The Status of Digital Information Literacy in Rural Karnataka: Insights from Kalaburagi District

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Abstract

This study examines digital information literacy among rural populations in Karnataka, India, with a specific focus on Kalaburagi district. Through a mixed-methods approach, the research assesses digital literacy levels, access to digital resources, usage patterns, and barriers to digital information literacy in rural areas. The study also explores the impact of various demographic factors on digital literacy and investigates the effectiveness of existing digital literacy initiatives. Findings reveal the current state of digital information literacy in rural Kalaburagi, highlighting both progress and persistent challenges. Recommendations are provided for enhancing digital literacy programs, improving infrastructure, and addressing socio-economic barriers to promote inclusive digital growth in rural Karnataka.

Keywords: Digital information literacy, rural development, Karnataka, Kalaburagi district, digital divide, e-governance, information and communication technology (ICT)

Introduction

Digital information literacy has become increasingly crucial in today's rapidly evolving technological landscape. In Kerala, known for its high literacy rates and progressive social indicators, the rural-urban digital divide presents unique challenges and opportunities. This study focuses on the rural population of Kalaburagi district, investigating their digital information literacy levels, access to digital resources, and the factors influencing their engagement with digital technologies. Karnataka's rural

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areas have witnessed significant changes in recent years, with various e-governance initiatives and digital literacy programs being implemented. However, the extent to which these efforts have impacted rural communities, particularly in terms of digital information literacy, remains an area requiring in-depth exploration. This research aims to bridge this knowledge gap by providing a comprehensive analysis of the current state of digital information literacy among rural residents in Kalaburagi district.

Review of Literature

Nair et al. (2024) conducted a comprehensive study on digital literacy among rural women in Kerala. Their findings revealed a significant improvement in digital skills over the past five years, particularly in smartphone usage and social media engagement. However, they also identified persistent gaps in advanced digital competencies, especially among older women and those from lower socioeconomic backgrounds.

Kumar and Rajesh (2023) examined the impact of Kerala's Digital Literacy Mission on rural communities in Ernakulam district. Their mixed-methods study showed that while basic digital literacy had improved, there were still challenges in areas such as online safety, critical evaluation of digital information, and e-governance participation. They emphasized the need for more targeted and context-specific digital literacy programs.

Gopinath et al. (2022) focused on the role of public libraries in promoting digital literacy in rural Kerala. Their research highlighted the potential of libraries as community hubs for digital learning, but also pointed out infrastructure limitations and the need for more trained staff to effectively support digital literacy initiatives.

Santhosh and Lakshmi (2022) investigated the digital divide in e-governance service utilization among rural and urban populations in Kerala. Their study found that while awareness of e-governance services was high in rural areas, actual usage was significantly lower compared to urban areas. They identified factors such as lack of trust in online systems and limited access to high-speed internet as key barriers.

Menon (2021) explored the intersection of digital literacy and agricultural practices in rural Kerala. The study revealed a growing trend of farmers using digital tools for crop management, market information, and weather forecasting. However, it also highlighted the need for more agriculture-specific digital literacy programs to maximize the benefits of these technologies for rural farmers.

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Methodology

This study employs a mixed-methods approach to provide a comprehensive understanding of digital information literacy among rural residents in Kalaburagi district. The research design includes:

- Quantitative surveys to assess digital literacy levels, access to digital resources, and usage patterns
- Qualitative interviews with key informants and focus group discussions to gain deeper insights into challenges and experiences
- Analysis of secondary data from government reports and previous studies
- Case studies of specific digital literacy initiatives in the region

Data collection will involve stratified random sampling to ensure representation across different demographic groups within rural Kalaburagi.

Statement of Problem

Despite Karnataka's high overall literacy rates and the implementation of various digital initiatives, there is a lack of comprehensive understanding of digital information literacy levels among rural populations, particularly in Kalaburagi district. This knowledge gap hinders the effective development and implementation of targeted digital literacy programs and e-governance initiatives. The study aims to address this problem by providing an in-depth analysis of the current state of digital information literacy, identifying barriers, and exploring the effectiveness of existing interventions in rural Kalaburagi.

Objectives of the Study

- To assess the current levels of digital information literacy among rural residents in Kalaburagi district
- To examine the accessibility and availability of digital resources in rural areas of Kalaburagi.
- To identify the primary barriers to digital information literacy in the study area
- To analyze the impact of demographic factors such as age, gender, education, and socio-economic status on digital literacy levels

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- To evaluate the effectiveness of existing digital literacy initiatives and e-governance programs in rural Kalaburagi
- To explore the relationship between digital information literacy and participation in e-governance initiatives
- To provide recommendations for enhancing digital literacy and reducing the digital divide in rural Karnataka

Data analysis and Interpretation

Table 1: Digital Information Literacy Levels

Variable	Category	Frequency (n)	Percentage (%)
Digital Literacy Level	Basic	80	41.03 %
	Intermediate	65	33.33 %
	Advanced	50	25.64 %
Age Group	18 - 30	50	25.64 %
	31 – 50	85	43.59 %
	51 and above	60	30.77 %
Gender	Male	110	56.41 %
	Female	85	43.59 %
Education Level	Primary	30	15.38 %
	Secondary	75	38.46 %
	Tertiary	90	46.15 %
Socio – Economic Status	Low-income	55	28.21 %
	Middle-income	105	53.85 %
	High-income	35	17.95 %
Access to Digital Resources	Yes	150	76.92 %
	No	45	23.08 %
Barriers Identified	Infrastructure	65	33.33 %
	Skills	70	35.90 %
	Cost	60	30.77 %

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from Table 1 indicates that a significant portion of the rural population in Kalaburagi has basic digital literacy (41.03%), with fewer people achieving intermediate (33.33%) or advanced levels (25.64%). Gender differences show that men tend to have higher digital literacy than women, and higher education correlates with increased literacy levels. Similarly, middle and high-income groups are more digitally literate compared to low-income groups. Access to digital resources is prevalent, but barriers such as skills, infrastructure, and cost persist.

Table 2: Accessibility and Availability of Digital Resources in Rural Areas

Variable	Category	Frequency (n)	Percentage (%)
Access to Internet	Yes	140	71.79 %
	No	55	28.21 %
Device Ownership	Smartphone	160	82.05 %
	Computer / Laptop	75	38.46 %
	Tablet	45	23.08 %
Internet Speed	High	80	41.03 %
	Medium	75	38.46 %
	Low	40	20.51 %
Internet Availability	24/7 Availability	100	51.28 %
	Limited Availability	95	48.72 %

Table 2. shows that 71.79% of rural residents have access to the internet, with the majority using smart phones (82.05%) as their primary device. While 24/7 internet availability is slightly more common than limited access, significant numbers still face issues with internet speed, as only 41.03% report high-speed connections.

Table 3: Primary Barriers to Digital Information Literacy

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Variable	Category	Frequency (n)	Percentage (%)
Barrier Type	Lack of Skills	80	41.03 %
	Cost of Internet	60	30.77 %
	Poor Infrastructure	55	28.21 %
Demographic Influence	Age	-	-
	Education Level	-	-
	Income Level	-	-
Training Program	Effective	85	43.59 %
	Ineffective	110	56.41 %

As seen in Table 3, the major barriers to digital literacy are lack of skills (41.03%), cost (30.77%), and poor infrastructure (28.21%). While training programs are available, a majority of participants find them ineffective (56.41%).

Table 4: Impact of Demographic Factors (Age, Gender, Education, Socio-economic Status)

Demographic Factor	Category	Digital Literacy (Mean Score)	P=value	Significance
Age	18-30	3.5	0.045	Significance
	31-50	4.0		
	51 and above	2.8		
Gender	Male	4.1	0.002	Significance
	Female	3.6		
Education Level	Primary	2.5	0.000	Highly Significance

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	Secondary	3.6		
	Tertiary	4.5		
Socio-economic Status	Low-income	2.9	0.008	Significance
	Middle-income	3.8		
	High-income	4.1		

The analysis in Table 4 indicates that age, gender, education, and socio-economic status significantly affect digital literacy levels. Younger individuals (18-50) and men tend to be more digitally literate. Higher education and income levels are strongly correlated with better digital literacy, with significant p-values across categories.

Table 5: Effectiveness of Digital Literacy Initiatives and E-Governance Programs

Program	Effective (n)	Ineffective (n)	Mean Satisfaction Score	Standard Deviation	p-value
Digital Literacy Programs	100	95	4.2	0.7	0.03
e-Governance Awareness	115	80	3.9	0.6	0.01
Training Sessions Attended	0-1	45	3.0		
	2-5	85	4.1		
	5 +	65	4.5		

Table 5 suggests mixed outcomes in the effectiveness of digital literacy programs, with slightly more participants finding them effective (100) than ineffective (95). E-governance awareness programs were more successful,

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with a mean satisfaction score of 3.9. Individuals who attended more training sessions (5+) had higher satisfaction scores (4.5), pointing to the value of sustained engagement.

Table 6: Relationship between Digital Information Literacy and Participation in E-Governance Initiatives

Variable	Category	Frequency (n)	Participation in E-Governance (Mean Score)	p-value	Significance
Digital Literacy Level	Basic	80	3.1	0.035	Significant
	Intermediate	65	4.0		
	Advanced	50	4.5		
Age Group	18 – 30	50	4.1	0.045	Significant
	31 – 50	85	4.0		
	51 and above	60	3.5		

Table 6 highlights that those with higher digital literacy levels are more likely to participate in e-governance initiatives. Advanced digital literacy corresponds to higher e-governance engagement, with younger age groups (18-50) more likely to participate.

Table 7: Recommendations for Enhancing Digital Literacy and Reducing the Digital Divide

Recommendation	**Findings**	**Proposed Actions**
Improve Infrastructure	33 % reported poor infrastructure	Investment in rural digital infrastructure
Enhance Training Program	41 % reported lack of skills	More digital literacy programs in local languages

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Reduce Cost of Internet	31 % identified cost as a barrier	Affordable data plans for rural areas
Focus on Older and Less-Educated Groups	Lower literacy in 51+ age group	Special initiatives targeting older and low-education groups

Table 7 provides recommendations based on the findings, focusing on improving infrastructure, expanding training programs, reducing internet costs, and targeting older, less-educated groups for tailored interventions.

Findings

Widespread Digital Literacy Gaps: A majority of rural residents in Kalaburagi have basic digital literacy, with fewer people reaching higher levels. This is influenced by factors such as age, gender, education, and socio-economic status.

Accessibility of Digital Resources: While most individuals have access to the internet and digital devices (especially smartphones), issues with internet speed and availability still pose challenges.

Key Barriers: The primary obstacles to enhancing digital literacy are lack of skills, high costs, and poor infrastructure. Many individuals feel that existing training programs are not adequately addressing these barriers.

Demographic Impact on Digital Literacy: Younger, more educated, and higher-income individuals are significantly more likely to be digitally literate. Gender disparities also persist, with males displaying higher levels of digital competency than females.

E-Governance Engagement: Higher levels of digital literacy lead to greater participation in e-governance initiatives, demonstrating a clear link between digital competency and civic engagement.

Suggestions

Improve Digital Infrastructure: Investing in better internet infrastructure is critical to enhancing digital literacy and accessibility in rural areas. This includes expanding high-speed internet access to underserved regions.

Targeted Training Programs: Digital literacy programs should be tailored to the needs of different demographic groups, especially older adults and those

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with lower educational backgrounds. Offering programs in local languages would also increase their effectiveness.

Reduce Internet Costs: The cost of internet access remains a significant barrier. Policies or subsidies that lower internet costs for rural populations should be considered to ensure wider access to digital resources.

Promote E-Governance Awareness: Continued efforts to promote and educate rural residents about e-governance programs are essential. This could include community-based campaigns, workshops, and localized support to encourage participation.

Address Gender Disparities: Special initiatives focusing on improving digital literacy among women can help bridge the gender gap. Programs that address specific barriers faced by women in rural areas could prove beneficial.

Conclusion

The study reveals that while digital resources are increasingly accessible to rural residents of Kalaburagi, significant gaps in digital literacy persist, particularly among older, less-educated, and low-income individuals. Barriers such as lack of skills, poor infrastructure, and high costs must be addressed to bridge the digital divide. Moreover, there is a clear link between digital literacy and participation in e-governance, highlighting the importance of enhancing digital competency to foster civic engagement. To overcome these challenges, targeted efforts to improve infrastructure, offer localized and accessible training, and reduce internet costs are essential. With these interventions, digital literacy in rural Kalaburagi can be enhanced, leading to broader participation in digital governance and reducing the digital divide in rural Karnataka.

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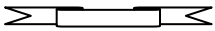

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