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Understanding Digital Access: A Study Among Scheduled Tribe Women In Kerala

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Abstract
India's accelerated progress in digital infrastructure, growing internet accessibility, and widespread mobile adoption have played a crucial role in fostering the expansion of the digital economy. The Supreme Court affirmed digital access as a fundamental right under Article 21, mandating the closure of the digital divide to uphold dignity, autonomy, and equal participation in society. However, the situation of Scheduled Tribe women in Kerala presents unique challenges in achieving digital inclusion. The study of awareness and usage of digital services among Kanikkar women reveals that while greater awareness enhances usage of digital social media platforms, it does not necessarily lead to increased engagement with digital payment apps, online shopping, and other digital platforms. Limited access to technology, restrictive social norms, financial constraints, and digital literacy gaps significantly hinder their participation in digital services. A targeted digital awareness campaign, involving educational institutions, health centres, the agriculture department, and tribal promoters, is essential to bridging this gap. As centres of tribal knowledge, tribal libraries can play a crucial role in promoting digital literacy and accessibility within the community.

Key Words: *Digital inclusion, Digital platforms, Scheduled Tribe, Kanikkar women, Kerala.*

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I. Introduction

A country's per capita GDP growth is strongly linked to its technological progress, with innovation enhancing competitiveness, economic resilience, and long-term sustainability (Lopes et.al ,2021). As a result, Digital technologies have rapidly advanced, reshaping economies and integrating into key sectors across economies. India's digital transformation, fuelled by initiatives like 'Digital India', has enhanced governance and expanded economic opportunities. In a landmark ruling, the Supreme Court declared digital access a fundamental right under Article 21,and bridging the digital divide is no longer a policy choice but a constitutional obligation essential for dignity, autonomy, and equal participation in public life (Ritika Jain,2025).The country's rapid advancement in digital infrastructure, increased internet penetration, and widespread use of mobile devices have significantly contributed to the rise of a digital economy (Kaur et al., 2023). However, the impact of this digital revolution is not uniform across all demographics, as disparities in access and usage persist, particularly among marginalized communities (Robinson et al., 2015).

Kerala, renowned for its high literacy and progressive policies, has been a pioneer in India's digital adoption. Its initiatives in digital literacy, e-governance, and financial technology have strengthened online accessibility and reinforced its standing in the digital economy (Manoj & James, 2017). However, digital inclusion remains uneven, with marginalised communities, particularly Scheduled Tribe (ST) communities, still facing socio-economic and infrastructural challenges that hinder their access to digital services.

The situation of Scheduled Tribe women in Kerala presents unique challenges in terms of digital awareness and usage. This digital divide prevents them from accessing crucial services such as online education, healthcare, employment opportunities, and government welfare programs. Their exclusion from the digital landscape not only limits personal development but also affects the overall progress of their communities. Bridging this divide requires targeted initiatives in infrastructure, digital education, and socio-cultural support. Empowering Scheduled Tribe women with digital skills enhances their social, economic, and personal growth while promoting equity and inclusion (Hache & Cullen, 2009). Understanding their digital engagement helps shape policies that address their unique challenges. Ensuring digital inclusivity as a fundamental right, rather than a privilege, is key to fostering a more equitable society.

II. Review Of Literature

Digital inclusion ensures equitable access to technology, not only by providing internet and devices but also by fostering the skills needed to effectively navigate online resources. It democratises ICTs, empowering

marginalized communities to participate in the digital space and reduce social and economic inequalities (Crandall & Fisher, 2009). Digital inclusion fosters social integration by providing disadvantaged communities with access to ICTs and the skills needed to navigate them. By bridging the digital divide, it enables marginalized groups to participate in education, employment, and civic engagement, ensuring equitable opportunities in the evolving digital economy (Hache & Cullen, 2009).

Affordable ICT-enabled services are vital for expanding access to healthcare, education, and economic opportunities, helping reduce poverty. However, high costs often widen the digital divide, disproportionately impacting disadvantaged groups. Making these services accessible can bridge this gap and promote inclusive digital participation (Cecchini & Scott, 2005). Additionally, the digital empowerment plays a vital role in enhancing citizen participation in the development process. Moreover, digital empowerment helps reduce social exclusion, ensuring that individuals can fully benefit from government policies and programs (Makinen, 2006). Unfortunately, digital participation is often concentrated within highly urbanized communities, while smaller cities, regional areas, and marginalized groups with limited digital literacy frequently face exclusion. Hespanhol et al. (2017) highlight that vulnerable populations, including people with disabilities, the elderly, disadvantaged youth and women, and Indigenous communities, are at a higher risk of digital under-participation. Limited awareness, insufficient ICT access, and low digital literacy contribute to the digital divide among economically disadvantaged communities, preventing marginalized populations from fully utilizing government schemes. Addressing these challenges requires targeted efforts to improve digital literacy and expand access to technology, ensuring more inclusive participation in developmental programs (Kumar et al., 2017).

Digital inequality has become a significant social challenge in the 21st century and should be considered alongside traditional forms of inequality, such as economic, racial, and gender disparities and is closely linked to socio-economic status, education levels, and geographical location. Marginalized communities, especially those in rural and underserved areas, often lack the necessary resources and opportunities to participate fully in the digital world. As a result, these systemic barriers to digital inclusion deepen existing inequalities, limiting access to education, employment, and essential services (DiMaggio & Garip, 2012; Robinson et al., 2015). Even in nations with widespread smartphone adoption, many economically disadvantaged and traditionally underrepresented groups continue to face barriers in accessing digital resources and acquiring the skills needed to use them effectively (West, D. M. 2015).

Objectives of the study

To analyse the relationship between awareness and use of Digital devices and services among Kanikkar Women.

III. Data Source And Methodology

This study uses primary data from Kanikkar women-headed households in Thiruvananthapuram District, Kerala.To identify the sample population, a purposive sampling technique was employed. A total of 120 households were selected from Vithura and Peringamala Panchayaths, and data was systematically gathered using a questionnaire-based schedule. Statistical tools such as percentages and correlation were used to analyse and interpret the data effectively.

Scheduled Tribes in Kerala

According to the 2011 Census, Kerala's tribal population constitutes 1.45% of the state's total population, with 4,84,839 tribal individuals spread across 14 districts. According to the KIRTADS report (2013), Kerala is home to 37 tribal communities, with significant concentrations in the districts of Wayanad, Palakkad, Idukki, and Kasaragod. Among them, Paniyas form the largest group but are considered the most economically disadvantaged, and mainly residing in Wayanad, Kannur, Kozhikode, Malappuram, and Palakkad. Kurichiyas, the second largest community, are known for their agricultural expertise and martial skills, and seen primarily in Wayanad and Kannur. Also, our state is home to five primitive Scheduled Tribe communities: Koragas, Kurambas, Kattunaikans, Kadars, and Cholanaikans.

The Kanikkar community, primarily concentrated in Thiruvananthapuram District, is regarded as the most urbanized among Kerala's Scheduled Tribes. "Kanikkar" means "hereditary proprietor of the land," symbolising their strong bond with ancestral lands. Traditionally, they relied on hunting, forest gathering, and small-scale cultivation for sustenance. Over time, they transitioned to settled agriculture, primarily growing bananas and tapioca, along with cash crops such as areca nut, pepper, ginger, and turmeric. Their extensive knowledge of medicinal plants allows them to use natural herbs effectively for treating various ailments. Currently, Kerala is home to 5,872 Kanikkar families, with a total population of 19,455 comprising 9,212 males and 10,243 females. The community has a sex ratio of 1,112 females per 1,000 males and a literacy rate of 90.06%, indicating significant educational progress. Kanikkar students are represented across all streams of education, although dropout rates remain high at the secondary level.

IV. Data Analysis And Discussion

Socio economic profile of Sample Households

The demographic analysis indicates that among the 120 respondents, the majority (66 individuals, 55%) belong to the age group of 40–60 years, followed by 36 individuals (30%) in the 20–40 years range, while 18 respondents (15%) are aged 60 and above. Regarding marital status, 82 respondents (68.3%) are married, while 20 individuals (16.7%) are widowed, and 10 respondents (8.3%) are separated or divorced, suggesting diverse family structures and potential social vulnerabilities.

In terms of education, 46 respondents (38.33%) have completed 12th grade, 24 individuals (20%) hold degrees, while 22 respondents (18.3%) completed 10th grade. However, 21 individuals (17.5%) have studied up to the 7th grade, and 6 respondents (5%) hold diplomas or vocational training, with only one individual (0.83%) lacking formal education.

The employment pattern reveals heavy reliance on agriculture, with 78 respondents (65%) engaged in agricultural labour and 8 individuals (6.7%) working as farmers. Other occupations include private jobs (16 respondents, 13.3%), self-employment (10 individuals, 8.3%), and government jobs (8 respondents, 6.7%), indicating limited access to formal employment opportunities. Income levels highlight financial constraints, as 50 respondents (41.7%) earn less than Rs.3,000 per month, while 52 individuals (43.3%) fall within the Rs.3,000–6,000 range. Only 10 respondents (8.3%) earn between Rs. 6,000–9,000, and 8 individuals (6.7%) earn above Rs. 9,000, reinforcing economic challenges.

Access to Digital devices among Knikkar women

Table 1: Access to Digital devices and services

Variables	Response	Number	Percentage
Do you own Cell phone	Yes	102	85 %
	No	18	15 %
Internet Access	Yes	74	61.7 %
	No	46	38.3%
Participation in Digital social group	Yes	74	61.7%
	No	46	38.3%
Frequency of using digital social group (*Among 74 respondents who are participating digital social group)*	Regularly	56	75.7%
	Somewhat regularly	12	16.2%
	Irregularly	2	2.7%
	Occasionally	4	5.4 %
Devices or agency used for online services	Mobile Phone	54	45 %
	Internet cafe	2	1.7%
	Akshaya Centre	64	53.3 %

Source : Primary Survey

The data indicates a significant level of mobile phone ownership, with 85% of respondents having a personal device. However, internet access is lower, with only 61.7% having connectivity, suggesting that while digital devices are widespread, internet accessibility remains a barrier for a considerable portion (38.3%). Participation in digital social groups mirrors internet accessibility, with 61.7% of respondents engaging in such groups. Among those participating, the majority (75.7%) use these groups regularly, while 16.2% use somewhat regularly, and only a small fraction are irregular or occasional users.

Regarding access to online services, mobile phones are used by 45% of respondents, whereas 53.3% rely on Akshaya Centres, government-supported digital hubs. This highlights the continued dependence on physical digital access points despite mobile phone ownership. Internet cafés play a minimal role, with only 1.7% using them for online services.

Overall, the findings highlight strong mobile phone adoption but unequal access to the internet, which limits full digital inclusion. While participation in digital platforms is notable, many rely on external infrastructure like Akshaya Centres, indicating the need for improved personal internet access and digital literacy initiatives. Strengthening independent digital connectivity could further enhance engagement and reduce dependency on community-based access points.

Awareness and Use of Digital /Social Media Platforms among Kanikkar Women

Table 2: Awareness and Use of Digital /Social Media Platforms

Digital Social devices	Awareness Level (in number)		If Aware (in number)	
	Aware	Not Aware	Using	
WhatsApp	98	22	62	
Facebook	96	24	40	r = 0.875 p = 0.002

Instagram	46	74	4
Twitter	32	88	0
LinkedIn	0	120	0
TikTok	46	74	0
Blog	8	112	0
Skype	0	120	0
email	45	75	7

Source: Primary Data

The analysis depicts that apps such as WhatsApp (98 aware, 62 using) and Facebook (96 aware, 40 using) show high awareness levels, with a significant portion of respondents actively engaging. However, for platforms such as Instagram (46 aware, 4 using) and Twitter (32 aware, 0 using), usage remains notably low despite moderate awareness, indicating a preference for more widely used platforms. Interestingly, LinkedIn, Skype, and Blogs show minimal or no awareness among respondents, reflecting limited exposure to professional or niche-based digital tools. Email (45 aware, 7 using) shows slightly better engagement but remains underutilized.

The data reveals a strong correlation (r = 0.875 and P – value 0.002) between awareness and actual usage of digital social platforms. This suggests that higher awareness strongly influences usage patterns among respondents. The overall pattern suggests that while respondents are aware of various social platforms, actual usage is heavily influenced by ease of access, personal or community preferences, and perceived usefulness of each platform. Strengthening digital literacy programs, improving access to digital tools, and increasing awareness of broader professional networking sites could enhance digital participation and maximize social benefits for users.

Awareness and use of Digital payment devices among Kanikkar Women

Table 3: Awareness and use of Digital payment devices

Digital payment devices	Awareness Level (in number)		If Aware (in number)	
	Aware		Using	r=−0.479 p value- 0.54
Debit Cards	100 (83.3%)		36 (36%)	
Credit Cards	28 (23.3%)		2 (3.44%)	
Internet Banking	20 (16.7%)		0 (0%)	
Mobile Banking	18 (15%)		0 (0%)	

Source Primary Data

The data show that among 100 women who are aware of debit cards, only 36 are using them. In the case of credit cards, out of 28 women who are aware, only 2 are using them. Regarding Internet Banking, 20 women are aware of it, but none use it. Similarly, in the case of Mobile Banking, 18 women are aware of it, but none use it. The correlation coefficient (r = −0.479 and p value- 0.54) indicates there is no statistically significant correlation between awareness and usage of digital payment devices among Kanikkar women. Even though the use of digital payment devices among tribal women are very low among sample respondents, they use it for varied purpose like recharges and online and offline shopping Among the tribal women who are making digital payment apps, the usage is high among young women with high educational and income status.

The result suggests that higher awareness does not necessarily lead to higher usage and may even have an inverse relationship. Possible reasons for this may be the limited access to technology and banking infrastructure in remote areas, which makes digital payments difficult. Many Kanikkar women prefer cash transactions due to a lack of awareness and apprehension toward digital payments. Furthermore, deep-rooted cultural practices reinforce their reliance on traditional methods for payment and transactions.

Awareness and use of online services and shopping apps among Kanikkar Women

Table 4: Awareness and use of online services and shopping apps

Online services/shopping apps	Awareness Level (in number)		If Aware (in number)	
	Aware	Not Aware	Using	
Online Shopping Sites	80	40	20	r = −0.134 p = 0.824
Online health services	4	116	0	
Online agriculture services	0	120	-	
Online educational apps	18	102	6	
E-governance	100	20	84	

Source: Primary Data

The analysis of data on awareness and use of online services/shopping apps reveals that out of 120samples only 80 people are aware of online shopping site and among them 20 women are using online shopping sites for purchase. Among the 100 tribal women aware of e-governance services, 84 actively use them through Akshya Centres. However, awareness and utilization of online health and educational services remain significantly low. Nobody is aware of online agriculture services even though most of the respondents in the study area are agriculture labourers. Since the p-value (0.824) is much greater than 0.05, the correlation is not statistically significant. This means there is no strong evidence to suggest a meaningful relationship between awareness and usage of online services among Scheduled Tribe women in Kerala.

The weak negative correlation between awareness and usage of online services among Kanikkar women could be attributed to several socio-economic and structural barriers. From primary survey it was understood that, various factors contribute to their low engagement with digital technology, including a lack of encouragement and support from male family members, restricted access to digital devices, and social norms that discourage independent usage. Additionally, inadequate education, language barriers, insufficient digital infrastructure, concerns over online security, and a lack of proper training further hinder their ability to adopt digital tools effectively. The tribal social structure itself poses challenges to the empowerment of women, restricting their access to technological resources and opportunities for digital participation.

V. Conclusion

Overall, the findings of the study reveal that, while awareness of digital media platforms positively influences their usage, the negative correlation between awareness and actual engagement with digital payment apps, online shopping, and other digital services suggests that higher awareness does not necessarily translate into increased usage. Digital exclusion among Scheduled Tribe women, stems from limited access to technology, low digital literacy, and socio-cultural barriers. Lack of support from family, infrastructure gaps, security concerns, and restricted digital engagement further hinder their participation. The tribal social structure itself acts as a significant challenge to women's empowerment, restricting their access to technological resources and opportunities for digital participation.

To address these challenges, targeted digital awareness campaigns must be implemented by incorporating educational institutions, health centres, agriculture departments, tribal promoters, and other local agencies. Social service and extension activities of various educational institutions should give primary focus on digital empowerment of marginalised to fulfil the vision of 'Digital India'. As a hub for tribal knowledge and learning, tribal libraries can play a pivotal role in improving digital literacy, accessibility, and inclusivity within the community. Through effective interventions, Kerala can ensure that Scheduled Tribe women benefit from equitable digital inclusion and empowerment.

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