Awareness and Use of Digital Technology among Tribal Women in Kolli Hills

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Abstract

It is true that information technology has gigantic potential in accelerating economic growth in all sectors of the economy through improved access to information. Access to IT infrastructure in all levels of governance and administration enhances relations between the citizens and the government and promotes transparency. Since digital empowerment and inclusion multiplier impact on economic growth, it is thus necessary to any nation. The innovative flagship program of the Central Government, in this case, is called Digital India, which is focused on eradicating the digital divide among the residents of the country and creating a digitally empowered society. The digital divide restrains the citizens in gaining knowledge on the benefits of modern life, work, and engagement. The digital divide is huge in the rural areas and in underprivileged members of the community, such as the tribe people. Aggressive groups residing in remote and terrine environments are also among the disadvantaged groups in the population where digital divide is most evident. The analysis of the data collected in the Malayali, one of the largest tribal groups of the Kolli Hills. The findings indicate that the prevalence of understanding and using digital technology and services are very low among tribal women, which is a sign of the low digital inclusion levels of marginalised communities.

Keywords: Tribals, Digital Inclusion, Digital Literacy, Digital Awareness, Information Technology.

Introduction

India has come a long way in information and communication technology that has contributed to transforming socioeconomic environment of the country. Information technology can positively contribute to the economic growth in all the sectors of the economy by influencing access to information. Information technology has played a significant role in the development of various sectors of human lives such as health, education, financial services, as well as the opportunities of the lively hood. The availability of IT infrastructure, at whatever level of governance and administration, enhances connection between the citizens and the government and promotes transparency. Since digital empowerment and inclusion are multipliers to economic growth, it is thus a necessity in any country. Digital India is one of the grand plans of the Central Government concerning the digital transformation of the Indian society. Through digital literacy, it aims at empowering

citizens using digital platforms and services in their everyday lives. Digital literacy is the ability to access, handle, understand, assimilate, communicate, analyze and generate information through the use of digital technology safely and in an appropriate manner to work, earn a living, and be an entrepreneur.

The Indian economy has developed a mobile phone market and the demand of smartphones is increasing day by day. The internet uptake of 4G and 5G is increasing the size of the Indian internet users. Although the internet user base is second largest in India, the internet accessibility is very low in remote rural regions where castes and tribes that are marginalised live. There is also a high gender gap in mobile and internet access in India that contributes to the digital gap and continues to place women out of the mainstream. Gender gap in digital divide is caused by low digital knowledge and literacy levels amongst women. The gap is further enhanced by the fact that low rates of digital knowledge and literacy among women are some of the factors that play a key role in the digital divide between men and women. The gap is enlarged as the status of women at home becomes lower, and they depend more on money. The barriers to accessing the internet are the cost of smartphones and data costs, economically. The digital divide restricts the possibilities of citizens to get knowledge about the benefit of modern life, work, and participation.

Review of Literature

There are numerous studies on different aspects of online inclusion of different socioeconomic groups carried out in the global arena. According to Anukta Ghatak (2024). The individuals who are informed and skilled in information technology will be at a better position to engage in a networked society. Also, the digital empowerment of people will reduce marginalisation of individuals who benefit in government initiatives and programs. According to the experience of Chile, Correa, T., and Pavez, I. (2016), there are contextual and individual factors influencing the internet adoption in rural communities of remote locations, and these factors are geographic isolation, the proportion of the community population that is older, the nature of work, and economic activity. Also digital inclusion is impacted by the nature of web use, skills in using digital devices, and access to different digital gadgets. The spread of ICT-enabled services represents a range of opportunities to improve the living standards in developing countries as concluded by S Dixit (2024). Nonetheless, the gender disparity in digital inclusion makes it difficult to tap into vibrant creative opportunities. Thus, the digital inclusion demands of the society should incorporate the special information needs of women and other marginalized socioeconomic groups. Kumar, H., et al. (2017) report that the digital gap in the poor rural population is caused by the lack of knowledge about the digital technologies. Besides, they thought that lack of digital literacy and limited or lack of access to ICT denies the poor the opportunity to access many government programs. Nonigobal et al. (2024) indicate that the frequency and quality of use, as well as the skills and confidence, and trust among the respondents of lower income and disadvantaged Australian populations, differ significantly regarding access to and usage of digital technology. The existing socioeconomic differences contribute to more barriers to the exploration of digital technology by creating limited or no digital access or usage. As a consequence, a more detailed approach to digital inclusion should be coupled with technological solutions to the digital divide.

Only 35% of Indian women are now working in STEM sector according to vishwara (2024) researched, because of non-measurable reasons such as cultural and moral policing or enforcement, cultural taboo, and patriarchal mentality which directly limit access of women to some resources which are a direct result of traditional masculine and feminine jobs. Only 39 percent of the world has access to the internet. In developing nations, the digital gender gap is even more acute in overpopulated India where women are systematically denied the digital and technological literacy

and unpaid household work, which makes them even weaker, deprives them of their financial and decision-making resources.

Objectives of the Study

The study attempts to cover the following objectives

1. To investigate indigenous women's knowledge of different digital platforms and technology.
2. To research how tribal women use different digital gadgets or technologies.
3. To comprehend tribal women's issues with digital gadgets

Methodology

The Malayali is the largest tribal group in Kolli Hills and has more population. Thus, the study was based on data of Malayali tribes in Kolli Hills. The Malayali are mostly concentrated in the Kolli Hills in Bailnadu, Gundurnadu, Edapulinadu and Selurnadu. The purposeful sample sampling was used to identify the sample population. Based on the above panchayath a sampling population of 100 women in tribal households was selected and data collected through a questionnaire. Simple statistical techniques such as percentages are applied in the data analysis.

Data- Analysis

Table-1 Based on Categorical Variables

Variables	Category	Number	Percentage
Age	21-35	30	30%
	36-55	60	60%
	56 above	10	10%
Marital Status	Married	58	58.%
	Un-married	40	40.0%
	Separated/Divorced	0	0
	Widowed	02	2%
Education Level	No formal Education	7	5.83%
	Up-to 10th	45	45%
	12th	15	15%
	Degree & above	40	40%
Employment	Agriculture Labour	28	28%
	Farmer	33	33%
	Government Employee	2	2%
	Private Employee	30	30%
	Self Employee	7	7%
Monthly Income	Less than 6000	20	20
	6000-10000	68	68
	10000-15000	20	20
		2	2

The Categorical features of the respondents demonstrate that most tribal women are aged between 36 55 (60%), then 21 35 (30%), few respondents are over 56 years (10%). This implies

that the research reflects primarily a representation of middle-aged ladies who are engaged in home and livelihood chores. On marital status, 58% of the respondents are married, 40% single and the remaining 2% are widowed with no respondents remaining separated or divorced. This implies that the society most of the respondents are in family set ups where their access to technology may be affected by socio-economic decisions. The educational level indicates that forty-five percent of the respondents attended up to 10 th standard, 40 percent are educated to a degree or above, 15 percent attended 12 th standard, and 5.83 percent are not educated. Though a significant percentage is of the basic education type, it is still possible that the level of digital literacy is low, as they are not exposed to technologies. On the employment, 33% are farmers, 30% operate in private employment, 28% in a state of agricultural workers, 7% are self-employed, and the 2% belong to government workers. This depicts the largely agrarian modes of livelihood in the Kolli Hills region. The income distribution indicates that 68 per cent of the population has between 6000-10,000-15,000-15000 incomes with 20 per cent having less than 6000, 20 per cent having 10,000-15,000 and 2 per cent earning above 15,000. This means that the majority of respondents are low-income-earning, and this could be a limiting factor to their access to digital devices and internet services. On the whole, the socio-economic portrait shows that the tribal females in the research locality are mostly of the middle levels of education and low-level rural workplaces which can contribute to their degree of digital awareness and adoption.

Table - 2 Access to Digital Services

Variables	Response	Number	Percentage
Do you have mobile	Yes	98	98%
	No	02	2%
Smart Phone	Yes	74	74%
	No	26	26%
Internet Access	Yes	20	20%
	No	80	80%
Device used online service	Mobile phone	42	42%
	laptop	38	38%
		30	30%

The statistics indicate that the respondents have 98 percent mobile phone possession where only 2 percent of the respondents do not own one. This is an indication that mobile phones are now so much available even in tribal regions. Nevertheless, only 74 percent of the respondents own smartphones, with 26 percent even using basic mobile phones. This gap implies that despite the high level of mobile penetration, not every user owns the devices that can provide access to the high-end digital services. The biggest challenge is access to internet. 20 percent of the respondents were found to have access to internet and 80 percent are without the internet. This shows a huge digital gap in tribal areas even though most people possess mobile gadgets. In making use of online services 42 percent use mobile phones, 38 percent use laptops, and 30 percent rely on E-Sevai centres. The public service centres use means that a significant number of tribal women are dependent on external sources to get access to digital services. The results indicate that the availability of devices is not a determinant of digital participation since access to the internet and digital literacy is low among tribal women.

Table - 3 Awareness and use of Digital Platforms

Digital Apps	Awareness level		If aware Using
	Aware	Not aware	
Google Apps	53	47	27
Whats App	85	2	74
Face book	80	15	63
Instagram	78	22	50
X page	32	68	5
Linked In	18	82	2
Blogs	25	75	3

The analysis of digital applications awareness indicates that the digital application familiarity of the respondents differs. Facebook (85%), WhatsApp (80%), and Instagram (78%) have a reasonably high level of awareness, which means that tribal women are already familiar with social media platforms. The real usage is however a bit less, with 74 participants using WhatsApp, 63 using Facebook and 50 using instagram. Google applications are moderately aware (53%), and only 27 of the respondents use them actively implying that they have limited knowledge about how they are practically implemented. The awareness levels regarding professional and information-sharing websites include LinkedIn (18%), Blogs (25%), and X (32%) as they are low. The number of people conscious of the existence of such platforms is a very small percentage of the users. These results suggest that the primary use of social networking applications by tribal women is observed, and little awareness of educational or professional online platforms is present.

Table - 4 Purpose of using Internet

S.No	Purpose	Response
1	Entertainment	89%
2	Educational	32%
3	Business	4%
4	Information related to cooking/ travelling	62%
5	Sending mails	11%
6	shopping	68%

The findings indicate that entertainment (89) is the most popular use of digital technology by tribal women. This explains the value of digital platforms in providing forms of leisure and rest. A large percentage (68) of online consumers shop online platforms, which implies increased familiarity with online shops. Approximately 62 percent utilize the digital technology in getting information regarding cooking and travelling meaning that the internet is also utilized in getting practical information on the daily life. Nonetheless, 32 percent of people engage in education through the digital technology, which indicates a limited use of digital technology to learn and acquire skills. Few respondents use digital platforms to send mails (11%), or as part of business (4%), which indicates a need to change their attitudes towards using digital technologies at work or as entrepreneurs. On the whole, the results indicate that digital technology in the case of tribal women is mostly applied to entertainment and life information as opposed to economic or educational development.

Table - 5 Awareness and use of Digital Payments

Digital payment device	Awareness		If aware
	Aware	Not aware	Using
Debit/ATM Cards	100	0	100%
Gpay/Paytm	100	0	55%
Internet banking	40%	60%	09%
Credit cards	40%	60%	0
X page	32	68	5
Linked In	18	82	2
Blogs	25	75	3

According to the research, people are highly aware of some types of digital payment methods. 100% of the surveyed persons are familiar with debit/ATM cards and digital payment tools like GPay or Paytm. However, actual usage varies. Whereas 100% of them use debit/ATM cards, only 74% of them use digital payment applications. It implies that conventional banking instruments are more inclined to use than mobile payment systems. The internet banking level of awareness is low (33%) and only 9 percent actually use it. This means that they are not well acquainted with online banking services. On the same note, 65% are conscious about credit cards, but none of the respondents claimed to use it. This can be as a result of income constraints, inability to access credit facilities or fear of financial risk. The findings indicate that tribal women demonstrate the fundamental knowledge on digital financial services, yet most of them not adopt it because of the technological obstacles, lack of finances, and digital illiteracy.

Discussion

The results of the current research indicate the increasing use of digital technologies by tribal women and, at the same time, they also demonstrate the existence of significant obstacles on the way to successful digital integration. Despite the fact that the number of mobile phone owners among the respondents is quite high, there is still a low usage of digital technologies towards the educational, professional, and financial growth. Most of the respondents are in middle-aged groups that have moderate education levels with low-income levels as shown by the Categorical analysis. These social-economic dynamics are important to determine the patterns of access and usage of digitals. The earlier research has highlighted that education and income are the key factors that determine digital literacy and technology adoption among the rural and tribal population (Anukta ghatak 2024). The poor, as a category of people, usually struggle to access smartphones, good internet connectivity and digital forms of training.

The outcomes also indicate that the penetration of mobile phones is not very low among the respondents with most of them owning mobile phones. Nonetheless, the access to the internet is low. This trend is a characteristic feature of various rural and tribal areas where the number of devices does not always correspond to any meaningful use of the internet because of structural reasons and the question of costs (Mehnaz akhatar 2026). Low network connectivity and the unavailability of digital infrastructure still remain major obstacles to digital inclusion in remote localities.

The other significant study revelation is the trend in the use of digital applications. WhatsApp, Facebook, and Instagram are social networking sites and they are very common and mostly used by tribal women. These media are more of a communication tool and means of entertainment as opposed to learning or career growth. The same was observed by the previous research that

suggests that rural populations would be more likely to use digital technologies first in social interaction and entertainment since these tools are easy to access and do not demand much digital skills (Dixit 2024). The preeminence of social networking applications in the digital interaction implies that digital literacy programs must progressively educate more productive application of technology.

The data on digital financial services depicts a comparably high level of awareness of such debit cards and mobile payment applications as Google Pay and Paytm. Nonetheless, the use of superior financial technologies including internet banking and credit cards is minimal. This implies that although government programs that advance digital payments have raised awareness, real use remains a factor of digital proficiency, economic literacy and belief in online systems. The past studies of digital financial inclusiveness have also revealed a similar finding in that rural users tend to use simple and familiar financial tools as opposed to online banking solutions that are more advanced (Nanigobal 2024). Past studies of rural digital literacy also cite analogous tendencies with social media applications prevailing in digital interactions because of their convenience of use and availability Vishwara(2024). These results are consistent with other researchers who suggest that rural communities tend to use less and more familiar financial technologies, like debit cards and mobile payment apps, compared to more complex web-based banking systems Sudhiksha (2025). The fact that E-Sevai centers are the main points of accessing online services also demonstrates how institutional support can help in reducing the digital divide. Civil service centers can also act as a mediating force that allows the rural population to receive government services, online payments, and information. These centers are very crucial in promoting digital inclusion in regions where personal access to technology and the internet service is minimal sibinatuvilakkandy (2018).

On the whole, the results of this research lead to the conclusion that the digital divide of tribal women is not only a technical problem but a socio-economic and educational one. Although the access to mobile devices has been enhanced, in order to achieve effective digital inclusion better internet infrastructure, digital literacy training and specific policy interventions are needed. By empowering tribal women to use digital skills, it is possible to improve the access of these women to education, financial services, and livelihood opportunities, which can lead to social and economic empowerment of tribal women.

Conclusion

The digital India Initiative is targeted at digital empowerment and inclusion of the citizens making numerous services available to the citizens electronically through the distribution and enhancement of digital infrastructure. As one of the aspects of digital inclusion of everyone irrespective of the region and gender, government of India has made some efforts to bridge the country rural regions by availing digital infrastructure particularly high-speed internet connection and digital literacy campaign. Despite the challenging effort of the government towards digital inclusion of citizens, the nation has a number of challenges in achieving its digital India dream. The biggest impediments to digital inclusion of the rural people and the marginalized communities are the absence of digital infrastructural infrastructural particularly high speed and continuous available internet connectivity, limited capacity and coverage of Smartphone, and the lack of competence to deal with digital technology. Most of the individuals in the rural setting, particularly the tribal people are not digitally literate and are therefore not aware and knowledgeable about how to utilize digital devices and services to ensure that their lives improve. The issue is even worse amongst marginalized women. The research on the awareness and use of digital technology and service among tribal women of Kolli Hills indicate the tribal women position of digital inclusion. Being a community that had the advantage of urbanization than other tribal communities of the Kollihill and

because of this advantage, the community had higher percentage of digital awareness than the other tribal communities, this will be the most helped issue by the Government through the provision of low-cost digital infrastructure support to the marginalized community. This problem should be addressed by targeted digital awareness campaigns by authorities which entails integration of learning institutions, health centres, people working in the agriculture department, tribal promoters etc. Tribal libraries can achieve a lot in this regard since they are sources of tribal knowledge.

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