Mapping Literacy Inequality in Nashik District: A Regional Study

Dr. Ganesh M. Gangurde

Assistant Professor, Department of Geography,
MGV's Loknete Vyankatrao Hiray Arts, Science and Commerce College, Panachvati, Nashik (Maharashtra), India
Email: ganeshgangurde11@gmail.com

Address for correspondence:
Dr. Ganesh M. Gangurde
Assistant Professor, Department of Geography,
MGV's Loknete Vyankatrao Hiray Arts, Science and Commerce College, Panachvati, Nashik (Maharashtra), India
Email: ganeshgangurde11@gmail.com

Abstract

This study investigates spatial disparities in literacy across Nashik district, emphasizing both geographic and socio economic determinants. Nashik, comprising diverse regionsfrom urban centers to tribal and rural talukas, exhibits marked variations in literacy. Analysis of secondary data from the Census of India, district handbooks, and academic literature reveals that urban areas, notably Nashik city, outperform rural and tribal regions like Peth and Surgana. Female literacy remains particularly low in marginalized communities. Topographical challenges and deficiencies in infrastructure have further widened these gaps. This study recommends targeted interventions, such as bolstering educational infrastructure, gender-sensitive initiatives, scholarship programs, and technology-driven education solutions, to bridge these divides and foster inclusive growth.

Keywords: Literacy, Disparity, Gender Gap, Spatial Analysis, Nashik

Introduction:

Literacy drives socioeconomic development and is a reliable indicator of human development indicator (Husain, 2011; Hande, 2020). The Indian Census defines literacy as individuals aged seven and above who can read and write with understanding (G.T. 1969). Literacy influences health, fertility, economic engagement, and cultural interactions (T.G. Ghatage, 2023). This study elucidates regional development patterns by analyzing literacy variations across spatial units and informs policy planning.

Study area:

India, 2011). The average literacy rate reached 82.31%, with male literacy at 88.17% and female literacy at 76.08%. The district comprises 15 talukas ranging from urban Nashik to tribal belts, such as Bostana and Peth, featuring varied terrain and socioeconomic profiles. Nashik had an average literacy rate of 82.31, an increase from 74.36 in 2001. When looking at the data by gender, the male and female literacy rates were 88.17 and 76.08, respectively. In India, the average sex ratio per 1000 men is 940. According to the census, the child sex ratio was 890 girls for every 1000 boys. The Nashik District is subdivided into 15 talukas: Satana, Kalwan, Chandwad, Niphad, Sinnar, Yeola, Malegaon, Nandgaon, Nashik, Igatpuri, Dindori, Peint, Bostana, and Deola Trimbakeshwar.

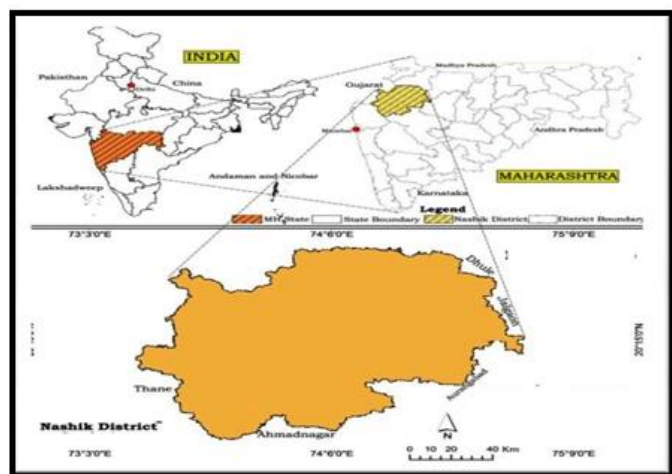**Fig.01.** Location Map of Study Area

Objectives of the study:

1. To study the spatial variation in literacy across Nashik talukas
2. To study the Quantify and analyze male-female literacy disparities

Research Methodology

The methodology for this study focuses on analyzing spatial disparities in literacy rates within the Nashik district from geographical and socio-economic perspectives.

This research is descriptive in nature, relying on secondary data sources and employing spatial and statistical techniques for analysis. Secondary data were used to examine literacy patterns across the Nashik district. The Census of India (2011) provides data on literacy rates, gender-specific literacy, urban-rural demographics, and socio economic indicators. The District Statistical Handbook provides information on infrastructure development, educational institutions, and population distribution across the district. Research Articles and Reports and Relevant academic studies, and policy documents were reviewed to contextualize the findings and identify factors influencing literacy trends.

Between 2001 and 2011, Nashik District experienced significant demographic changes. The population grew by 22.30%, reaching 6,107,187 in 2011, although at a slower rate than that in the previous decade (29.66%). The sex ratio improved markedly from 922 females per 1,000 males in 2001 to 934 in 2011, signaling better gender equity. However, the child sex ratio declined from 920 to 890, highlighting persistent challenges. Literacy rates showed progress, particularly for females, with female literacy rising from 64.35% to 76.08%, narrowing the gender gap, whereas male literacy increased to 88.17%. Despite this, overall literacy dipped slightly to 82.31%, likely because of population growth outpacing educational initiatives. The population density rose from 322 to 393 persons per square kilometer, reflecting growing urban pressures. Additionally, the proportion of children decreased from 15.81% to 13.56%, suggesting demographic shifts toward lower birth rates or an aging population. Nashik's contribution to Maharashtra's total population has increased from 5.15% to 5.43%, underlining its growing importance in the state. These trends illustrate progress in gender equity and education, but highlight challenges in child gender disparity and managing urbanization.

Table 2. Literacy rate in Nashik District from the year 1991, 2001 and 2011

Sr. No	Year	Nashik District	Male	Female	Male –Female Disparity
1	1901	04.31	08.13	00.39	07.74
2	1911	04.37	08.08	00.60	07.48
3	1921	06.36	11.22	01.31	09.91
4	1931	07.89	13.79	01.77	12.02
5	1941	15.57	25.07	05.70	19.37
6	1951	11.40	33.20	09.10	24.10
7	1961	26.89	39.36	13.71	25.65
8	1971	36.30	48.45	23.37	25.08
9	1981	44.36	56.09	31.85	24.24
10	1991	62.37	74.07	49.89	24.18
11	2001	74.15	83.37	64.16	19.21
12	2011	82.31	88.17	76.08	12.09
Sources: District census handbook of Nashik District					
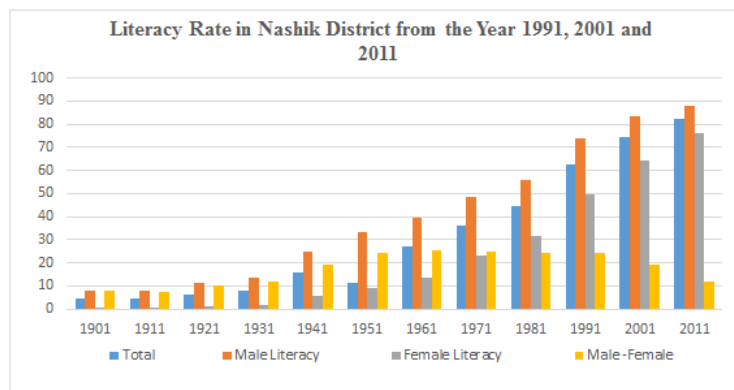
Spatial Changes of Literacy in Nashik District:

The literacy trends in Nashik District from 1901 to 2011 reflect remarkable progress, but they also underscore persistent socio cultural and geographical disparities. Starting from a literacy rate of just 4.31% in 1901, the district achieved 82.31% by 2011, with marked growth in the latter half of the 20th century. Male literacy consistently exceeded female literacy throughout the study period, with male rates rising from 8.13% in 1901 to 88.17% in 2011, while female literacy increased from an extremely low 0.39% to 76.08%**.** The stark male-female literacy gap, which peaked at 25.65% in 1961, highlights the systemic exclusion of women from education due to cultural norms, early marriages, and prioritization of boys' education.

The post-independence era (1950 onward) saw significant improvements, particularly after the introduction of government policies aimed at universal education, such as the Right to Education, and gender-focused schemes such as Beti Bachao Beti Padhao. These efforts contributed to narrowing the male-female literacy disparity to 12.09% by 2011, indicating progress in female education but also revealing persistent challenges, especially in rural and tribal areas where socio economic barriers remain entrenched. Analyzing decadal changes, the growth in literacy was relatively slow from 1901 to 1941, with an increase of only 3.58% over 40 years, reflecting the lack of infrastructure, limited government focus, and socio

economic constraints of colonial India. Significant improvements began post-1961, as literacy rates rose sharply by 46.01% from 1961 to 2011. This rapid growth was fueled by increased public investment in education, infrastructure development, and awareness campaigns. Male literacy grew consistently faster in the early decades, reflecting male-centric policies and societal priorities, whereas female literacy gained momentum later due to focused interventions. This analysis also reveals substantial spatial disparities. Urban areas, particularly Nashik City, have benefitted from better infrastructure, economic opportunities, and awareness, achieving literacy rates exceeding 88%. In contrast, tribal-dominated tahsils like Surgana and Peth lagged significantly, with rates around 68-71%, reflecting poor access to schools, insufficient teacher availability, and socio-economic backwardness. The urban-rural differential in literacy highlights how geographic and economic factors exacerbate inequality, with urban areas benefitting from better resource allocations.

Table No. 3 - Tahsil wise Percentage of literates to total population of Nashik District (2011)

Sr. No.	Tahsil	Population	Sex Ratio	Total	Male	Female	Male –Female Disparity	Rural	Urban
1.	Surgana	175,816	1,001	68.15	75.34	61.01	4.33	67.45	86.35
2	Kalwan	208,362	963	68.50	75.39	61.41	13.98	68.50	N.UA.
3	Deola	144,522	919	81.96	88.19	72.25	15.94	81.96	N.UA.
4	Baglan	374,435	939	77.45	83.51	71.07	12.44	76.03	89.73
5	Malegaon	955,594	949	83.39	88.08	78.48	9.6	77.46	87.18
6	Nandgaon	288,848	932	80.91	88.01	73.34	14.67	75.86	89.59
7	Chandwad	235,849	932	82.09	88.93	81.95	6.98	81.36	88.12
8	Dindori	315,709	955	77.52	85.08	69.68	15.4	77.52	N.UA.
9	Peth	119,838	988	71.03	79.01	62.94	16.07	71.03	N.UA.
10	Trimbak	168,423	975	68.91	77.23	60.37	16.86	67.21	89.61
11	Nashik	1,755,491	904	88.98	92.97	84.59	8.38	88.98	89.80
12	Igatpuri	253,513	965	77.43	84.53	63.98	20.55	74.39	87.93
13	Sinnar	346,390	924	82.68	89.56	73.15	16.41	81.59	89.56
14	Niphad	493,251	936	83.63	89.85	77.08	12.77	82.51	89.92
15	Yeola	271,146	937	82.71	89.60	75.44	14.16	80.85	88.54
	District	6107187	934	82.31	88.17	76.08	12.09	77.19	89.12
Sources: District census handbook of Nashik District 2011									
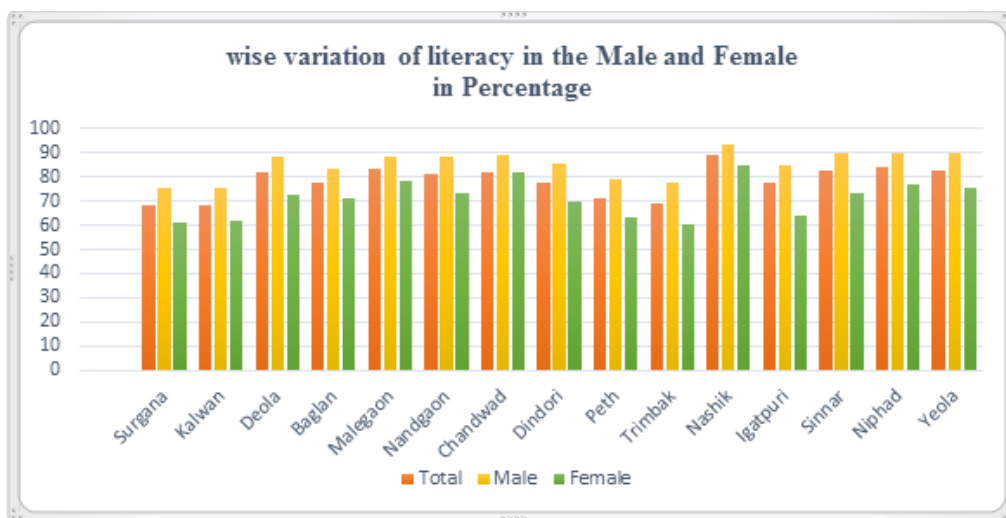
Tehsil-wise variation of literacy in the Male and Female

The tahsil-wise data for Nashik District highlight substantial disparities in literacy, demographics, and rural-urban differences, reflecting the complex interplay of socio economic, cultural, and infrastructural factors. With an overall literacy rate of 82.31%, the district has made significant progress, but disparities have persisted. Urban tahsils such as Nashik (88.98%) and Malegaon (83.39%) consistently show higher literacy rates, benefiting from better educational infrastructure, economic development, and access to resources. Conversely, tribal and rural tahsils, such as Surgana (68.15%), Trimbak (68.91%), and Peth (71.03%), lag considerably because of geographic isolation, poor infrastructure, and socio economic challenges. These regions also exhibit the highest male-female literacy gaps, with disparities reaching 20.55% in Igatpuri and 16.86% in Trimbak, underscoring deep-rooted gender inequities fueled by cultural norms, early marriages, and limited awareness of the importance of education for women.

The rural-urban divide further compounds these issues, with urban areas achieving an average literacy rate of 89.12% compared to 77.19% in rural regions. Urban centers, such as Nashik City, benefit from concentrated economic activities that necessitate literacy and education, whereas rural and tribal economies, which are largely dependent on agriculture and manual labor, offer fewer incentives for education. Tribal tahsils with high poverty rates and poor

transportation networks face additional challenges in ensuring regular school attendance and retention, particularly among girls. Furthermore, the sex ratio data indicates a more balanced gender distribution in tribal tahsils like Surgana (1,001) and Peth (988), yet the high literacy gaps suggest that cultural norms, rather than demographic factors, significantly hinder female education in these regions. Despite these challenges, some tahsils, such as Chandwad (82.09%) and Niphad (83.63%), exhibit relatively balanced male-female disparities (6.98% and 12.77%, respectively), reflecting the positive impact of localized interventions and better educational outreach. However, even in these areas, rural sections face barriers, such as limited school facilities, inadequate teacher-student ratios, and a lack of secondary and higher education opportunities, which constrain overall development.

Conclusion:

The disparity in literacy within Nashik reflects a deep-rooted geographic and socio cultural divide. Urbanization, economic privileges, and infrastructure drive higher literacy in some areas, while marginal regions lag. A combination of targeted local policies, gender equality efforts, educational infrastructure, and technology-based solutions is essential for closing the literacy gap and achieving equitable development.

This study highlights spatial disparities in literacy across the Nashik district, underscoring significant variations influenced by geographic and socio economic factors. Urban areas, such as Nashik City, exhibit higher literacy rates due to better infrastructure and economic opportunities, while rural and tribal regions lag and are hindered by inadequate resources and cultural barriers. The persistent male-female literacy gap, particularly in tribal tehsils, reflects entrenched gender inequality. To bridge these gaps, region-specific interventions such as improving educational infrastructure, promoting gender equality, and leveraging technology are crucial. Addressing these disparities is vital for equitable development and enhancing the district's socioeconomic growth.

Conflicts of interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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