

Caste and Code: Bridging Digital Skill Gaps for Vulnerable Castes in India's Knowledge Economy

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ABSTRACT

The journey towards the digital age is marked by technological innovations, internet adoption, and expanding digital economy. However, India's wearing a mask of progress. The reality is stigmatisation. There's deeply ingrained caste system based on inequalities that continue to shape who benefits from these digital advancements and further the chain of exploitation. Caste determines how a person should live by caging their preferences to set dichotomies. It limits access to resources, opportunities, and life outcomes. The caste system divides people into rigid groups by heredity. Dalits occupy the lowest strata in the caste hierarchy and have been associated with occupations deemed 'impure'. Even after the formal abolition of untouchability under Article 17 of the Constitution, the centuries of ostracization manifests in education, housing, healthcare, employment, and politics. This intersection of caste, digital inequality, and economic opportunity reveals a systemic challenge for the marginalized communities. They are often excluded from the promise of a digital future. While the Indian government has introduced various upskill and digital inclusion programs, the effectiveness of these programs is contingent upon their ability to address the structural inequalities prevailing in the Indian landscape (UNESCO, 2023). This research paper explores how caste operates as a determinant of access to digital skills and entrepreneurship opportunities in India. It argues that without a caste-conscious approach, digital inclusion policies risk reinforcing existing hierarchies. Using insights from policy analysis, field studies, and success stories of Dalit entrepreneurs, this paper emphasizes the need for inclusive, justice-oriented digital initiatives that empower historically oppressed communities.

Introduction

The digital economy in India is expanding quickly, and social and economic mobility depend on having access to digital skills. However, when it comes to digital skilling, Scheduled Castes

(SCs), who have historically been marginalized and subjected to discrimination, face significant obstacles. These obstacles stem from social and economic disparities brought on by caste-based exclusion as well as infrastructure. The places they reside in usually lacks or has poor internet connection, electricity, and the digital infrastructure (Oxfam India, 2022). Government programs often fail to account for financial insecurity of SC households. They may not afford smartphones, transport, or data plans. The students from such communities often experience caste-based hatred, abuse and exclusion in classrooms and training centres, leading lower participation and completion rates (Thorat & Newman, 2010).

Barriers in the form of language and literacy also exist. Often the skilling content is available only in English or dominant regional languages. It leads to limitation in the form of accessibility for SC learners (UNESCO, 2023). For Dalit women, these barriers are triple fold in the form of gender bias, restrictions, and digital prejudice (CIS, 2021).

Programs like PMGDISHA and Digital India have been criticised for reinforcing caste instead of eradicating them. To enable them to become sensitive, a culturally sensitive curricula, regional training facilities, funding, and the inclusion of underrepresented voices are necessary.

Background

One of the critical outcomes of caste-based inequality is educational disparity. Data reveal that dropout rates among SC students are high. The reason being poverty, lack of school infrastructure in SC-dominated areas, caste discrimination, and the need for children to contribute to family income. Digital revolution requires basic literacy and access to devices and internet connectivity. Housing segregation is another disadvantage. In many Indian villages and even urban neighbourhoods, there's segregation between castes. Dalits are often located in less developed parts or near waste disposal sites. Spatial marginalization deprives access to various essential amenities. Caste geography restricts mobility and promotes economic inequality over generations. In the labour market, SCs are mostly recruited for the informal jobs, where job security, legal protections, and wages are. Discrimination persists in recruitment, promotions, and interactions. According to the India Human Development Survey, Dalits with the similar qualifications as upper-caste candidates are barely called for interviews.

Caste-based inequality is insidious because of its normalization within the daily practices of Indians. This sort of discrimination is subtle. It permeates through the crevices under the guise of meritocracy, cultural fit, or economic efficiency. Caste privilege is often invisible to 'upper castes' while it harms the marginalized diaspora. Moreover, the lack of disaggregated and unbiased data on caste in many sectors obscures the extent of inequality and makes accountability difficult. Proactive measures should be taken ensuring equitable and quality

education, housing, healthcare, and infrastructure. One should recognize the disadvantages faced by Dalit due to intermingling of their caste identity with gender, religion and geography. Only through a comprehensive and sustained effort to challenge casteism India truly achieve development and social and economic justice. The digital divide is defined as the gap between those who have access and those who don't have access to digital technologies. According to the Internet and Mobile Association of India (IAMAI, 2022), rural internet usage grew rapidly in recent years. However, scheduled castes due to certain barriers to entry still lag behind. According to the Oxfam India Digital Divide Report (2022), social hierarchies and economic deprivation restrict access to smartphones, internet connectivity, and digital literacy among marginalized communities. SC households are less likely to own digital devices or they often lack the training, skills or support to use them efficiently. They are also less likely to know about cybercrimes. This results in a compounding of disadvantages, as the inability to navigate digital platforms limits access to education, employment, healthcare, and government services (IAMAI, 2022).

To counter the digital divide, Government launched the "Digital India" initiative in 2015 with goals such as universal access to mobile connectivity, public internet access, digital literacy, and e-governance. Two significant programs stand out for our purposes: the Pradhan Mantri Gramin Digital Saksharta Abhiyan (PMGDISHA) and Skill India. The aim of PMGDISHA is to make six crore rural citizens digitally literate by training one member from each eligible household. Skill India, launched the same year, focuses on equipping youth with market relevant skills, including digital competence. These programs while celebrated for ambitious initiative have been criticized for lack of caste consciousness in its implementation. According to a 2019 report by the Centre for Social Development, PMGDISHA has reached many villages, but it struggles with consistency, infrastructure, and inclusivity. The lack of targeted outreach to ostracized communities means that the most disadvantaged remain underserved. The trainers often lack cultural sensitivity or awareness about caste-based barriers, resulting in alienation and dropout.

Discussion

In SC-dominated areas, there's limited access to electricity, broadband internet, functioning schools, and digital training centres causing them to lag. Even when these facilities do exist, they are often not or poorly maintained. The Digital India program is an ambitious project which has faced challenges in last-mile connectivity. The BharatNet project aims to provide broadband in 250,000 Gram Panchayats had delayed rollouts and uneven performance due to administrative apathy and logistical challenges (Oxfam India, 2022). They find it difficult to invest in education let alone in digital skilling. Economic disparity lead to drop outs so that they can contribute towards their family's needs. Hidden cost that come with digital skilling are often not taken into account. These hidden costs include transportation, internet data, stationery or computer labs.

These programs that are advertised as free often do not take into account that they are inaccessible because of the attached indirect costs.

The absence of financial safety nets, including easy access to loans, scholarships, or subsidies, further alienates SCs from enrolling in skill development programs. Once, SC students do manage to enter, they frequently experience discrimination, exclusion, and implicit biasness in the centres. Dalit students are segregated, given fewer responsibilities or given responsibilities that push the biasness forward. In digital skilling programs, discrimination may manifest in subtle ways. Such as less attention from instructors, assumptions about capacity, or lack of encouragement. These experiences lead to feelings of inadequacy, low self-confidence, and early dropout. UNESCO's research on digital exclusion shows that subjective experiences of discrimination are a major deterrent to program retention, especially among first time learners.

Most digital skilling programs in India use content written in English or dominant state languages. They exclude those who speak marginalized dialects or have low literacy (UNESCO, 2023). According to ASER reports, SC students struggle with reading and comprehension due to weak school systems and lack of foundational learning support. No system is in place to check linguistic discrimination. Many digital training modules follow urban-centric, text-heavy formats, with little regard for diverse learning needs or local contexts. There is minimal use of audio-visual aids, vernacular examples, or experiential learning, making it harder for underprivileged students to grasp concepts. Students require role models or idols. There's an absence in coverage and visible success stories from their communities. This leaves the Dalit youth deprived when it comes to aspirations. Students are unaware of how digital skills translate into jobs or income, and lack guidance on career pathways, certifications, or further study. There's a lack of guidance in matters pertaining to digitalization.

SC students are often excluded from social networks where opportunities are shared such as alumni associations, internship channels, and online job boards. Without mentors or peer support, it becomes challenging to sustain long-term engagement with digital learning (DICCI, 2022). Dalit women face a unique set of challenges. They often face restrictions on mobility, domestic labour burdens, and patriarchal norms that prevent them from participating in public skilling initiatives (CIS, 2021). Families prioritize the education or skilling of male children, while discouraging female participation. Women are relegated to domestic tasks due to patriarchal notion that males carry the bloodline for he's stronger. In many SC households, if there is only one mobile device, it is often given to the father or son. Girls are discouraged from spending time online, fearing harassment, "corruption," or loss of family honour. Most cited reason is that she might become morally corrupt. These gendered controls limit the opportunities available to Dalit women. For many first-generation learners from SC backgrounds, digital technology can be intimidating or alienating. They lack prior exposure or tech-literate family members and are

inclined to feel out of place in formal training centres or virtual platforms. This confidence gap is exacerbated by cultural narratives that equate technological competence with urban, upper-caste identities. SC learners internalize a belief that “technology’s not for people like us,” which acts as psychological barrier to online participation. While the government schemes are well intentioned, they lack implementation frameworks, caste-sensitive outreach, and monitoring tools. There is little effort when it comes to customization to suit SC participants or to evaluate *their* needs and outcomes. Training Centres run by private partners who focus on output over quality or inclusivity. The lack of disaggregated data and feedback loops prevent institutions from recognizing digital divide or designing corrective mechanisms. No legislation mandated caste inclusion in digital skilling, at least explicitly. While education and public sector employment fall within the scope of affirmative action, such is not the case for digital programs (Thorat & Newman, 2010). This sort of legal ambiguity allows skill initiatives to ignore caste composition, and reinforce status quo. There is a lack of grievance redressal mechanisms for discrimination in digital spaces. Victims often don’t know where to report abuse or are discouraged from doing so due to lack of seriousness when dealing this subject matter.

Via Tamil Nadu government’s efforts, SC Youths can access tools required for digital upskilling. Rise in usage is attributed to consistent investment in digital infrastructure and community-based training models. Several organizations played transformative role in promoting Dalit led entrepreneurship. They provided mentorship, opportunities to network, and access credit. DICCI empowered Dalit entrepreneurs in sectors such as IT services, digital marketing, and e-commerce (DICCI, 2022). "Dalit Camera," a digital media initiative by Dalit students involving documentation of caste discrimination and give voices to the marginalized. The platform demonstrates how digital tools can be used to challenge dominant perspectives and promote equity (Oxfam India, 2022). Digital Empowerment Foundation (DEF) launched localized skilling programs in SC-dominated villages. Within this program, there’s a combination of digital training with awareness sessions on rights, financial literacy, and civic participation.

Civil society organizations are crucial actors in bridging the digital gap (IAMAI, 2022). They fill the emptiness in regions with high SC populations. Paradigm Initiative and Nord Regio emphasize the importance of inclusive internet governance and community participation in digital setting. UNESCO advocated for an approach focused on rights that incorporates social awareness, community outreach, and representation. It recommended integrating digital literacy into curriculum, providing targeted subsidies, and creating safe digital spaces. The dream of Digital India will not be fulfilled until a large segment of population, become privy to its benefits. Discrimination exists in the form of a barrier preventing the unfortunate and underprivileged from raking in the benefits. India must this challenge forthwith to become a future superpower. Digital inclusion should confront the truth and go beyond access to devices

and internet. It should take into its fold agency, representation, and justice. Utilizing caste-conscious frameworks into digital policies, India will ensure that its technological revolution uplifts its citizens. Through a combination of government action, civil society engagement, and community empowerment, it is possible to bridge the digital gap and create a equitable knowledge economy for all. There's a need to build inclusive digital economy.

Government initiatives should include reservation for marginalized communities. Financial assistance in the form of stipends, free internet data, and smartphones or tablets shall be available to ensure full participation. Like the reservation policies in education and public jobs, affirmative actions in digital learning ecosystems can help level the playing field. This was internationally seen in South Africa's Broad-Based Black Economic Empowerment (BBBEE) policy ensures that historically marginalized communities benefit from economic initiatives. Digital training must be taken to the doorstep of marginalized. Community centres, schools, panchayat buildings, and Dalit colonies can be transformed into safe spaces for skilling with locally hired trainers, community leaders, and peer mentors. Centres must also be equipped with reliable electricity, high-speed internet, and updated hardware, and equipped with assistance in local language (UNESCO, 2023). Initiatives should be taken to translate these into culturally sensitive and adaptable to local dialect, using visuals, storytelling, and interactive activities. Modules must also include critical digital literacy like awareness related to dissemination of misinformation, digital rights, cyber safety and security, and gender sensitivity to ensure ethical and responsible use of digital tools. Training programs should especially stress on rights-based content. For example, how to report abuse, seek legal redress, protect one's data, and recognize digital manipulation. Programs should partner with cybercrime cells and digital literacy NGOs to ensure that these communities have the tools and knowledge to implement their digital rights and seek justice where violated.

Digital inclusion programs must collect and publish disaggregated data by caste, gender, region, and disability. This helps unbiased identification of gaps, track success, and ensure accountability. Data transparency will empower local communities and civil society organizations to advocate for corrections where necessary, making programs more democratic and participatory. India needs to support digital leadership among marginalized communities. Special funds and schemes should be established to support youth in tech entrepreneurship, like easy access to seed capital, startup incubators, and mentorship from established entrepreneurs and venture capitalists. The government can also partner with platforms develop SC-specific innovation tracks. Celebrating SC success stories in digital entrepreneurship can provide much-needed visibility and inspire others to follow suit.

Voices should be present in national and state-level advisory committees, tech innovation council, course development board and AI morality panels. Participation policy is required,

especially to include marginalized communities in digital education and governance structure. To scale up digital literacy initiatives in these communities, the private sector should collaborate with NGOs and local governments through CSR (Corporate Social Responsibility). In remote and Scheduled Caste-dominated areas hardware donations, job guarantees, apprenticeships, and assistance with digital infrastructure and other related partnership would be advantageous. Collaborations include apprenticeships, job guarantees, hardware donations, and digital infrastructure support in remote and SC-dominated areas. Tech companies should also be encouraged to create inclusive algorithms, hiring pipelines, and user research practices that reflect India's diverseness. India must shift from universal to specific planning.

Conclusion

India's digital platforms must reflect values of inclusivity and accessibility. Accessibility features, language diversity, grievance redressal, and caste sensitivity must be included in these systems (UNESCO, 2023) to attain social and economic justice. Digital public goods should be engineered to work for marginalized communities. As digital platforms become gatekeepers for jobs, education, welfare, and finance, there is a need for protections against algorithm bias, exclusion, and hate speech. Data protection laws, anti-discrimination clauses in governance, and stronger enforcement of IT Rules to prevent caste-based digital abuse is the need of the hour.

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