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Sociological Study of Disability and the Digital Divide among Youth with Disability in India

Abstract
The present study investigates how historical sociological theories and modern technological developments with relation to disability. Both disability and digital inequality remain among the most pressing challenges confronting contemporary society. In India—where rapid technological advances coexist with enduring social disparities—the digital divide significantly affects disabled youth. The central research question guiding this study is— How do past perspectives on natural selection and social exclusion, in combination with contemporary technological disparities, shape the socioeconomic challenges faced by disabled youth in India? In addressing this question, the paper first re-examines classical theories—from Darwin's natural selection and Spencer's evolutionary framework to Durkheim's and Marx's sociological analyses—and then integrates insights from modern disability studies and Science, Technology, and Society (STS) research. The aim is to create a comprehensive theoretical framework that not only clarifies the historical underpinnings of disability exclusion but also critically examines how digital technology—its access, usage, and design—affects disabled youth today.

Keywords: Disability, Youth, Digital divide, Assistive Technology, Smart Phones, Employment.

Sociology as a science was a legacy of both the Enlightenment period of Europe, which called into question religion and science, and the French revolution (1789) which resulted in advocacy of universal humanism. Alongside emerged the conditions to study society based on objectivity and rationality called positivist approach. Social sciences especially sociology emerged as a new discipline to study society was not far from adopting this approach (positivist) and it had enormous influence on classical sociological theorists, including Auguste Comte, Herbert Spencer, Emile Durkheim, and Karl Marx, have long influenced the study of society.

To begin with Darwin's *Origin of Species* (1859) who presented evolution theory with his infamously adopted quote "survival of the fittest" and synonymously presented this as the measure of categorizing humans on basis of 'Natural Selection' and therein changed the course of human history and study of society. It established a new paradigm which categorically, selectively ignored certain human bodies from others. It categorized human one from the other distinctively and provide an evolutionary justification to it, only those species that are stronger, smarter, agile and fitter are able to adapt to their environment and at best survive. This debate was widely accepted and was further used to explain differences within human species from perspective of race, sex, gender, civilized being and who is uncivilized or savage. The influence it had on natural sciences was phenomenal, biology, physics, and evolutionary sciences held on to this belief of natural selection as gospel of truth. He successfully established a paradigm that implicitly mentioned that marginalized bodies that did not conform to an ideal of strength and agility. Critics later argued that such frameworks contributed to an exclusionary narrative in which disabled bodies were viewed as anomalies rather than as integral parts of a diverse society (Stiker, 2002). But what is clear that theoretical legacies remained clouded by these narratives till recent times.

Comte social evolution was presented in three stages, first is theology or religion dictates human mind and society. Then comes metaphysical, when thought is more abstract like nature. And finally, stage where thinking becomes more factual and systematic and people begin to explain phenomenon by direct observation and correlations.

Herbert Spencer's extension of these ideas into the social realm, most significant and now controversial approach to study society, arguing that society operates under a form of natural selection—where the "fit" thrive while the "weak" perish—provided early justifications for the marginalization of disabled individuals.

These early theorists conceptualized society through the lens of organic analogies and competitive survival, laying a foundation for social Darwinism.

Later, Emile Durkheim although from same school of evolutionary thinker had a more rational and objective approach to study society, from abstract to positivist. By contrast, he emphasized the transformation from mechanical solidarity (where shared beliefs and collective consciousness bind society) to organic solidarity in more complex, industrialized societies. His explanation on the transition from mechanical to organic solidarity and emphasis on collective consciousness presented a more nuanced view of societal integration (Durkheim, 1893), although even his work did not directly address disability.

Karl Marx's conflict theory, with its focus on economic inequalities and class struggle, offers a different insight. He argued that social institutions are structured by economic contradictions, a perspective that can be extended to understand how disabled groups are often marginalized within labour markets. And can be applied to understand the marginalization and economic impoverishment of disabled groups Despite these important contributions, classical theories tend

to treat disability as either a natural aberration or a by-product of economic systems, thereby neglecting the interplay between physical impairments and social constructions of difference. The evolution of these theoretical positions sets the stage for contemporary debates on the social versus the medical models of disability and further shaped perspectives on disability.

Now, let us trace the genealogy of disability perspectives from past to present times, and further try and understand the different perspectives or models of disability that have emerged and evolved theoretically from a sociological standpoint. To locate and establish the cross relation between disability and technology, its significance, where the discourse stands at current times and how fruitful it can be to understand disability issues and concerns through this intersectional approach in India. And how digital technology growth is vital for disabled youth in India for capacity building, accessibility and to become economically independent.

The history of disability whether in western or non-western parts of the world has been defined very vaguely, and even its sources of study are scattered. Disability historians have investigated the sources basis with the notions of ability and disability as fixed entities. One of the most pioneering works done in building our understanding on its history is by Henri-Jacques Stiker's most acknowledged work *A History of Disability* (2002). He examined analytically disability through the ages of western civilization, from ancient time to the present. His analysis traces historically the representation/terminology of disability and how disability has been treated, by different regimes and defined the social logic behind this treatment. But his work is not a 'historical' account rather more intersectional study of disability (sociological, literary, psychological, anthropological and medical account).

Historically those with disabilities were regarded as 'those who are 'cursed' or 'the crippled being', they were stigmatized on grounds of it and an exclusionary system came to established wherein their social, economic and political status was imposed under it. The disabled were seen as a problem and were to be eradicated. This became the central social logic of most societies. In certain primitive societies where religion and totemism captured everyday life. The disabled were considered to be either as sacred or profane bodies, divine as work of God or cursed. But mostly their suffering, causes of banishment and stigma were disregarded as social problem up until the arrival of the modern age.

With coming of Age of Science, Enlightenment, rationality, logic and modern state, where man started questioning its own existences vis-a vis that of God and religion, the question of disabled people also emerged. During the 17th Century, the age of investigation although, many disabled people were treated in asylum and institutionalized. They were categorized as 'madmen' and prohibition of various kinds were placed on them, which continued till the period of industrialization. In late 19th Century and early 20th Century, the disabled began to be seen more sympathetically, one of main cause being the wars within Europe and America.

The ear of modern wars, the American Civil war (1861-65), War of the triple alliance in South America (1865-70), to World War 1 (1914) brought about change in mindset, and disability began to be seen as a socially derived phenomenon. These wars brought many casualties and invalids, which were able bodies before and were not disabled. It was no longer act of God that was to be blamed for the misery of the disabled, rather it was act of Man that made able bodies as disabled. This helped changed in attitude and approach to understand disability but in limited sense. Rehabilitation and hospitalization became a major effort to help disabled individuals after these wars. Another reason along with these wars, we saw extensive industrialization that brought

a rapid change in technology, which further helped in creating confidence, normalisation and change in narrative for the disabled population.

With the coming of the idea of modern welfare State post World War II, saw it as responsibility of the state especially in the west to work and establish concrete social policy for all. But these efforts remained mostly as agendas than being implemented. Medicine came to exploit the disabled causes now. It was argued that disabled could be cured or somewhat, through medicines and technology. As Stiker's also mentions in his work 'Hospitals with their various divisions into specialties became primary sites of collective removal while also deepening their expertise in relation to specific disability prognoses and treatments' (Stiker's 2002: Pg. 99).

No longer the orthodox approach to disability remained valid. Medical approach to disability and rehabilitation brought a new phase of assessment on questions of disability and their future. There are two important perspectives in disability studies that emerged, first the biomedical approach to disability was the considered as the forward step towards understanding the needs and concerns of those disabled from a biological perspective. And later came the social model of disability which regarded the stigma, the discrimination which is structured within social environment as the main cause for lack of opportunities and choices for the disabled.

The medical model of disability was the first one to approach disability as an issue of concern and helped define the field of study itself. This model was built on the assumption that there exists an ideal healthy body and disability is abnormal. It advocated that disabled bodies need constant support and attention for them to function as disabled bodies. These bodies are not able to properly function like the rest able bodies and require consistent guidance, treatment and cure. Under this approach, it is believed that disability is a problem and through medical sciences disability problems can be 'fixed' or 'changed'. The medical model was considered as a universal one time cure for all forms of disability.

The social model was presented first in Britain during the 1960's and 1970's as a critique to medical model, and it was in seminal document of Union of the Physically Impaired Against Segregation (UPIAS) that this term appeared for the first tie in 1976. The social model argues that it's not physical conditions that have led disabled to be pronounced disabled, it's the discrimination, stigma, social conditions that have led disabled bodies to remain disabled. The founding statement of UPIAS says: "What we are interested in, are ways of changing our conditions of life, and thus overcoming the disabilities which are imposed on top our physical impairments by the way this society is organized to exclude us" (UPIAS, 1972). The social context became important point of departure for this model.

The concept of the 'social model of disability' or social context was introduced by Michael Oliver, a British disability advocate and sociologist. Oliver contended that the primary challenges encountered by individuals with disabilities stem not from their own physical or intellectual conditions, but from the social structures that are designed in a manner that accommodates some bodies while excluding others, whether through direct or indirect means (Mitra, S, 2006). In essence, the focus is on transforming the social environment to enable people with disabilities to fully participate in life (Oliver, 2012).

This model was to be a strong oppositional critique to the biomedical model study of disability. The central argument behind this model was the progressive and radical approach of looking disable bodies. Under this model disability was no longer dependent upon the biological arguments made earlier, it presented a paradigm shift in approach towards looking at disability as

a social problem. It was required to be perceived as a 'civil rights issue as central to mainstream sociological discourse and analysis as class, gender, race and sexuality' (Colin Barnes and Mike Oliver, 1993).

The barriers according to this perspective were socially constructed and defined. There were exclusionary, discriminatory, stereo types that were present in society to keep disabled as an exclusive entity, away for the mainstream society. The social prejudices were fabricated to keep disabled away from the 'normal' and how society produces barriers for the disabled to participate in day-to-day functioning. It was argued under this model that disabled are socialized and conditions to keep themselves as impaired being and remain dependent on society for its survival.

Disabled studies scholar influenced by the materialist perspective of Marx, argued how industrialization led certain section of society, the disabled into a marginalized groups and pushed them towards economic impoverishment. The fruits of Industrial revolution during late 19th and mid 20th century remained in hands of few. The markets both for goods and labour exchange were monopolized by few and it made sure that the disabled being remained at the margins and not be able to participate in labour markets.

This debate further escalated into who is 'disabled' individual and who is 'impaired'. The distinction between two became a key focal point of academics during the 1970's and 80's. Both the words have been agreed upon by discipline scholars, the "impairment" is an individual biological condition, whether congenital or acquired (accident, disease, aging etc.) (SHAKESPEARE, 2013, p. 16), whereas "disability" often arises from the individual's social context. It is the outcome of impairment (OLIVER, 2012) to execute properly the tasks considered ordinary for a human being (COOK & HUSSEY, 1995) and this remains a problem of social context.

From Social context debate along with understanding the disabled and impaired complexities, the scholars in the field of disability studies shifted towards more discursive approach to understand notion of disability. The emergence of Postmodernist, Poststructuralist and Neomarxist studies, provided a strong influence to disable theorists like Tom Shakespeare, Simi Linton etc. These and many other disabled theorists of this time, built their discursive approach and understanding based on ideas and perspectives of Michel Foucault and Jacques Derrida. Under their influence, disability studies can be seen to move beyond the notion of social construct of disability towards other dimensions that influence the analysis of disability such as linguistic, ideology, knowledge, notion of power, authority, domination, hegemony and cultural practices. Intersectionality between these dimensions help built a new perspective of disability, the idea of how subjugation and exclusion manifest itself among those with disability and how it embedded not just in society, but everyday practices around us.

In her work "Claiming Disability: Knowledge and Identity" (1998), Simi Linton provides a comprehensive definition of Disability Studies that encompasses both its theoretical underpinnings and its activist goals. According to Linton, Disability Studies focuses not just on the diversity in human behavior, appearance, abilities, sensory perception, and cognitive processes, but more importantly on the societal interpretations and significance attributed to these diversities. The discipline critically examines the social constructs that distinguish between normalcy and pathology, insider and outsider, or independent citizen and dependent individual under state care.

This paper also argues that study of disability in order to understand this critical division we need to have a deeper insight about its relation with technology. It is important to analyse how disability is seen and shaped through the lens of technology.

One of the pioneers in this area are Bodil Ravneberg and Sylvia Söderström and in their work, Disability, Society and Assistive Technology (2017) rightly frame this area of study as, 'Social scientists and disability studies scholars have paid much attention to individual needs, equality and societal barriers, but have not dwelled much on the technological side of the disability concept'. Their main objective was to include disability studies with science, technology and society (STS) studies, a new interdisciplinary approach.

The everyday functioning along with different aspects of disability require to be studied not just from a medical, social but also technological model/perspective. Functioning of persons with disability is based on a very complex, dynamic and interactive conditions. These conditions cannot be studied specifically based on past models. Many scholars who have focused on role of technology in relations to disability have analyzed from standpoint of assistive technology, how it created and for whom and by whom. Disability studies have matured to question the roles of those who have created technology. Its only lately that disability activists began to argue on how it is important to have their say in making new technology especially assistive technology.

This paper aims to begin a new dialogue in the study of disability. It proposes a study to understand role of assistive technology especially smart phones, their use, their accessibility, and impact of tele/ internet coverage on youth with disability in India and question whether it helps create or erase choice and opportunities for them. What kind of mobility whether vertical or horizontal can it provides under the rubric of social stratification?

Based on the data from Census 2011 and the latest report from NSO, MoSPI in 2021, here's where things stand regarding disability in India: As of Census 2011, India's differently-abled population is 26.8 million, constituting 2.21% of the total population of 1.21 billion. This figure comprises over 18.0 million individuals in rural areas and approximately 8.1 million in urban settings. The percentage of men with disabilities is higher at 2.41% compared to 2.01% for women. According to the NSO's 2021 report, there has been a slight increase in the disabled population from 21.9 million in 2001 to 26.8 million by 2021. This data was collected during the Survey of Persons with Disabilities in India conducted in the NSS 76th round (July – December 2018). The male to female ratio among the differently-abled population has not significantly changed, with more disabled males than females. Similarly, there has been minimal shift in the rural-urban distribution of the disabled population The top five states with the highest disabled populations, comprising nearly 50% of the total, are Uttar Pradesh (15.5%), Maharashtra (11.05%), Bihar (8.69%), Andhra Pradesh (8.45%), and West Bengal (7.52%). These states also have the highest numbers of disabled children in the country, reflecting regional disparities in disability prevalence and care.

What is important to note that in census of 2011, almost 46% of the disabled population is in the age bracket of 10-39 years and if you see the demographic graph of India, one can safely assume that this percentage must have increased substantially. Their labour force participation rate was 23.8 per cent aggregate. Demographically the disabled population participation in the labour force is not as active as it should have in the country, especially for women only 23% participation rate, males have done comparatively better at 47% of the total disabled population. In rural areas

participation of females is 25% and male is 47 %, in urban the situation is worse for women only 16% and make is stagnant at 47%. (Census:2011)

On education front in 2011 over 45% of the disabled population remains illiterate. 55% of the population that has received varied education from elementary to secondary and only 8.5% of the population are graduates. The ratio of female graduate is also low 7.7% in comparison. One point that is clearly visible, there is a sharp gender gap between male to female literates. There are two set of arguments that we are trying to establish here, first that it is digital divide which is the main cause of illiteracy and lack of work force participation among the disabled population in India. And secondly even in states where the total number if disabled population is less than 1% of their total population, and where tele density is high and literacy is also high, there still exists high rate of unemployment amongst the disabled population. With use of comparative analysis and other sociological tools one can formulate a new sociological understanding with number of causes.

1. That either there exists lack of accessible opportunities (online and offline).

2. Lack of acceptance for disabled employee which means there exists hidden forms of discrimination.

3. Lack of awareness in society in general about disabled

4. Less commitment both from the Government or Private sector to be inclusive. In the private sector especially, there is lacuna of data and research on this subject. Would elaborate more on this later in the paper.

The digital divide is not just lack of access to a mobile, its networks (2G,3G, 4G or 5G) or a particular technology, this divide is multi layered, its keeps people distant from knowledge, from opportunities and choices. In the last decade information technology and communication advances have not able to materialize new prospects for the disabled population. As per TRAI (Telecom Regulatory Authority of India) latest report 2021, there are total of 1.1552 billion wireless connections. Total tele-density is in urban India is around 55% in and 44% in rural India. Top states which have the highest number of disabled people are in the state of Uttar Pradesh, Maharashtra, Madhya Pradesh, Rajasthan, Bihar, Andhra Pradesh, and West Bengal. Out of them Uttar Pradesh Bihar & Madhya Pradesh has the lowest tele density in the country. Not surprising the state with lowest tele density also has the greatest number of illiterate disabled population, for example Bihar only 52.7%, UP 66.7%, Madhya Pradesh 68.12% against the total national average of 86.56% which is abysmal.

The mobile phone especially smart phones are considered as the key instrument for bridging the digital gap in India. India has leapfrogged from owning personal computer to smart phones. Smartphone enables access to internet and to other application. Almost 81% of the total 462 million internet users in India use mobile broadband, but the problem is that smart phone penetration still limited only 24% as compared to feature phones (IAMAI data 2020). Although feature phone provides internet but accessibility is limited, even application usage is limited. The government of India has taken a lot of initiative along with the private sector to make India global hub for mobile manufacturing and innovation. But even with steady increase in the number of smart phone users the gap remains large. to has not brought any cataclysmic change in the conditions of the disabled population and their socioeconomic status remains reduced or stagnant. The proliferation of mobile phones is very important for the disabled youth and to make India more inclusive society.

Another important aspect to emphasis and expand our study is regarding tele density. Tele density is Telephone density or i.e. the number of telephone connections for every hundred individuals living within an area. It varies widely across the nations and also between urban and rural areas within a country. Telephone density has significant correlation with the per capita GDP of the area. The higher the better the prospects of growth for the larger population.

But there is a surprising inverse relation when it comes to those with disability. In areas where tele density is high and literacy is comparatively high along with the average per capita income, the even urban population as compared to rural population is high, there still exists high rate of unemployment amongst the disabled population.

Population: Let us take example of Union Territory of Delhi, it has population of about 167.88 lakhs residents comprising 163.69 lakhs (97.5) urban population and 4.19 lakhs (2.5%) rural population (as per Delhi Economic Survey 2023-24). Total population of National Capital Territory of Delhi is 167.88 lakhs (as per Census 2011) and the population of persons with disabilities in the territory is 2.34 lakhs i.e. 1.4% of the total population.

Per Capital Income: Delhi is the prosperous state with the second highest per capita income (in real terms) in India. The average per capita income of Delhi is almost three times higher (4.16 lakhs) than national average per capita income of India (1.85 lakhs) according to the Delhi economic survey 2023-24 data.

Education: All India Survey on Higher Education (AISHE) shows the persisting dismal condition, exclusion and discrimination that students with disabilities have been facing to access education. As per the AISHE data (from 2017-2018 to 2021-2022), the enrolment of students with disabilities in higher education hovers between 0.19-0.22 % of the total students enrolled in the higher education system. Delhi has only 4426 students with disabilities enrolled in higher education as per AISHE Report (2020-21). Despite the legal frameworks such as the Rights of Persons with Disabilities Act 2016 and the National Education Policy 2020 the students with disabilities are underrepresented in higher education.

Employment: The intersection of digital access, education, and employment plays a critical role in understanding the social exclusion faced by disabled populations. Data highlights significant challenges: over 45% of the disabled population in India is illiterate, and their participation in the labor force is notably low. For example, while about 47% of disabled men in urban areas are part of the workforce, this number drops significantly to only 16–25% for disabled women. These disparities underscore that, despite advancements in technology, digital inclusion alone does not ensure improved socioeconomic outcomes for people with disabilities. Moreover, the failure to develop inclusive digital platforms and policies perpetuates historical trends of marginalization. The latest report from the NSS 76th Round (July 2018) highlights these issues, pointing to abysmally low labor force participation rates among disabled individuals, reflecting systemic barriers that hinder their full integration into economic activities.

Statement 35: Indicators of employment and unemployment among persons of age 15 years and above with disability in usual status (ps+ss)

			all-India
Indicator	**male**	**female**	**person**
	rural		
Labour Force Participation Rate (LFPR in per cent) among persons with disability	36.8	8.0	24.5
Worker Population Ratio (WPR in per cent) among persons with disability	35.5	7.8	23.7
Unemployment Rate (UR in per cent) among persons with disability	3.5	2.5	3.3
	urban		
Labour Force Participation Rate (LFPR in per cent) among persons with disability	33.9	7.2	21.9
Worker Population Ratio (WPR in per cent) among persons with disability	31.7	6.6	20.4
Unemployment Rate (UR in per cent) among persons with disability	6.5	7.9	6.7
	rural+urban		
Labour Force Participation Rate (LFPR in per cent) among persons with disability	36.0	7.7	23.8
Worker Population Ratio (WPR in per cent) among persons with disability	34.5	7.4	22.8
Unemployment Rate (UR in per cent) among persons with disability	4.2	3.9	4.2

Note: Usual status (ps+ss) is determined considering usual principal status and subsidiary economic activities together

Source: Persons with disabilities in India NSS 76ᵗʰ Round Page No 77 Section 3.11, Indictors of Employment and unemployment with persons of age 15 years and above with disability - https://www.mospi.gov.in/sites/default/files/publication_reports/Report_583_Final_0.pdf

Conclusion

This paper discusses the history of the disability and the sociological perspectives that have emerged within the discipline. Disability as a topic of discussion and debate has unfolded over the course of time from stage of ignorance or to be categorized as evil or sin to be disabled bodies, to stages of stigma, acceptance & maturity, where inhibitions and discrimination bring question questioned. Disability was earlier debated by abled bodied and they decided the what action and support was required for them to live a dependent life. Now this praxis has changed, the discourse is led by those who are facing disabilities and are its active members. It explored the convergence of historical sociological theories and modern digital realities in shaping the experiences of disabled youth in India. The evolution from a medical model to a social model of disability, alongside the advent of digital technology, presents both challenges and opportunities for social inclusion. While historical legacies continue to influence attitudes and policies, contemporary technological advances have the potential to transform these paradigms—if they are accompanied by inclusive practices and targeted policy interventions. With coming of intersectionality and inter disciplinary approaches the debate has shifted, as argued in this paper from social model to Science, technology and society studies cannot be ignored. Technology has played a vital role in reshaping the way we live, work and how we relate to one another. It has fundamentally altered the way we see, feel, and interact. Hence, the amalgamation of technology with disability is a point of study must not be ignored. The velocity, scope, and the impact that technology is creating in our lives is unprecedented. The transformation it represents and speed at which current breakthrough are occurring around us are unparalleled. The fusion of technology is blurring the lines between the physical, digital, and biological spheres and the middle of all is cantered on the exchange that is ongoing between Human and Machine. This supersonic paced digital transformation that is taking shape is/has impacted the entire human population including those

marked as disabled. This paper, presents some convincing arguments why more work is required to examine the relationship between technology and disability as it holds promise to define and redefine the question of the past, present and future of disability and its people. Reducing the digital divide requires not only technological innovation but also a critical reassessment of historical attitudes and policies. The interdisciplinary framework outlined in this paper—drawing on classical sociology, the social model of disability, and modern STS approaches—provides a promising pathway for both academic inquiry and policy formulation. Addressing these challenges is essential for creating a more inclusive society in which digital technology serves as a bridge rather than a barrier.

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