Innovation and Competency-Based Education**
  Teachers' positive responses indicate that Vedic Mathematics is perceived as a valuable innovation capable of aligning with competency-based and learner-centred educational models. Research supports its potential to enhance problem-solving, logical thinking, and metacognition (Kakkar, 2016; Cresswell & Speelman, 2020). Integrating Vedic Mathematics within broader competency-based frameworks may help schools shift away from rote learning (Priyadarshini, 2024) toward more meaningful, flexible, and adaptive mathematical practices that support diverse learners.
- **Addressing Mathematical Anxiety and Low Achievement**
  The findings suggest that teachers view Vedic Mathematics as an approach that can reduce fear, support low achievers, and build student confidence. This aligns with evidence that Vedic techniques reduce math anxiety and promote positive attitudes (Shastri et al., 2017; Shriki & Lavy, 2018). Schools, therefore, can use Vedic Mathematics as a targeted intervention for students struggling with numeracy, rather than treating it only as enrichment for high performers. Integrating short, low-stress calculation strategies within daily practice may help mitigate anxiety and improve overall achievement.
- **Equitable Implementation Across School Contexts**
  The absence of significant difference in perception across gender, school type, subject area, and location indicates wide receptivity and feasibility of adoption. This suggests that Vedic Mathematics can be implemented in diverse school settings without facing systemic barriers arising from teacher belief systems. Policymakers should recognize that supportive teacher attitudes constitute a strong foundation for scaling innovations, especially in rural schools where mathematics learning gaps are widely reported (ASER, 2024; Gnawali, 2023).
- **Support for Indian Knowledge Systems (IKS)**
  Teachers' positive attitudes also demonstrate readiness for the incorporation of indigenous knowledge traditions within mainstream

pedagogy. This aligns with NEP 2020's call for integrating Indian Knowledge Systems and culturally rooted learning approaches (Kaur, 2024; Sinha, 2025). Vedic Mathematics therefore holds potential not only as a mathematical tool but as a culturally relevant pedagogical practice that promotes identity, heritage, and interdisciplinary connections.

- **Need for Evidence-Based Frameworks and Research**
  While teacher attitudes are favourable, large-scale implementation requires empirical support on effectiveness, learning outcomes, and instructional design. Future research should explore the impact of Vedic Mathematics on conceptual understanding, student motivation, mathematical reasoning, and long-term achievement. Studies should also investigate how teachers interpret and adapt Vedic methods in classroom settings, especially without formal training.

Conclusion

Vedic Mathematics, developed by H.H. Bharati Krishna Tirthaji, has historically remained under-recognized within mainstream Indian education, despite its cultural and mathematical significance. Recent policy directions, particularly NEP 2020 and the emphasis on Indian Knowledge Systems, have renewed interest in integrating indigenous knowledge into school curricula. Although the NCFSE 2023 includes elements of ancient mathematics, explicit references to Vedic Mathematics remain limited, leaving its curricular role largely undefined. The present study examined teachers' perceptions and found that a substantial majority hold favourable views toward Vedic Mathematics and advocate for its introduction at the elementary level to strengthen foundational numeracy. Teachers believe that its use can make mathematics more joyful, engaging, and less anxiety-ridden, thereby fostering creativity and proficiency in mathematical skills. The findings suggest strong teacher readiness and highlight the potential of Vedic Mathematics as a pedagogical tool to enrich mathematics learning in contemporary classrooms.

Acknowledgement

The authors acknowledge the financial support received from the Division of Educational Research (DER), National Council of Educational Research and Training (NCERT), New Delhi, for undertaking this research as part of the NCERT Doctoral Fellowship Programme. The authors also express sincere gratitude to the participating teachers for their cooperation.

Bibliography

Abugri, E., & Mereku, D. K. (2024). Primary school children's difficulties in numbers and operations problems. International journal of engineering technologies and management research, 11(12), 1–21. https://doi.org/10.29121/ijetmr. v11.i12.2024.1511

ASER Centre (2023). Annual Status of education report (rural) 2022. New Delhi. https://asercentre.org/wp-content/uploads/2022/12/ASER-2023-Report-1.pdf

ASER Centre. (2024). Annual Status of Education Report (Rural) 2024. New Delhi: ASER Centre. https://www.asercentre.org

Aviory, K., Retnawati, H., & Sudiyatno, S. (2025). Factors affecting mathematics achievement: Online learning, self-efficacy, and self-regulated learning. Journal of pedagogical research, 9(3), 276-290. https://doi.org/10.33902/JPR.202534085

Barik, R. (2023). NEP 2020: An effort to make mathematics education utility oriented, practical and mindful. International education and research journal, 9(8), 242-246. https://ierj.in/journal/index.php/ierj/article/view/3400

Behera, A. K. (2021). A study on the effectiveness of the vedic method on multiplication for sixth graders. International journal of creative research thoughts, 9(3), 1204-1210. https://ijcrt.org/papers/IJCRT2103155.pdf

Borji, V., Radmehr, F., & Font, V. (2021). The impact of procedural and conceptual teaching on students' mathematical performance over time. International journal of mathematical education in science and technology, 52(3), 404–426. https://doi.org/10.1080/0020739X.2019.1688404

Chauhan, K. S. & Ali, M. F. (2021). Effectiveness of vedic mathematics for 6th to 8th standard students. International journal of future generation communication and networking, 14(1), 4073-4077. https://sersc.org/journals/index.php/IJFGCN/article/view/37215

Cheng, D., Shi, K., Wang, N., Miao, X., & Zhou, X. (2022). Examining the differential role of general and specific prcessing speed in predicting mathematical achievement in junior high school. Journal of intelligence, 10(1), 1-13. https://files.eric.ed.gov/fulltext/EJ1353694.pdf

Cresswell, C., & Speelman, C. P. (2020). Does mathematics training lead to better logical thinking and reasoning? A cross-sectional assessment from students to professors. PloS one, 15(7), e0236153. https://doi.org/10.1371/journal.pone.0236153

Devaraj, P. (2019). Application of Vedic Mathematics in curriculum

to improve performance and create confidence among students. Proceedings of 7th National conference on Mathematics Education, NCERT, 37-42. https://ncert.nic.in/pdf/Proceedings 7thNationalConferenceOnMathsEducation.pdf

Feng, M., Wijaya, T. T., Ananda, R., & Du, W. (2025). Exploring factors influencing student satisfaction in mathematics education using PLS-SEM and fuzzy sets FsQCA. Scientific reports, 15. https://doi.org/10.1038/s41598-025-14459-1

Gnawali, Y. P. (2023). Learning difficulties of mathematics at primary level. Pragyaratna, 5(1), 206-215. https://www.nepjol.info/index.php/pragyaratna/article/view/ 59289/44345

Govt. of India (2020). National Education Policy 2020. Ministry of Human Resource Development, New Delhi. https://www.education.gov.in/sites/upload_files/mhrd/files/ NEP_Final_English_0.pdf

Kakkar, R. (2016). Effect of vedic mathematics on achievement in algebra among adolescent students. International education and research journal, 2(12), 127-128. https://ierj.in/journal/index.php/ierj/article/view/576

Katgeri, A. V. (2017). Effectiveness of vedic mathematics in the classrooms. Scholarly research journal for interdisciplinary studies, 4(36), 6765-6772. https://oaji.net/articles/ 2017/1174-1512382176.pdf

Kaur, G. (2024). Indian knowledge system and mathematics as per NEP 2020. Journal of emerging technologies and innovative research, 11(6), k573-k576. https://www.jetir.org/papers/JETIR2406A68.pdf

Kaur, G., Tripathi, N. & Verma, Y. K. (2021). A functional study of the role of vedic mathematics in improve the speed of essential numerical calculation. International journal of scientific research and engineering development, 4(3), 187-194. https://ijsred.com/volume4/issue3/IJSRED-V4I3P23.pdf

Kausik, S. (2022). A study on effect of teaching vedic mathematics on performance of students in mathematics subject in government schools of Haryana. Centre for research and experiments for action and policy: state council of educational research and training, GoH. https://scertharyana.gov.in/document/summary-vedic-report/

Lee, J. (2024). Concept-focused and procedure-focused instruction on the algebra performance of grade 9 students with and without mathematics difficulty. Journal of learning disabilities, 58(3), 192-209. https://doi.org/10.1177/00222194241249960

Mangarin, R. A., & Caballes, D. O. (2024). Difficulties in learning mathematics: A systematic review. International journal of research and scientific innovation, XI(IX), 401-405. https://doi.org/10.51244/

IJRSI.2024.1109037

NCERT (2023). National curriculum framework for school education, 2023, NCERT, New Delhi. https://www.education.gov.in/sites/upload_files/mhrd/files/ncf_2023.pdf

Obradovic, D., & Mishra, L. N. (2020). The importance of mathematics education and the role of mathematics teachers. ACTA scientific computer sciences, 2(8), 1-18. https://actascientific.com/ASCS/pdf/ASCS-02-0050.pdf

Oroszi, T. (2020). Competency based education. Creative education, 11(11), 2467-2476. https://www.scirp.org/pdf/ce_2020112614280180.pdf

Pallathadka, H., Roy, P. D. (2025). Vedic Mathematics: A comprehensive review of ancient wisdom and modern applications. International journal of science, engineering, and technology, 13(3), 1-25. https://www.ijset.in/wp-content/uploads/ IJSET_V13_issue3_193.pdf

Parajuli, K.K., Jha, K., Acharya, S. R. & Maskey, S. M. (2020).A research on efficacy of teaching vedic mathematics in school level. International journal of mathematics, science and engineering applications, 14(1), 35-41. http://www.ascent-journals.com/IJMSEA/ Vol14No1/Paper-3.pdf

Pathak, R. & Kumari, S. (2023). An investigation on the impact of vedic mathematics on higher secondary school student's ability to expand mathematical units. The scientific temper, 14(1), 106-114. https://scientifictemper.com/index.php/tst/article/view/369

Priyadarshini, K. (2024). Rote method in mathematics teaching learning process. Industrial engineering journal, 53(5), 719-722. http://www.journal-iiie- india.com/1_may_24/108_online_may.pdf

Raikhola, S. S. (2024). Exploring the applications and efficiency of vedic mathematics. International journal of statistics and applied mathematics, 9(4), 156-162. https://doi.org/10.22271/maths.2024.v9.i4b.1788

Rhoney, D. H., Chen, A. M. H., Churchwell, M. D., Daugherty, K. K., Jarrett, J. B., Kleppinger, E. L., Nawarskas, J. J., Sibicky, S., Stowe, C. D., & Meyer, S. M. (2024). The need for competency based education. American journal of pharmaceutical education, 88(6), 1-8. https://doi.org/10.1016/j.ajpe.2024.100706

Ryan, V., Fitzmaurice, O. & O'Donoghue, J. (2021). A study of academic achievement in mathematics after the transition from primary to secondary education. SN social sciences, 1, 173, 1-24. https://doi.org/10.1007/s43545-021-00177-8

Samuelsson, J. (2010). The impact of teaching approaches on students' mathematical proficiency in Sweden. International electronic journal of

mathematics education, 5(2), 61-78. https://www.iejme.com/download/the-impact-of-teaching-approaches- on-students-mathematical-proficiency-in-sweden.pdf

Sharm, N., & Bhardwaj, M. (2024). Challenges in mathematics education and solution: Indian perspective. International journal of innovative research in technology, 11(5), 2069-2074. https://ijirt.org/publishedpaper/IJIRT168856_PAPER.pdf

Shastri, V. V., Hankey, A., Sharma, B. & Patra, S. (2017). Impact of pranayama and vedicmathematics on math anxiety and cognitive skills. Yog mimamsa, 49, 53-62. https://journals.lww.com/yomi/fulltext/2017/49020/impact_of_pranayama_and_vedic _ mathematics_on_math.4.aspx

Sinha, L. (2025). Mathematical aspects of the Indian knowledge system and vedic mathematics: Present and future prospects. International journal of scientific research in engineering and management, 9(6), 1-6. https://doi.org/10.55041/IJSREM49419

Shriki, A. & Lavy, I. (2018). Engagement in vedic mathematics as means for strengthening self efficacy of low achievers. Proceedings of Edulearn 18 conference, 5441-5449. https://library.iated.org/view/SHRIKI2018ENG

Stewart, E., & Ball, L. (2023). The tension between allowing student struggle and providing support when teaching problem-solving in primary school mathematics. Canadian journal of science, mathematics and technology education, 23, 791-817. https://doi.org/10.1007/s42330-024-00309-1

Stovner, R. B., & Klette, K. (2022). Teacher feedback on procedural skills, conceptual understanding and mathematical practices: A video study in lower secondary mathematics classrooms. Teaching and teacher education, 110, 103593. https://doi.org/10.1016/j.tate.2021.103593

Su, H. F., Ricci, F. A., & Mnatsakanian, M. (2016). Mathematical teaching strategies: Pathways to critical thinking and metacognition. Journal of research in education and science (IJRES), 2 (1), 190-200. https://files.eric.ed.gov/fulltext/EJ1105157.pdf

Surksha. (2023). Influence of NEP 2020 on Mathematics. Journal of emerging technologies and innovative research, 10(6), b605-b607. https://www.jetir.org/papers/JETIR2306176.pdf

Teertha, S. B. K. (1965). Vedic mathematics or sixteen simple mathematical formulae from the Vedas. Motilal Banarasidas.

Wang L. (2021). The Analysis of Mathematics Academic Burden for Primary School Students Based on PISA Data Analysis. Frontiers in

psychology, 12, 600348. https://doi.org/10.3389/fpsyg.2021.600348

Wang, M. T., & Eccles, J. S. (2013). School context, achievement motivation, and academic engagement: A longitudinal study of school engagement using a multidimensional perspective. Learning and instruction, 28, 12–23. https://doi.org/ 10.1016/j.learninstruc.2013.04.002

Yogeshwari, S. & Indu, H. (2022). Effectiveness of vedic mathematics based instruction on the attitude towards learning mathematics for grade III school students. International journal of food and nutritional sciences, 11(8), 359-367. https://www.ijfans.org/uploads/paper/608a0c21859d792cadd655adae428f03.pdf

***