WWW.IJRPR.COM

International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

A Study on Awareness towards Indian Knowledge System among Secondary School Students

Rohit Bambhaniya[1], Animesh Das[2], Astha[3], Dr. Rakesh Rai[4]

[1]M.Ed. Student, Department of Education, School of Education, Central University of Gujarat, India rohitbambhaniya28@gmail.com
[2]Research Scholar (UGC-JRF), Department of Education, School of Education, Central University of Gujarat, India animesh.cug@gmail.com
[3]Research Scholar (UGC-JRF), Department of Education, School of Education, Central, University of Gujarat, India asthasg315@gmail.com
[4]Professor, Department of Education, School of Education, Central University of Gujarat, India Email: rakesh.rai@cug.ac.in

ABSTRACT

This study explores the level of awareness and understanding of the Indian Knowledge System (IKS) among secondary school students in Gandhinagar district of Gujarat. Indian Knowledge system deals with the systematic representation of the myriad repository of knowledge developed in the Indian subcontinent which includes domains such as Yoga and Ayurvedic Knowledge, Indian Philosophy, mathematics, history, astronomy and environmental practices to name a few. Understanding its massive importance, the ministry of education, in the recent past has focused on the integration of different aspects of Indian knowledge system in the school curriculum. The National Education Policy (NEP) 2020 as well as the National Curriculum Framework for School Education (NCF-SE) 2023 has advocated for the inclusion of Indian knowledge system and provide a detail blueprint of its inclusion in school education. In the light of these developments, the researchers through this study, intends to investigate the extent to which the students are engaging with the content related to IKS. The study adopts a quantitative research design with the sample consisted of 100 students from both urban (n=48) and rural (n=52) backgrounds. The researchers administered a structured and validated questionnaire to assess the level of awareness among the secondary students across the five domains of IKS. Data analysis was done using descriptive statistics, Shapiro-Wilk tests for normality, and independent samples t-tests to compare mean awareness scores based on gender and locality. The findings revealed no statistically significant difference in IKS awareness between urban and rural students ($t(98) = 0.313$, $p = 0.755$, $d = -0.06$), nor between male and female students ($t(98) = 0.0861$, $p = 0.932$, $d = 0.01$), which indicates a uniform level of awareness across demographics. Despite this homogeneity, the overall moderate awareness scores indicate the necessity for efficient curriculum integration and pedagogical approaches to improve students' understanding of IKS. The study concludes that while students exhibit some familiarity with IKS, formal education must play a stronger role in deepening engagement with India's cultural and intellectual heritage through targeted interventions.

Keywords: Indian Knowledge System, secondary education, Student Awareness, NEP 2020, Learning.

INTRODUCTION

Indian Knowledge System (IKS) is a storehouse of knowledge that was developed, practiced and preserved in the Indian subcontinent for centuries. It encompasses a wide range of topics such as Ayurveda, Yoga, Vedic Mathematics, Indian Philosophy, and local environmental methods (Das & Rai, 2025). In line with age-old customs going back centuries, IKS has already been known to have its everyday use in today's education, health, culture and arts, and sustainable development (Das & Rai, 2025). But in spite of its relevance in today's times, it is questionable to what extent awareness and knowledge about IKS have spread among students. With the National Education Policy (NEP) 2020, attempts have been made to integrate IKS into school education. The policy highlights the centrality of Indian knowledge traditions and how they can be applied in education today. Though NEP 2020 promotes holistic and interdisciplinarity education, there has been minimal research done to understand whether the students indeed learn such traditional knowledge systems or not and how they view them in the educational setting. Gandhinagar, the capital of Gujarat, has a multicultural student population from urban and rural areas. The city's education environment presents the scope of how pupils of diverse groups feel and are exposed to IKS. The research is important in the context of propagating IKS as a part of the overall schooling curriculum. If the level of awareness among students is low, it may reflect the necessity of more focus on introducing principles of IKS into school education. On the other hand, if students are highly familiar, it would signal that IKS has already established a presence in informal channels such as family practices, media, and cultural events. This research will contribute to the growing India's traditional wisdom. The study seeks to answer the following key questions:

1. What is the level of awareness of IKS among secondary school students in Gandhinagar?
2. Are there significant differences in IKS awareness between urban and rural students?
3. Do male and female students differ in their awareness of IKS?

REVIEW OF RELATED LITERATURE

Indian Knowledge System, over the centuries evolved through empirical techniques and strategies, have made significant contributions to modern art and culture, food, education and well-being (Negi et al., 2021). Indian Knowledge System covered diverse topics such as Ayurveda, Yoga, Vedic Mathematics, Indian Philosophy, and indigenous environmental practices from ancient roots and has pragmatic implications in modern education, health, and sustainable development. It is due to this that the National Education Policy (NEP) 2020 has recognized the necessity of integrating the plural aspects of Indian Knowledge Systems into school curriculum. Community involvement in school education has long been highlighted as a vital component of IKS by previous studies (Das & Rai, 2024). However, research indicates that while national educational reforms have considered traditional Indian beliefs and values, they have not sufficiently incorporated IKS and concepts like Dharma into practice (Isser et al., 2024). This gap highlights the need for continuous efforts to embed ethical and moral dimensions of IKS across all levels of India's education system. Integrating IKS into education can enhance the development of well-rounded individuals who are intellectually competent and ethically grounded (Isser et al., 2024). The ancient Indian education system, based on the Vedas, included practices like asanas, chanting of mantras, and meditation, which are now being emphasized by higher education institutions for psychological improvement and personality development (Das & Rai, 2024; Mishra & Aithal, 2023). By blending current learning standards with cultural heritage, educators and policymakers can design curricula that promote holistic growth, aligning with both global educational standards and cultural values (Sharma, Das & Rai, 2024). Interestingly, research has shown that there can be varied levels of familiarity with IKS among teachers (Photo & Mcknight, 2024), which could potentially translate to differences in student awareness as well.

OBJECTIVES OF THE STUDY

1. To compare the mean scores of the level of awareness among male and female secondary school students.
2. To compare the mean scores of the level of awareness among urban and rural secondary school students.

HYPOTHESIS OF THE STUDY

1. There is no significant difference in the mean scores of the level of awareness between male and female secondary school students.
2. There is no significant difference in the mean scores of the level of awareness between urban and rural secondary school students.

METHODOLOGY OF THE STUDY

This research utilized the quantitative approach, using the survey method to determine secondary school students' awareness and understanding of Indian Knowledge Systems (IKS). The objective was to test for possible differences in IKS awareness by location (urban vs rural) and sex (male vs female). Structured questionnaire was used to gather primary data, and statistical methods were used to analyze the findings systematically and objectively. Sample population was 100 secondary school students from different schools of the Gandhinagar district of the state of Gujarat. Respondents were divided into sub-groups based on geographical location and gender so that comparative study can be done. Out of the respondents, 48 were from urban areas and 52 were from rural areas. Based on gender distribution, 44 were females and 56 were males. Such stratification and sample size provided an acceptable range of generalizability to the local setting. To quantify students' IKS awareness, the researcher employed a questionnaire. Both the Likert-scale and multiple-choice questions were contained therein, being structured in terms of assessing knowledge and perception of the five important pillars of Indian Knowledge Systems, namely: (1) Ayurveda, (2) Yoga, (3) Vedic Mathematics, (4) Indian Philosophy, and (5) Traditional Environmental Practices. The questionnaire was subject to expert review for content appropriateness and clarity. Normality test was conducted to the data before carrying out inferential analysis. The Shapiro-Wilk test was indeed utilized to establish whether the awareness score distribution was a near normal one. On findings, parametrical testing assumption was satisfied by the approval given to carry out the independent samples t-tests. These t-tests were conducted with the view to achieving significant differences in mean awareness scores across male and female students as well as urban and rural students. Statistical significance (p-values) aside, effect sizes were estimated through Cohen's d. This was to measure differences in magnitudes between groups, thereby offering a more detailed insight into the practical significance of the findings. The data was analyzed using Jamovi open statistical software version 2.6.44.

RESULTS AND DISCUSSION

The descriptive analysis was conducted to explore variations in academic performance across different gender and locality groups. The dataset comprised 100 secondary school students, equally distributed across gender and locality categories. The descriptive statistics presented in Table 3 indicate that urban female students ($n = 20$) achieved a slightly higher mean score ($M = 63.7$, $SD = 7.03$) compared to rural female students ($n = 24$), who had a mean score of 62.5 with a lower standard deviation ($SD = 4.98$), suggesting more consistency in performance among rural females. The standard error of the mean (SE) further supports this observation, with urban females showing an SE of 1.57, and rural females showing a more precise estimate with an SE of 1.02. Among male students, the results revealed that rural males ($n = 28$) scored marginally higher ($M = 63.8$, $SD = 6.56$) compared to their urban counterparts ($n = 28$), who had a mean score of 62.1 and a standard deviation of 7.09. The standard error values for urban and rural males were 1.34 and 1.24 respectively, indicating reasonably consistent performance in both groups. Skewness and kurtosis values for all sub- groups fell within the acceptable range ($|z| < 1.96$), confirming that the distribution of scores did not significantly deviate from normality (table 1). The normality of score distribution was assessed through visual inspection (Figure 3) and statistical analysis. As seen in Figure 1, the histogram and density plots demonstrate that total marks were approximately normally distributed across all subgroups defined by gender and locality. This visual evidence, supported by acceptable skewness and kurtosis values, confirmed the appropriateness of conducting parametric tests. An independent samples t-test was performed to determine whether

the observed differences in academic performance between female (M = 63.0, SD = 5.96) and male students (M = 62.9, SD = 6.82) were statistically significant. The result revealed no significant difference, t(98) = 0.0861, p = 0.932. The calculated effect size (Cohen's d = 0.01) indicated a negligible effect, suggesting that gender did not meaningfully influence students' total marks in this sample. Taken together, the results indicate that while minor differences in mean scores exist across gender and locality, these differences are not statistically or practically significant. The visual and statistical evidence supports the conclusion that academic performance in this context is relatively uniform across demographic groups.

Table 1: Descriptive Statistics by Gender and Locality

Gender	Locality	N	Mean	SE	SD	Min	Max	Skewness	SE	Kurtosis	SE
Female	Urban	20	63.7	1.57	7.03	52	80	0.456	0.512	0.511	0.992
Female	Rural	24	62.5	1.02	4.98	55	73	0.551	0.472	-0.547	0.918
Male	Urban	28	62.1	1.34	7.09	43	79	-0.177	0.441	1.25	0.858
Male	Rural	28	63.8	1.24	6.56	49	77	-0.066	0.441	-0.39	0.858

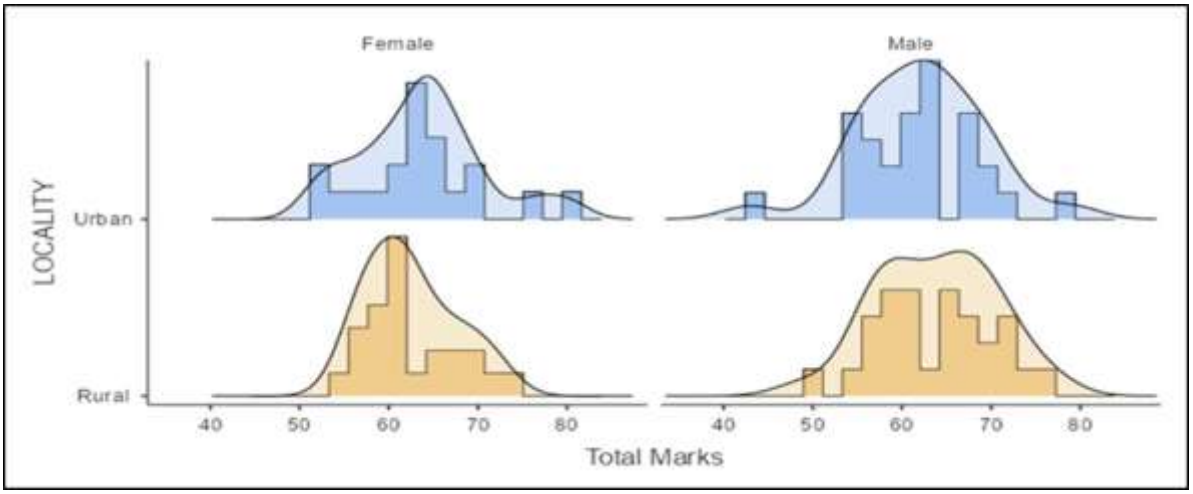

Figure 1*: shows the distribution of total marks by gender and locality, illustrating approximately normal distributions across all groups.*

Hypothesis 1: Awareness Differences between Urban and Rural Students

- An independent samples t-test was conducted to determine whether there was a significant difference in IKS awareness between urban and rural students.

Table 2: Awareness of the Urban and Rural Secondary school students

Statistic	t (98)	p-value	Mean Scores (Urban)	Mean Scores (Rural)	Standard Deviation (Urban)	Standard Deviation (Rural)	Effect Size (Cohen's d)
Values	0.313	0.755	62.8	63.2	7.04	5.87	-0.06

An independent samples t-test was conducted to compare the mean scores of students from urban and rural areas. The results showed that there was no statistically significant difference between the two groups, $t(98) = 0.313$, $p = 0.755$. The mean score for urban students was 62.8 (SD = 7.04), while the mean score for rural students was 63.2 (SD = 5.87) Table 2. The calculated effect size (Cohen's d) was -0.06, indicating a negligible difference in practical terms. These findings suggest that the geographic location of students, whether urban or rural, does not have a significant impact on their academic performance in this sample.

The results indicate no statistically significant difference in awareness levels between urban and rural students, suggesting that location does not play a major role in IKS understanding.

Hypothesis 2: Awareness Differences between Male and Female Students

- A second independent samples t-test was performed to compare awareness scores between male and female students.

Table 3: Awareness of the Male and Female secondary school students

Statistic	t (98)	p-value	Mean Scores (Female)	Mean Scores (Male)	Standard Deviation (Female)	Standard Deviation (Male)	Effect Size (Cohen's d)
Values	0.0861	0.932	63	62.9	5.96	6.82	0.01

An independent samples t-test was conducted to compare the mean scores of female and male students. The results revealed no statistically significant difference between the two groups, $t(98) = 0.0861$, $p = 0.932$. The mean score for female students was 63.0 (SD = 5.96), while the mean score for male students was 62.9 (SD = 6.82). The effect size, calculated using Cohen's *d*, was 0.01, indicating a negligible difference. These findings suggest that gender does not have a significant impact on students' academic performance in this sample table 3.

- The findings suggest no significant difference in IKS awareness between male and female students, indicating that gender does not influence knowledge levels.

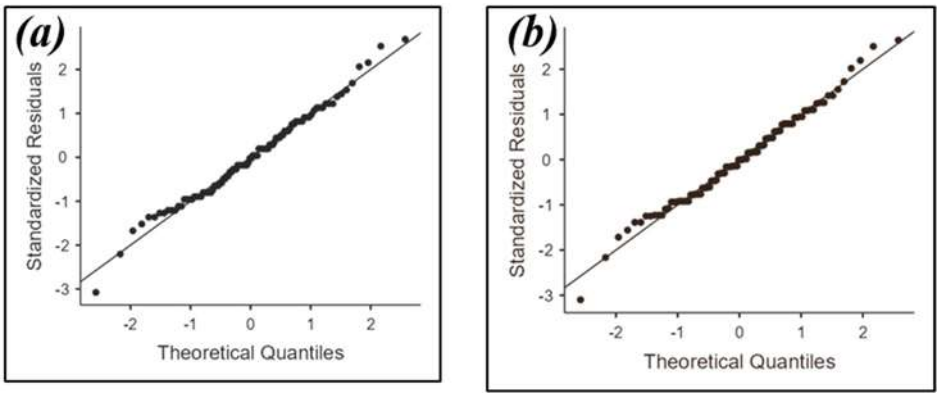

Figure 2: The Q-Q plots depict the standardized residuals for the t-tests comparing (a) gender (male vs. female) and (b) locality (urban vs. rural). In both subplots, the points fall approximately along the reference line, indicating that the assumption of normality is satisfied.

The findings indicate that there is no significant difference in academic achievement between female and male students in the sample studied. The extremely small effect size suggests that gender does not meaningfully influence student performance in this context. This aligns with recent research emphasizing the diminishing gender gap in academic outcomes, particularly in environments where equal educational opportunities are provided. The near-identical mean scores support the idea that both male and female students are equally capable of academic success when given similar learning conditions. These results reinforce the importance of focusing on individual learning needs and teaching strategies rather than demographic factors like gender.

CONCLUSION

This study scientifically investigated the level of awareness toward the Indian Knowledge System (IKS) among secondary school students in Gandhinagar, Gujarat, employing a quantitative research design and statistical analysis to explore group-wise differences. The analysis was conducted on a representative sample of 100 students, comprising 48 urban and 52 rural students, and 44 females and 56 males. Using a structured and validated questionnaire that covered five key domains of IKS—Ayurveda, Yoga, Vedic Mathematics, Indian Philosophy, and Traditional Environmental Practices—students' awareness was quantified through scoring. The findings of the study, supported by independent samples t- tests, revealed that there were no statistically significant differences in IKS awareness based on either geographical location or gender. Specifically, urban students had a mean awareness score of M = 62.8 (SD = 7.04), while rural students had a mean of M = 63.2 (SD = 5.87). The t-test result t(98) = 0.313, p = 0.755, and a Cohen's d = -0.06 indicates a negligible effect size, confirming that location had no practical influence on awareness levels. Similarly, female students recorded a mean score of M = 63.0 (SD = 5.96), and male students M = 62.9 (SD = 6.82). The gender-based comparison yielded t(98) = 0.0861, p = 0.932, with a Cohen's d = 0.01, further confirming no statistically or practically significant difference between male and female students. Additionally, Q-Q plots and Shapiro-Wilk test results confirmed the normal distribution of residuals, validating the appropriateness of using parametric tests for this analysis. These empirical findings suggest that demographic factors such as gender and locality do not substantially impact students' awareness of IKS, implying a homogeneous level of exposure or engagement across groups. However, despite this uniformity, the average awareness scores—hovering in the low to mid 60s out of a possible higher total—indicate that students' overall awareness of IKS remains moderate, and likely insufficient considering the emphasis placed on IKS in National Education Policy (NEP) 2020. The results highlight a critical need for strategic curriculum integration of Indian Knowledge Systems to enhance both the depth and breadth of student understanding. Incorporating experiential learning, interdisciplinary modules, digital resources, and teacher capacity building can significantly boost student engagement with IKS. Furthermore, community-led initiatives, collaboration with IKS research centers, and the integration of vernacular knowledge sources can help localize and contextualize IKS education. To extend the scientific foundation of this work, future studies should include larger, more diverse populations, apply longitudinal tracking to assess learning growth over time, and adopt mixed-methods approaches to capture students' qualitative experiences and attitudes toward IKS. By bridging modern

education with India's vast cultural and intellectual heritage, educational institutions can play a transformative role in revitalizing indigenous wisdom for contemporary relevance.

EDUCATIONAL IMPLICATIONS

The findings of this research hold several important implications for the educational ecosystem, particularly in relation to curriculum design, teacher training, student engagement, and policy implementation. The observation that students demonstrated only a moderate level of awareness across all groups indicates that Indian Knowledge Systems are being introduced in schools, but possibly in a superficial or textbook-centric manner. This suggests the need for a shift from theoretical exposure to experiential and integrative learning. The lack of significant differences in awareness based on gender and locality reflects a positive move toward educational equity. However, this uniformity also highlights that current teaching methods may not be sufficiently engaging or impactful for any group. This presents a crucial opportunity for curriculum developers to revisit the design and delivery of IKS content, ensuring it becomes more relatable and immersive. These results underscore the importance of being well-versed in both the content and the cultural context of IKS. Teacher education programs must include modules on Indian traditional knowledge systems and offer pedagogical strategies that align with students' lived experiences and community practices. Only then can teachers effectively inspire appreciation and critical reflection among learners. In terms of policy, the study reinforces the vision of the National Education Policy (NEP) 2020, which emphasizes the inclusion of indigenous knowledge and cultural roots in school education. However, for this vision to translate into meaningful outcomes, there must be institutional commitment, resource allocation, and ongoing support mechanisms at the school and district levels.

REFERENCES

Das, A., & Rai, R. (2025). Vanishing Voices: Exploring the contribution and Decline of Birhor oral traditions in the context of Indian Knowledge System. *International Journal of Advanced Research, 13*(3), 401-407. DOI: 10.21474/IJAR01/20579

Das, A., & Rai, R. (2025). Sohrai Wall Art of the Santals: A Visual Chronicle of Culture and Tradition in the Indian Knowledge System. *International Journal of Creative Research Thoughts, 13*(3), 32-40.

Das, A., & Rai, R. (2024). Understanding Positive Psychology through the lens of Indian

Knowledge System: Insights from Shrimad Bhagavad Gita. *EPRA International Journal of Multidisciplinary Research, 10*(5), 138-143. DOI: 10.36713/epra16776

Das, A., & Rai, R. (2024). Unveiling the Synergy between community participation and Indian Traditional Knowledge in School Education: Insights from NEP 2020 and NCF-SE 2023. *International Journal of Advanced Research, 12*(4), 1181-1185. DOI: 10.21474/IJAR01/18661

Isser, S.S., Raj, N., Tomar, M., Marwaha, S.S., & Shastri, S. (2024). Value based education in NEP 2020: Fostering ethical and moral growth through Dharma. *Asian Education and Development Studies, 13*(5), 579-597. DOI: 10.1108/aeds-06-2024-0121

Mishra, N., & Aithal, P.S. (2023). Ancient Indian Education: Its relevance and importance in

the modern Education system. *International Journal of Case Studies in Business, IT, and Education, 7* (2), 238-249. DOI: 10.47992/ijcsbe.2581.6942.0271

Negi, V.S., Thakur, S., Rawal, R.S., Joshi, R.K., Bhatt, I.D., & Pathak, R. (2021). Scoping the Need of Mainstreaming Indigenous knowledge for sustainable use of Bioresources in the Indian Himalayan Region. *Environment Management, 37*(1), 135-146. DOI: 10.1007/s00267-021-01510-w

Photo, P., & Mcknight, M. (2024). Investigating Indigenous knowledge awareness among South African science teachers for developing a guideline. *Curriculum Perspectives, 44*, 61-71. DOI: 10.1007/s41297-023-00224-9

Sharma, H. & Keith Wallace, R. (2020). Ayurveda and Epigenetics. *Medicina, 56*(12), 1-8. DOI: 10.3390/medicina56120687

Sharma, S., Das, A., & Rai, R. (2024). Exploring Mental Well-being from the Perspective of the Indian Knowledge System with Special reference to Patanjali Yoga Sutra and Bhagavad Gita. *Teacher Education: A Biannual Peer-Reviewed Journal. 55* (2), 119-137.

Tharakan, J. (2015). Integrating Indigenous knowledge into appropriate technology and implementation. *African Journal of Science, Technology, Innovation and Development, 7*(5), 364-370. DOI: 10.1080/20421338.2015.1085176