The Digital Gender Paradox: A Reflective Analysis of Inequality in the Virtual Realm in India

Dimithrove K.G.[1], Dr. Keshlata[2]

[1]*Research Scholar, Department of Sociology, School of Humanities: Social Sciences & Languages, Lovely Professional University, Phagwara, Punjab*
[2]*Assistant Professor, Department of Sociology, School of Humanities: Social Sciences & Languages Lovely Professional University, Phagwara, Punjab*

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ABSTRACT
V In the fast-evolving digital age, technology promises to break barriers and offer equal opportunities to all. Yet, within the virtual realm of India, a paradox emerges: digital platforms appear inclusive, gender-based disparities persist, reflecting deep-rooted societal inequalities. The research aims to explore the complexities of the "Digital Gender Paradox," focusing on how the digital world both empowers and marginalizes women. By analysing access to technology, participation in the digital economy, and online safety, the study uncovers the subtle and overt challenges women face in navigating the digital landscape. Through a reflective lens, it evaluates the extent to which digital spaces can become catalysts for gender equality or reinforce existing biases. There is significant relationships regarding access to digital resources and participation in the digital economy based on gender and LGBTQ+ identity, particularly influenced by geographic location. The findings shows a t-value of 3.607 and p-value of 0.001, indicating that rural respondents (mean = 2.7310) face more barriers than urban respondents (mean = 2.9877). Government initiatives positively impact online experiences, the F-value of 1.219 and p-value of 0.307 shows no significant age-related differences, emphasizing the need for tailored strategies to bridge the digital gender and LGBTQ+ gap in India.

1. Introduction

The paradox of digital gender in India highlights a certain discrepancy. The nation may be clicking ahead with its technology, but women are often left behind. Indian women have been significant contributors to the workforce, yet barriers of lower mobile ownership and, consequently, restricted internet access face them compared to their counterparts- men. For example, they are 15% less likely to own a mobile phone and 33% less likely to use mobile internet services. Socio-economic factors, like rural-urban disparities and intra-household discrimination, aggravate the digital divide. In this sense, it threatens women's economic empowerment and their engagement in the labour market. The digital gender paradox that dominated India finds root in the complicated interplay between access, education, and socio-economic factors that drives inequality in the virtual world. Despite rapid digitization, large gaps remain between men and women, especially in rural regions. A 2021 report by the GSM states that Indian women are 15% less likely to own mobile phones and 33% less likely to use mobile internet compared to men. It is only in 2020 that, for the first time ever, 25% of adult women owned a mobile phone as opposed to 41% of men; this has resulted in a significant digital divide that has kept women from full empowerment and participation in the digital economy.

A variety of factors converge to produce this gendered digital divide. However, it is first of all a matter of rural-urban divide in terms of digital access. Rural broadband access stands at a mere 29% in comparison to the national average of 51%. In states like West Bengal and Gujarat, fewer rural women own mobiles than do urban women. This division is worsened by economic barriers because low-income households spend a larger percentage of their income on data services as compared to those in the middle-income. For instance, families that earn less than $2 a day spend about 3% of their monthly earning for just 1GB data, the middle-income families spend only 0.2%. Intra-household discrimination also plays a crucial role in limiting access to women. The fact remains that this insists on the superiority of men as the standard for cultural acceptability, which further creates gender inequalities. The consequences of such segregation are dire; take for example the COVID-19 vaccination period, where hundreds of women did not sign up due to a lack of access to the internet and knowledge of the procedure. Statistics reveal that the online registration, which became a strict factor of the economy, adversely affected the ratio of female-to-male vaccinations tremendously.

The digital landscape in India has significantly transformed the experiences of LGBTQ+ individuals, particularly youth, as evidenced by various scholarly works. "Digital Queer Cultures in India" by Rohit Das

gupta (2020) emphasizes how online platforms have become vital for queer youth to explore and redefine their identities, facilitating connections and activism also exposing them to online harassment. Another important work, "Queering Digital India" (2020), co-authored by Rohit K. Das gupta and Debanuj Das Gupta, examines the intersection of digital technologies with nationalism and sexual subjectivities in India, illustrating how queer communities utilize digital spaces for mobilization amidst societal challenges. The study "Digital Queer Spaces: Interrogating Identity, Belonging and Nationalism in India" (2019) by Debanuj Das Gupta provides an ethnographic perspective on how queer individuals engage with digital culture in a rapidly changing political context. Collectively, these sources highlight the complex dynamics of empowerment and marginalization faced by LGBTQ+ communities in India's evolving digital realm.

With these challenges, digital technology has transformative ability to facilitate women's empowerment in India. Equitable access to smartphones and the internet facilitates women's easier usage of digital platforms in education, entrepreneurship, and social engagements. Digital literacy among women is also a promising effort; community-based organizations may play a critical role here. Programs aimed at achieving digital financial inclusion and literacy enable the woman to acquire much-needed skills in handling the digital stage well. The government and private sector should contribute to investment in infrastructure that expands connectivity for women. This could be through making digital products affordable and relevant to the needs of women. Address societal biases inhibiting women's access to technology as well. For instance, women-focused education programs will thus equip them with the necessary skills and competencies that will embolden them to fully interact with the digital economy. Of remarkable interest, the United Nations' Sustainable Development Goals acknowledged gender equality as an essential element of sustainable development. Indians' fervour toward the attainment of SDG 5 underlines the requirement of initiatives that are specifically designed to disrupt this source of the digital divide. In fact, India needs to expand women's access and participation in the digital ecosystem to really unlock its full potential through this part of its population. India has indeed begun its journey toward digitization, but the journey to closing the digital gender gap remains tough. This kind of disparity can be addressed through multifaceted policy and social intervention in engaging communities with a commitment to breaking down barriers that favour inequality. Equitable access to technology is not just about women's empowerment; it speaks to the economic potential of India and sustainable development for all.

Objectives

The main objectives of the paper are to examine the extent of gender inequality in access to digital resources and technology in India, to analyse the participation of women in the digital economy and the barriers they face, to evaluate the role of online safety and harassment in shaping women’s digital experiences, and to explore the impact of government policies and initiatives aimed at bridging the digital gender gap in India. In the rapidly advancing digital age, technology offers the potential to create more inclusive spaces, yet in India, a paradox exists where gender disparities continue to affect the virtual realm. This research discusses the complexities of the "Digital Gender Paradox," reflecting on the ways in which digital platforms both empower and marginalize women. It highlights the challenges women encounter in accessing technology, participating in the digital economy, and feeling secure in online spaces. By critically analysing these issues, the study aims to uncover how digital platforms may either serve as tools for gender equality or perpetuate existing inequalities in society.

Hypotheses

1. Hypothesis 1: There is a significant relationship between gender and LGBTQ+ identity inequality in access to digital resources and technology and participation in the digital economy in India, with barriers such as socio-economic status, education, and online safety concerns negatively impacting both women's and LGBTQ+ individuals engagement in digital platforms.

2. Hypothesis 2: Government policies and initiatives aimed at bridging the digital gender and LGBTQ+ gap in India have a positive effect on improving online experiences for women and LGBTQ+ individuals, reducing harassment, and enhancing their access to digital resources, thereby promoting greater participation in the digital economy.

Problem statement

The problem addressed in this research revolves around the persistent gender-based inequalities in the digital landscape of India, despite the widespread adoption of technology. Digital platforms have the potential to offer equal opportunities, access, and participation for all, women in India continue to face significant barriers. These

include limited access to digital resources, underrepresentation in the digital economy, and vulnerability to online harassment and abuse. The existing government policies and initiatives aimed at bridging the digital divide have not fully succeeded in eliminating these disparities. This research seeks to investigate the underlying causes of this "Digital Gender Paradox" and assess the effectiveness of current efforts to ensure equitable digital participation for women.

Theoretical framework

The theoretical framework for this research draws upon a variety of theories that range from the concepts of gender inequality, digital divide, and technological intersection with society. The most foundational theory is the Digital Divide Theory, just as introduced by Norris in 2001. It stresses that there is a difference between those who possess digital technologies and those who do not, further adding that this divide usually mirrors current social inequalities, such as gender. Feminist Theory (Butler, 1990) is yet another critical perspective which postulates that computer-mediated spaces are not nudge-free but rather help maintain patriarchal structures that aggravate gender-based discrimination. The perspectives of Technological Determinism (McLuhan, 1964) are also highly relevant here because technological changes shape social structures but those shaping are not necessarily even-handed, and it usually tends to widen existing gender disparities. Lastly, Social Role Theory, developed by Eagly (1987), explains how gender roles limit the involvement of women in the digital economy and further shape their experiences online. Through these theories, this framework deconstructs how social inequalities of gender are sustained online and offers a base upon which to build the exploration of what sustains this "Digital Gender Paradox" in India.

2. Material and method

The study adopted a descriptive and survey method, utilizing a structured interview schedule with a three-point Likert scale. Online interviews were conducted through social media platforms, targeting women in both rural and urban areas, LGBTQ+ community members, digital activists, policymakers, and gender studies researchers. A random sample of 70 respondents was selected, with purposive and stratified sampling techniques used. Both qualitative and quantitative approaches were utilized to analyse the data. The selected variables—place of living (rural and urban areas) and age groups (16-22 years, 23-29 years, 30-36 years, and above 37 years)—play a crucial role in testing the hypothesis. By categorizing respondents based on these variables, the study can assess whether factors like geographic location and age influence the responses or behaviours related to the research questions. This approach allows for a detailed comparison across different segments of the population, helping to validate or refute the hypothesis by examining how these variables impact the outcomes.

Variables

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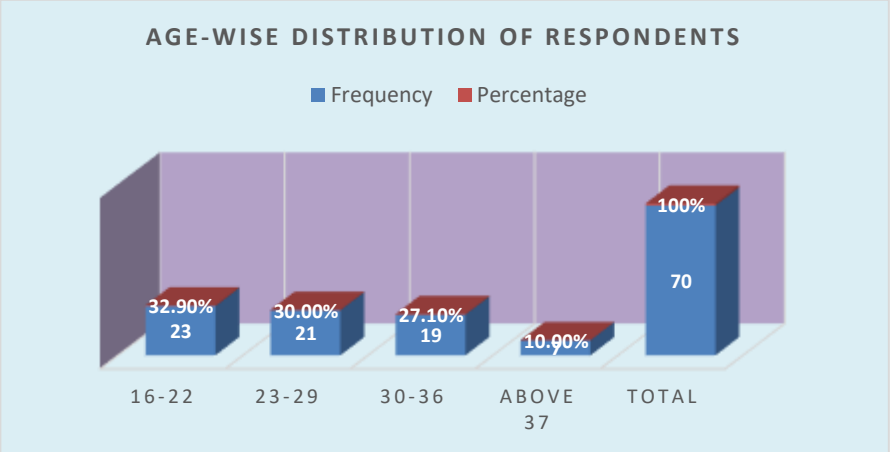
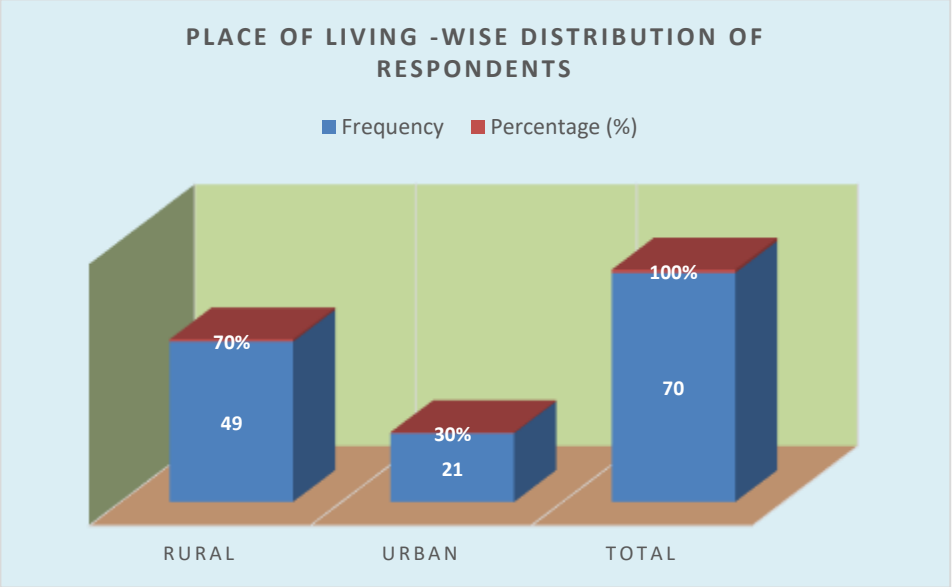


Graph 1.1: Age-wise distribution of respondents



Graph 1.1: Place of Living -wise distribution of respondents

Table 1.1 Frequency Distribution of Responses on Gender and LGBTQ+ Inequality in Access to Digital Resources and Online Safetyfr

S. No.	Statement	Yes	No	No Idea	Yes (%)	No (%)	No Idea (%)
1	Do you believe there is significant gender inequality in access to digital resources and technology in India?	63	2	5	90.0%	2.9%	7.1%
2	Are you aware of barriers that prevent women from fully participating in the digital economy? If Yes explain:	51	9	10	72.9%	12.9%	14.3%
3	Do you think online safety and harassment significantly affect women's experiences with digital platforms?	56	3	11	80.0%	4.3%	15.7%
4	Have you observed any positive effects from government policies aimed at reducing the digital gender gap in India?	65	3	2	92.9%	4.3%	2.9%
5	Do you think that increased access to digital technology would empower women in India?	59	1	10	84.3%	1.4%	14.3%
6	Do you believe that cultural and societal norms are major challenges hindering women's access to digital resources in India?	51	6	15	72.9%	8.6%	21.4%
7	Do you believe that discrimination and stigma significantly challenge LGBTQ+ individuals in accessing digital resources and technology in India?	47	6	17	67.1%	8.6%	24.3%

Source: Survey data

Interpretation of Table 1.1

Table 1.1 shows the frequency distribution of interview responses regarding gender and LGBTQ+ inequality in access to digital resources and online safety.

The table indicates that 63 out of 70 respondents (90.0%) believe there is significant gender inequality in access to digital resources and technology in India. This overwhelming majority suggests a strong perception of disparity in access, likely influenced by entrenched cultural norms, limited educational opportunities for women, and a lack of targeted government initiatives to address these gaps. The low number of respondents (2) who disagreed and the 5 who were unsure highlight a general consensus on this issue, emphasizing the urgent need for policies aimed at improving access for women. In response to awareness of barriers that prevent women from fully participating in the digital economy, 51 respondents (72.9%) acknowledged these barriers, while 9 (12.9%) disagreed and 10 (14.3%) were uncertain. This indicates a significant recognition of obstacles such as socio-economic challenges, inadequate digital literacy programs, and insufficient support for women entrepreneurs. The considerable number of respondents who noted barriers reinforces the necessity for targeted interventions to facilitate women’s integration into the digital economy. The table shows that 56 respondents (80.0%) believe that online safety and harassment significantly affect women's experiences with digital platforms. With only 3 respondents (4.3%) disagreeing and 11 (15.7%) expressing uncertainty, it is clear that

concerns about safety play a crucial role in shaping women's online engagement. This perception may stem from rising incidents of cyber harassment and the overall hostile online environment women often face, underscoring the importance of effective policies and measures to enhance online safety. Regarding the observation of positive effects from government policies aimed at reducing the digital gender gap, 65 respondents (92.9%) affirmed that they have noticed such effects. Only 3 (4.3%) disagreed, and 2 (2.9%) were unsure. This overwhelming support suggests that respondents perceive government efforts as beneficial, possibly due to initiatives promoting digital literacy and access to technology for women. However, the few dissenting opinions highlight the need for ongoing evaluation and improvement of these policies to ensure they meet their objectives.

A total of 59 respondents (84.3%) believe that increased access to digital technology would empower women in India, with just 1 (1.4%) disagreeing and 10 (14.3%) uncertain. This reflects a strong consensus that access to technology is a critical factor in women's empowerment, likely due to its potential to enhance education, job opportunities, and participation in social and political discourse. The significant support for this statement underscores the importance of addressing digital divides to foster empowerment. The table reveals that 51 respondents (72.9%) believe cultural and societal norms are major challenges hindering women's access to digital resources, while 6 (8.6%) disagreed and 15 (21.4%) were unsure. This indicates a widespread acknowledgment of the societal barriers women face, such as traditional gender roles and stereotypes that limit their access to technology. Addressing these cultural norms will be essential for improving women's access and participation in the digital realm. Lastly, 47 respondents (67.1%) believe that discrimination and stigma significantly challenge LGBTQ+ individuals in accessing digital resources and technology in India, with 6 (8.6%) disagreeing and 17 (24.3%) expressing uncertainty. This highlights the unique challenges faced by LGBTQ+ individuals, who often encounter additional layers of discrimination in accessing technology. The considerable acknowledgment of these issues emphasizes the need for inclusive policies and resources that cater to the diverse needs of all individuals in the digital landscape.

Gender inequality in access to digital resources and technology in India is a significant issue that hampers women's participation in the digital economy. According to the Mobile Gender Gap Report 2021, only 15% of women in India have internet access, compared to 25% of men, highlighting a stark digital divide. The ASER 2023 report further emphasizes this disparity, revealing that males aged 14-18 in rural India are twice as likely to own smartphones (43.7%) compared to females (19.8%). This gap is attributed to cultural norms and intra-household discrimination, which often restrict women's access to digital devices within their homes. Barriers preventing women from fully participating in the digital economy include limited access to devices, low digital literacy rates, and socio-cultural biases. The Mobile Gender Gap Report 2019 noted that Indian females are 56% less likely to use mobile internet than males, with only 29% of internet users being female. These barriers are compounded by harassment and safety concerns online, which significantly affect women's experiences with digital platforms. Reports indicate that many women avoid engaging with technology due to fears of online harassment and lack of safe spaces.

Government policies aimed at reducing the digital gender gap have shown some positive effects. Initiatives like the Pradhan Mantri Gramin Digital Saksharta Abhiyan aim to enhance digital literacy and access in rural areas. Despite these efforts, significant gaps remain; for instance, NFHS-5 data indicates that men are nearly twice as likely as women to have used the internet in rural areas (49% vs. 25%). However, community-based organizations like Mann Deshi Foundation have successfully implemented programs that provide low-cost smartphones and training for women, resulting in increased participation in digital marketplaces. Increased access to digital technology could empower women by creating opportunities for education, employment, and financial independence. Digital platforms can enable women to engage in economic activities previously inaccessible due to mobility restrictions or societal norms. However, this potential remains largely untapped due to persistent barriers.

Cultural and societal norms continue to hinder women's access to digital resources. Patriarchal structures enforce restrictions on women's mobility and decision-making, further entrenching gender disparities. Additionally, LGBTQ+ individuals face discrimination that complicates their access to technology. Reports indicate that societal biases against LGBTQ+ communities can lead to exclusion from educational and employment opportunities within the digital economy. Initiatives are underway to bridge the gender digital divide in India through government programs and community efforts, significant barriers remain. Addressing these challenges requires a comprehensive approach that includes enhancing digital literacy, improving access to technology, and challenging societal norms that perpetuate inequality.

Hypothesis testing

Table 1.2: Mean Difference in the There is a significant relationship between gender and LGBTQ+ identity inequality in access to digital resources and technology and participation in the digital economy in India, with barriers such as socio-economic status, education, and online safety concerns negatively impacting both women's and LGBTQ+ individuals engagement in digital platforms with regard to Place of Living

Variable	Place of Living	N	Mean	SD	t	p
There is a significant relationship between gender and LGBTQ+ identity inequality in access to digital resources and technology and participation in the digital economy in India, with barriers such as socio-economic status, education, and online safety concerns negatively impacting both women's and LGBTQ+ individuals engagement in digital platforms	Rural	49	2.7310	0.34086	3.607	0.001
	Urban	21	2.9877	0.39776		

Source: Primary data

Table 1.2 illustrates the mean differences concerning the relationship between gender and LGBTQ+ identity inequality in access to digital resources and technology and participation in the digital economy in India, segmented by place of living. The data indicates that rural respondents (N = 49) have a mean score of 2.7310 with a standard deviation (SD) of 0.34086, while urban respondents (N = 21) exhibit a higher mean score of 2.9877 with a standard deviation of 0.39776. The t-value of 3.607, obtained from the t-test, is statistically significant with a p-value of 0.001, which leads to the rejection of the null hypothesis. This suggests that there is a significant relationship between gender and LGBTQ+ identity inequality in access to digital resources and participation in the digital economy based on the place of living. The findings indicate that barriers such as socio-economic status, education, and online safety concerns are negatively impacting the engagement of both women and LGBTQ+ individuals in digital platforms. Specifically, rural respondents are likely to face more pronounced challenges due to factors like limited access to resources and technology, which may hinder their participation in the digital economy. In contrast, urban respondents benefit from better infrastructure and greater opportunities for engagement, leading to a higher mean score that reflects their relatively advantageous position in accessing digital resources. The results underscore the importance of considering the effects of geographical location when addressing the inequalities in digital resource access and participation in the digital economy, particularly for marginalized groups such as women and LGBTQ+ individuals.

Table 1.3: Mean Difference in the Government policies and initiatives aimed at bridging the digital gender and LGBTQ+ gap in India have a positive effect on improving online experiences for women and LGBTQ+ individuals, reducing harassment, and enhancing their access to digital resources, thereby promoting greater participation in the digital economy with regard to age

Variable	Age	N	Mean	SD	F	P
Government policies and initiatives aimed at bridging the digital gender and LGBTQ+ gap in India have a positive effect on improving online experiences for women and LGBTQ+ individuals, reducing harassment, and enhancing their access to digital resources, thereby promoting greater participation in the digital economy	Between 16 to 22	23	2.6749	0.36764	1.219	0.307
	23-29 years	21	2.9473	0.35437		
	30-36 years	19	2.2305	0.32423		
	Above 37 years	07	2.5114	0.37193		
	Total	70	2.4671	0.37797		

Source: Primary data

Table 1.3 illustrates the mean differences concerning the impact of government policies and initiatives aimed at bridging the digital gender and LGBTQ+ gap in India, particularly regarding their effects on online experiences for women and LGBTQ+ individuals. The data is categorized by age group, revealing varying mean scores for different demographics. For respondents aged 16 to 22 years (N = 23), the mean score is 2.6749 with a standard deviation (SD) of 0.36764. In comparison, respondents aged 23 to 29 years (N = 21) have a higher mean score of 2.9473 and a standard deviation of 0.35437. Respondents in the 30 to 36 age group (N = 19) exhibit a mean score of 2.2305 with an SD of 0.32423, while those aged above 37 years (N = 7) have a mean score of 2.5114 with an SD of 0.37193. The total mean score for all respondents (N = 70) is 2.4671, with a standard deviation

of 0.37797. The F-value of 1.219, along with a p-value of 0.307, indicates that there is no statistically significant difference in the perspectives of different age groups regarding the effectiveness of government policies and initiatives in improving online experiences for women and LGBTQ+ individuals. The findings suggest that, government efforts may have positive effects on reducing harassment and enhancing access to digital resources, the impact varies across age groups, with younger respondents showing a more favourable mean score. This variability highlights the need for tailored strategies that address the specific challenges and needs of each age demographic to promote greater participation in the digital economy for both women and LGBTQ+ individuals. Overall, the data emphasizes the importance of continuing to evaluate and refine policies to ensure they effectively bridge the digital gender and LGBTQ+ gap in India.

3. Result and discussion

Gender inequality in access to digital resources and technology in India

The issue of gender inequality concerning access to digital resources and technology is a complex one in India, with the effects not just relegated to women but also to the entire LGBTQ+ community. Of course, notwithstanding the advances in digital infrastructure, there have been persistent socio-cultural barriers and systemic hindrances that make justice elusive in equal access to such resources. According to the 2021 Mobile Gender Gap Report, only 15 percent of Indian women are using the internet, while 41 percent use the internet. The most distorted digital gap is against marginalized groups, such as LGBTQ+ groups. Transgender communities have been historically marginalized and economically deprived as well, creating further challenging circumstances while gaining access to digital resources. Oxfam conducted a study which showed that this new digital welfare system of the government excludes large numbers of transgender persons due to socio-economic status and illiteracy of digital savvy. This further confines those not being able to access all sorts of services and benefits designed for them through the application of digital systems. In villages and rural areas, the gender gap is much more pronounced.

The National Family Health Survey (NFHS-5) indicates that men are nearly twice as likely as women to use the internet (49 percent vs. 25 percent). For LGBTQ+ individuals, especially transgender persons, societal stigma and discrimination further exacerbate these disparities. Many transgender individuals face rejection from families and communities, which restricts their access to technology and educational resources necessary for digital engagement. The ASER 2023 report reveals that mobile ownership among young people aged 14-18 is significantly lower for females (19.8 percent) compared to males (43.7 percent). This gap extends to LGBTQ+ youth, who often lack support systems that facilitate access to technology. The barriers include not only financial constraints but also social norms that dictate appropriate behaviour and roles for different genders.

The implications of this digital divide are profound. Women's limited access to technology restricts their participation in essential services such as health care and government programs. During the COVID-19 pandemic, many women missed out on vaccination opportunities due to online registration processes they could not navigate because of a lack of digital literacy. Similarly, LGBTQ+ individuals faced challenges in accessing health information and support services during this period. Economic opportunities linked to digital skills remain largely inaccessible for both women and LGBTQ+ individuals. The World Economic Forum estimates that closing the gender digital gap could boost global economic activity by 524 billion dollars over five years. For India, addressing these disparities is crucial for fostering inclusive economic growth. To bridge this gap, there must be comprehensive strategies in terms of improving the access and affordability of technology for women and LGBTQ+ groups. This comprises initiatives aimed at improving digital literacy and providing support environments that power them to engage more fully in the digital economy. Building these inequalities responds to how one can ensure everyone gets a chance to thrive in an increasingly digital world.

Participation of women in the digital economy and the barriers they face

Socio-cultural, economic, and technological ones place manifold constraints on the participation of women in the Indian digital economy. While this digital infrastructure is galloping at breakneck speed, their access to this fast-expanding new landscape is hindered systematically, though far more importantly, with adverse effects for women in the rural areas. According to NFHS-5 in 2022, only 33 percent of Indian women used the internet, as against 57 percent of the male population. However, the internet usage gap in India is more skewed towards rural areas, where only 25 percent of women have internet access compared to 49 percent of men. This gap is in large part due to intra-household discrimination, with women being denied access to digital devices based on traditional gender roles that favor male use. Indian females have just half as good a chance as males in accessing

mobile internet, with only 35 percent of users being female, as cited in the 2019 Mobile Gender Gap Report.

Economic barriers further exacerbate this divide. Accessing data can consume up to 3 percent of a low-income household's monthly income, making it prohibitive for many women. The lack of digital literacy among women limits their ability to utilize available technology effectively. A report by the Asian Development Bank noted that women are often relegated to low-tech jobs with minimal prospects for advancement due to their limited digital skills. The COVID-19 pandemic underscored the importance of digital technologies in enabling economic transactions and remote work. However, it also revealed how deeply entrenched gender biases affect women's employment opportunities. Eighteen months after the pandemic began, there were 13 million fewer women in employment compared to pre-pandemic levels. This decline was particularly severe among marginalized groups, including LGBTQ+ individuals who also face unique challenges in accessing digital resources. LGBTQ+ individuals often encounter societal stigma that limits their access to technology and educational resources. The intersectionality of gender and sexual orientation creates additional barriers for these communities in participating in the digital economy. Many LGBTQ+ individuals lack support systems that facilitate access to technology and digital literacy programs. To address these disparities, initiatives such as the Pradhan Mantri Digital Saksharta Abhiyan aim to enhance digital literacy among women and marginalized groups. However, these programs need to be more targeted towards women and LGBTQ+ communities to ensure equitable access. Private initiatives like Haqdarshak have trained thousands of women across India on using mobile internet for essential tasks, demonstrating the potential for tailored programs to bridge the digital divide. India's digital economy presents significant opportunities for women's empowerment and economic participation, substantial barriers remain. Addressing these challenges requires a multifaceted approach that includes improving access to technology, enhancing digital literacy, and dismantling socio-cultural norms that perpetuate inequality. Only through concerted efforts can India hope to create an inclusive digital economy that benefits all its citizens.

Online safety and harassment in shaping women’s digital experiences

The role of online safety and harassment in shaping women’s digital experiences in India is increasingly significant, particularly as the internet becomes more integral to daily life. Over the past decade, smartphone usage among women has surged from 40 million to 200 million, expanding access to digital services for communication, commerce, and content creation. However, this growth has been accompanied by a troubling rise in online harassment. According to the 2020 report by the Internet and Mobile Association of India (IAMAI) and Nielsen, 80% of women regularly encounter digital harassment, including unsolicited calls and messages, with 52% reporting inappropriate content weekly. Alarmingly, 74% of these harassing communications come from unidentified individuals.

The impact of online harassment is profound. It not only inflicts emotional distress but also limits women's participation in digital spaces. A study conducted by UN Women in 2021 revealed that 58% of girls and young women globally have faced some form of online harassment, leading many to reduce or quit social media altogether. In India, reported cases of cybercrimes against women nearly doubled from 4,242 in 2017 to 8,730 in 2019, with the COVID-19 pandemic exacerbating the situation as internet use surged by up to 70% during lockdowns. Legal frameworks have struggled to keep pace with the rapid evolution of technology and the corresponding rise in cyber violence. The Indian Penal Code and the Information Technology Act provide some protections but lack specific provisions addressing the unique challenges posed by online harassment. For instance, while Section 354D addresses stalking, it does not comprehensively cover the spectrum of cybercrimes affecting women today. Recent initiatives by the Indian government include the Cybercrime Prevention against Women and Children scheme and the establishment of reporting mechanisms like the National Cybercrime Reporting Portal. These efforts aim to enhance awareness and improve response capabilities among law enforcement agencies. The LGBTQ+ community also faces significant challenges within this context. Online spaces can be particularly hostile for LGBTQ+ individuals, who often experience targeted harassment and discrimination. This intersectionality highlights the need for a comprehensive approach that considers the diverse experiences of all marginalized groups in digital environments. To foster a safer online experience for women and LGBTQ+ individuals in India, it is essential to promote digital literacy and awareness about online safety. Educational institutions and civil society organizations must collaborate to equip users with the skills needed to navigate these spaces confidently. A cultural shift is necessary; society must collectively challenge the normalization of harassment and support victims in seeking justice. Advancements in technology have empowered women in India, they also expose them to significant risks. Addressing these challenges requires a multifaceted approach involving legal reform, public awareness campaigns, and community engagement to

create an inclusive digital landscape where all individuals can thrive without fear of harassment or violence.

Government policies and initiatives aimed at bridging the digital gender gap in India

The digital gender gap in India is mainly cited as the gap between males and females where on average access and usage of digital technology is much lower for women compared to men. Such a gap has the far-reaching implications of economic participation and empowerment. Its remedy involves policies and initiatives by governments, though the impact is still not effectively uniform across other government initiatives. One of the notable government initiatives is the Digital India Initiative launched in 2014 with the aim to make India a digitally empowered society and a knowledge economy. While it has made some strides towards increasing overall digital access, it lacks specific measures to target women's digital literacy and access thus rendering the same to widen existing inequalities. Subsequently, Pradhan Mantri Digital Saksharta Abhiyan was launched in 2015 to achieve digital literacy for one member from each household. Though it has skilfully certified over 40 million candidates, its impact on women's digital skills is highly limited since the programs are not exclusively targeted at women. Similarly, the Pradhan Mantri Gramin Digital Saksharta Abhiyan targeted to rural areas has surfaced but is hardly adequately addressing the challenges uniquely faced by women in rural areas.

The National Digital Literacy Mission was also launched to enhance digital literacy across various demographics. It has trained millions, it does not specifically cater to women's needs, which limits its effectiveness in bridging the gender gap. More recently, during the G20 summit in New Delhi in 2023, a commitment was made to halve the digital gender gap by 2030. This commitment emphasizes the need for regulatory frameworks that promote women's participation in digital strategies and enhance their digital literacy. In addition to government policies, several major initiatives have emerged to empower women digitally. The Tech4Good Community (T4GC) is one such platform that empowers women through technology adoption and training for non-profits, fostering greater engagement in the digital economy. Lighthouse Communities provide personalized learning experiences for women, enhancing their access to opportunities and tracking their progress in acquiring digital skills. Another initiative called Karya focuses on creating employment opportunities for women in rural areas through technology-driven solutions, addressing both economic and digital gaps. NASSCOM has also introduced Digital Skilling Programs aimed at equipping women with essential skills like coding and data analytics, thereby enhancing their employability in the tech sector. Additionally, non-profits like FMCH utilize digital tools for training community health workers, improving maternal care and nutrition empowering women in rural settings through skill development. It is crucial to note that these initiatives must also consider LGBTQ+ perspectives since gender identity can complicate access to technology and opportunities further. Ensuring inclusive policies that recognize diverse identities is essential for bridging the digital divide comprehensively. India has made strides towards bridging the digital gender gap through various policies and initiatives, significant challenges remain. Addressing socio-cultural barriers, enhancing targeted training programs for women, and ensuring inclusive approaches are vital for achieving true digital equity in India.

Final reflections of the study

1. Rural respondents face more barriers to digital access compared to urban respondents.
2. Cultural and societal norms significantly hinder women's access to technology.
3. Traditional views on women's roles in households limit their mobility and independence.
4. Online safety and harassment are major concerns affecting women's experiences on digital platforms.
5. Government initiatives have positively impacted women's online experiences.
6. Increased access to digital technology is believed to empower women in India.
7. Societal pressures restrict LGBTQ+ individuals' access to digital resources.
8. Discrimination against LGBTQ+ communities affects their participation in the digital economy.
9. Targeted policies are crucial for empowering marginalized groups in the digital landscape.
10. The research indicates a need for immediate action to create a more equitable digital landscape.
11. Many women avoid engaging with technology due to fears of online harassment.
12. Economic constraints are a major factor limiting women's access to digital resources, particularly in low-income households.

13. The COVID-19 pandemic exacerbated existing inequalities, leading to a decline in women's employment opportunities.

14. Many women miss out on essential services due to a lack of digital literacy, particularly during critical times like the pandemic.

4. Suggestions

1. Develop Comprehensive Digital Literacy Programs: Establish targeted digital literacy initiatives specifically designed for women, focusing on essential skills such as internet navigation, online safety, and digital communication. These programs should be accessible in both urban and rural areas to ensure widespread participation.

2. Implement Financial Assistance for Internet Access: Create subsidy programs or financial aid options to help low-income households afford internet services and digital devices. This could include partnerships with internet service providers to offer discounted rates for women.

3. Advocate for Gender-Sensitive Government Policies: Encourage policymakers to develop and implement strategies that specifically address the barriers women face in accessing digital resources. This includes creating policies that promote equal access to technology in educational and professional settings.

4. Launch Community Awareness Campaigns: Initiate awareness campaigns that educate communities about the importance of women's access to technology. Highlight success stories of women who have benefited from digital engagement to inspire others.

5. Establish Safe Online Environments: Create and promote platforms that prioritize the safety of women online. This includes implementing robust reporting mechanisms for harassment and providing resources for women to protect themselves in digital spaces.

6. Promote Female Representation in Technology: Support initiatives that encourage women to pursue careers in technology, such as mentorship programs, scholarships, and internships. Highlight female role models in tech to inspire the next generation.

7. Ensure LGBTQ+ Inclusivity in Digital Programs: Design digital literacy and technology access programs that are inclusive of LGBTQ+ individuals, addressing their unique challenges and ensuring they have equal opportunities to participate in the digital economy.

8. Collaborate with Community Organizations: Partner with local NGOs and community groups to deliver training and resources tailored to the specific needs of women. Leverage their existing networks to reach underserved populations effectively.

9. Utilize Mobile Learning Solutions: Implement mobile-based training solutions to deliver digital literacy content, especially in rural areas where access to traditional training facilities may be limited.

10. Foster Partnerships with Technology Companies: Encourage collaborations between government entities and tech companies to provide affordable devices and internet access for women. This could include donation programs or low-cost financing options.

11. Create Incentives for Digital Engagement: Develop programs that incentivize women to engage with digital platforms, such as job placement assistance, financial rewards for completing training, or access to exclusive online resources.

12. Establish Support Networks for Women: Create both online and offline support networks where women can share experiences, resources, and opportunities related to digital engagement. These networks can foster community and collaboration.

15. Regularly Monitor and Evaluate Initiatives: Implement a system for the ongoing assessment of government and NGO initiatives aimed at bridging the digital gender gap. Use feedback from participants to refine and improve programs continuously

16. Encourage Family Support for Women's Digital Access: Promote family involvement in supporting women's access to technology by emphasizing the shared benefits for the entire household. Educational programs can help families understand the importance of digital skills for women.

5. Conclusion

The digital gender divide in India is very closely interrelated with the empowerment and economic participation of women. Since digital technologies are increasingly becoming part and parcel of everyday life, growing gaps in access and utilization between genders challenge and impede, not only the progress of women but that of the society at large as well. In the context of rapidly expanding internet connectivity—over 700 million active users by the end of December 2022—only 15% of women have an internet connection, while 49% of men (Nielsen Media Internet Report, 2023). In rural settings, the lack of opportunity for women is particularly pronounced, as cultural norms and economic constraints create further barriers to seeking out digital resources. Several barriers are preventing women from fully participating in the digital economy. Limited access to devices, affordability issues, and inadequate education contribute significantly to this divide. According to the ASER 2023 report, male dominance in smartphone ownership persists, with only 25% of adult women owning smartphones compared to 41% of men (ASER Report, 2023). Women often rely on shared household devices, which restricts their online time and limits their engagement with educational or employment opportunities

Online safety and harassment also play critical roles in shaping women's experiences on digital platforms. Many women report facing threats and harassment online, which discourages them from utilizing digital resources effectively. This environment of fear not only impacts their mental well-being but also restricts their ability to pursue online learning or job opportunities. Government policies aimed at bridging the digital gender gap have shown some positive effects. Initiatives like the Pradhan Mantri Gramin Digital Saksharta Abhiyan focus on enhancing digital literacy among women in rural areas. These programs aim to provide necessary skills and resources for economic empowerment. However, there remains a need for these initiatives to be more inclusive and sensitive to the unique challenges faced by marginalized communities. Increased access to digital technology has the potential to empower women significantly. Bridging the digital divide can provide women with access to education, job opportunities, and essential services crucial for their economic independence (Sattva, 2022).

The hypothesis testing reveals significant relationships regarding digital resource access and participation in the digital economy based on gender and LGBTQ+ identity, particularly influenced by geographic location. The result indicates a t-value of 3.607 and a p-value of 0.001, leading to the rejection of the null hypothesis and demonstrating that rural respondents (mean = 2.7310) face more barriers compared to urban respondents (mean = 2.9877). The government initiatives positively affect online experiences, the F-value of 1.219 and p-value of 0.307 indicate no significant age-related differences, highlighting the need for tailored approaches to effectively bridge the digital gender and LGBTQ+ gap in India. fostering an inclusive digital ecosystem can enhance women's participation in the workforce and promote gender equality. Cultural and societal norms continue to hinder women's access to digital resources. Traditional views often dictate women's roles within households, limiting their mobility and independence, which directly affects their ability to engage with technology. Addressing these biases through awareness campaigns is essential for promoting gender equality in both physical and digital realms. LGBTQ+ individuals also face discrimination that challenges their access to digital resources. Societal pressures and biases against LGBTQ+ communities can restrict their ability to use technology freely, impacting their overall participation in the digital economy. Strides are being made toward bridging the gender digital divide in India through government initiatives and community efforts, persistent barriers rooted in socio-cultural norms continue to hinder progress. Targeted policies and inclusive strategies are crucial for empowering women and marginalized groups in an increasingly digitized world. The need for immediate action is clear: creating a more equitable digital landscape is essential for India's social and economic development.

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