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Missing Disabled Women: Gendered Information and Communication Technology Development Projects in India

Sushil K. Oswal and Keshreeyaji R. Oswal

Abstract

This article highlights how the information and communication technology development (ICTD) research establishment on one hand targets low-resource and low-income regions in India in the name of poor people and on the other hand quite regularly leaves out poor disabled women even in targeted disability population projects. Using a small number of projects, we underscore the literal and figurative exclusions wrought in them while pointing out the potential such projects might acquire with the research participation of disabled women. We emphasize that the disabled women's economic agenda in such technology projects is not only important for their own sake but also central to the success of any disability-focused projects where nondisabled researchers and professionals rarely have the ground-level knowhow to conceptualize, design, and implement ICT development projects pertinent to the lives of disabled women and their families. The article shows that the ICTD community, which predominantly consists of researchers and professionals from the universities and NGOs in the North, replicates traditional boundaries confining disabled women to the home and attributing little autonomy or public roles. Ultimately, the goal of the article is to ask for the ICTD community to wear a less benevolent mantle and present its work as a business transaction between the ICTD project sponsors and the local communities while including disabled women as key stakeholders and active participants in defining, designing, and operationalizing disability and technology projects.

Keywords: Gender, ICT development, disabled women, neoliberal markets and information and community technology

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Missing Disabled Women: Gendered Information and Communication Technology Development Projects in India

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Due to the Congressional Social Security initiatives in the United States during the Linden Johnson presidency in the 1960s to support unemployed disabled citizens with a livable monthly grant and the various comparable schemes in other countries of the North, the developing field of disability studies has focused on the conditions of service delivery and more specific disability rights, the right to work for example, in the past five decades. Many of the disability studies scholars in North America came from disciplines steeped in literary and social theory and they have engaged in lengthy and convoluted textual debates which speak neither to the ordinary disabled people in the North, nor the South. As compared to the disability activists writing independently, or activist academics writing to public beyond the academy, these scholars have generated a body of research whose subject matter Ghai kindly labels as "an engagement with the multiple nuances/meanings of disabled existence" (Ghai, 2002, p. 88).

India-specific development studies from the global north have found connections between poverty and disability and disability leading to poverty. These studies are hard to compare due to their differing methodologies and it is equally difficult to arrive at a conclusion about the link between poverty and disability from them (Mitra, Posarac & Vick, 2013; World Bank, 2009). While these scholarly productions might lengthen publication lists on academic CVs and lead to tenure and promotion, their relevance for the average disabled person in the South is just as minuscule as that of post-structural or post-modern theory arguments of the previous century. Speaking of this context, KC Hari (Hari, 2016, p.27) points out that "the disability discourse that dichotomizes the medical and social models of disability fails to address the lived-challenges confronted by persons with disabilities in the South".

Likewise, the power-wielding international economic institutions often ignore disabled women in their projects. For example, a 2002 heavily cited World Bank study undertaken to measure women's empowerment did not even mention disability and it did not include any previous work by or about disabled women's issues in its literature review (Malhotra & Schuler, 2005). Another work, specifically focused on India's rural women and included in a collection of conference papers on women's global movement, made no mention of disability (Jejeebhoy, 2000). Development literature on poverty during that decade, including large scale, international studies taken up by World Bank research teams and duplicated in other venues, also made only passing references to disability in India along with other affected population categories. No separate concern about the peculiar conditions of poverty among disabled women was registered (Narayan, Patel, Schafft, Rademacher & Koch-Schulte, 1999). Further on, the Information Communication and Technology Development (ICTD) researcher community from the global north on one hand presents itself as a provider of innovative solutions for the problems of the southern poor, and on the other hand, it often leaves out disabled women from its projects. This article tries to draw attention to this discrepancy in the rhetoric of the ICT development discourse through our analysis of several ICTD studies. In the end, we selectively comment on the Indian disability law, Right of Persons With Disabilities Act of 2016 (RPD), to highlight the areas where this law needs strengthening so that disabled women receive

necessary ICT and other support from the various governments at the center, state, and local levels to participate in the socio-economic activity to become independent.

Women, Disability Activism, and ICT in India

International Federation of the Blind (IFB) and the World Council for the Welfare of the Blind (WCWB) jointly organized the first Leadership Training Seminar for Asian Blind Women in Kuala Lumpur in March 1981. Fatima Shah of Pakistan headed the International Federation of the Blind at that time and it seemed that disabled women would take a leadership role in the disability movement and their condition would eventually improve in South Asia (Maqbool, 2003). Since then, India has ratified various United Nations human rights instruments for women and girls with disabilities including the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW), the U.N. Declaration on Human Rights, the Convention on the Rights of the Child, and the Standard Rules on the Equalization of Opportunities for Persons with Disabilities. However, neither the central government, nor any of the state or local governments have taken any concrete steps to operationalize these UN directives to attain the goals of gender equity. Men have controlled the organized disability movement over this period and disabled women's agenda has not received a significant voice. After the passing of the comprehensive disability law, The Persons with Disabilities Act, in India in 1995, educated, middle class women have participated in disability activism; however, the concerns of disabled women from rural and urban poor areas have largely stayed on the margins.

Notably, non-disabled men and women are also increasingly adopting ICT to develop activist movements through social networks on social media platforms such as Facebook, Twitter, and Instagram. As such, these platforms give activists a space to group together, store relevant information, and involve those who otherwise feel silenced by the larger society. This ability to attract and collectivize sympathizers and fellow activists locally and globally with technology is empowering; however, the larger discourse of technology often undermines the social networks' activist work and tries to reduce all development to the deployment of ICT. While such platforms are largely inaccessible to the Indian disabled community, technologically and linguistically speaking, they are further inaccessible financially to those who are also low-income, or live in rural areas with little or no network coverage. We have not found personal accounts of ICT use from rural disabled women but accounts from urban disabled women in India reveal that technology plays a significant role in their lives.

Ashika Bhargav, whose graduate research included work with blind students at the University of Delhi, writes,

> In my everyday conversations with fellow hostel mates with disabilities I realized that intersections of disability with class, caste, region and religion play a very important part in determining the 'barriers and access' a person with disability faces in society. Availability and access to tangible aids like laptops, motorized wheelchairs, hearing devices and physiotherapists and intangible aids like English education, inclusive schools, communication skills and so on are invariably dependent on the social and cultural background of the person with disability. (Bhargav & D'Silva, 2018).

In short, access to information and communication technology is quite limited. Despite the gender and resource barriers faced, nondisabled women—who have none of the technology barriers confronted by the disabled are making inroads into paid work to gain independence and often support their families through their work. Under the open market economy of India, ICT has become central to finding such well-paying jobs or occupations and for advancing one's career (Paul, Thompson & Heinström, 2015).

The role of ICT development also has been linked to rural women's socio-economic development in widely disparate fields – ICT-supported women and child healthcare, primary education, digital literacy, ICT-mediated answers for low-income and low-employment, rural social networks for enabling economic development, and technological platforms for entrepreneurial start-ups (Crabtree, 2016; Deloitte, 2015; Malhotra, Kanesathasan & Patel, 2012; McKinsey, 2014; Venkatesh, Shaw, Sykes, Wamba & Macharia, 2017).

Historically speaking, disabled women have been perceived as a burden on the family, but this perception was also attached to nondisabled women in the past. With the changing gender balance among nondisabled female and male children in the family due to many women pursuing careers of their own and leading independent lives, this perception is beginning to see cracks. Disabled women in rural areas as well as in the urban periphery, on the other hand, have remained on the margins of this socio-economic shift because the neoliberal Indian governments have paid little attention to their needs and the Indian disability laws of 1995 and 2016 have mostly benefited men and women in the urban middle class. Rural women, including disabled women, have always worked in the informal economic sector or on small plots of family land; however, their work is not quantified and is considered unquantifiable.

Speaking from within the Indian women's movement, Bhambani (2003) reminds us that the dire state of marginalization of disabled women in the global south can be judged from the fact that no reliable data is available about their numbers (pp. 76-77). Leaving alone the omissions of the disability movement of the north, even in the south, disabled men pay little heed to disabled women's issues as they set up disability agenda for their movements. She also points out that disabled women's unpaid domestic work inside the boundaries of her family home is also not quantified and since disabled women often spend their entire lives at their parental home, no statistics are possible about their domestic economic productivity (Bhambani, 2003, p. 83). And yet, these disabled women are seen as a liability by their families (Mohit, 1996). With nondisabled women gaining economic independence, and the urban disabled women also sharing a piece of the independence, disabled women from rural areas and urban periphery are at a higher risk of being seen as a larger burden unless they can themselves seek means to free themselves of their dependence on the family. The powers in charge of ICT development, which have broadcasted themselves as the saviours of low-income and poor populations and presented ICT as a great equalizer from the global north, have, however, also ignored these rural disabled women in most parts as these studies overwhelmingly foreground male, disabled participants' role in these projects.

We define information and communication technology (ICT) as products or systems, including all hand-held and mobile devices, that can manipulate digital information stored locally or online, link to, communicate, interact with, and exchange information with other computers,

networks, cloud systems, and other remote systems to store, display, retrieve, process, and broadcast information. Since old technologies, such as, radio and television, can converge with the more recent digital technologies, this convergence, we believe, is of great potential for disable women and men living in low-resource regions located on the urban periphery or in rural areas yet not fully networked and should be included in the ICT development. Having said this, we want to stress that we do not think that ICT, or any other technology, alone is an answer to low-resourced community's socio-economic problems. In fact, we worry that ICT and ICT development projects have been launched more often to benefit the researchers, NGOs, and the corporations and governments sponsoring these development projects than the low-income disabled people participating in them. We further think that these sponsors and researchers also benefit from the local community knowledge and the contextual knowledge gathered from the implementation of such projects. The researchers from global north and the international monetary institutions funding their projects often attach denigrating labels, such as, backward areas, digital divide, low-income populations, etc. to describe the intervention sites and the participants. On the other hand, they invariably apply positive sounding labels, such as, digital inclusion, digital access, and ICT development itself to describe their own contribution. This rhetoric covers up the major benefits reaped by the researchers, ICT development professionals and their sponsors from these sites often at the cost of low-resourced and low-income participants.

Arrival of ICTD in Disabled India

After the opening up of the Indian markets during the last decade of the twentieth century, many more researchers have found Indian disability populations attractive for their information and communication technology development research (Pal, 2017). Sponsored by the government programs from the industrialized countries and ICT manufacturers in search for new markets, such field projects offer easy opportunities for testing technologies in early stages of development with disabled users at a low cost and little to no barriers in accessing the research sites and disabled participants. The stringent research regulations in industrialized countries of the North, on the other hand, restrict research with disabled users because they are considered high-risk subjects. The sponsors of these projects always have the hope of capturing future ICT markets of tens of millions of disabled Indians as the country's economy grows. The international financial institutions find these projects lucrative from the angle of potential future loan agreements with the government. These are not the only advantages for the researchers and their sponsors. The ICTD researchers at times accompanied by professionals from these firms acquire user experience about the Indian disabled and also gather invaluable contextual knowledge about the local conditions in which the Indian disabled users employ technology. Overwhelmingly, these studies center on disabled male users and the published research literature about these ICTD projects here and there refers to the presence of disabled women users. Short statements from these women are also included in some of these research studies showing interest in ICT but in general this research is "Can the Subaltern Speak" writ large again and again (Spivak, 1988; Vashistha, Cutrell, Dell, & Anderson, 2015).

Indian Government and the ICT Development

After India's entry into the outsourcing market for software and other digital work, the government has paid attention to the development of digital literacy among citizens so that

the ICT development could reach a larger population. Rural digital literacy has been under the scholarly radar for this reason, particularly from a social research perspective, since ICT developments have raised the questions of digital divide among different sectors of the society, including the rural, the disabled, and the poor, and all of the aforesaid intersect. While researchers are generally optimistic about the role of ICT in the socio-economic development of rural areas, their discussion often leaves out the disabled (Mohanty, 2008). Even the research focusing on ICT and rural women leaves disabled women out (Das, Patra & Misra, 2013; Goswami, 2016; Patel, 2011; Prakash, 2012). Further, the research on women and general access to ICT also overlooks disabled women's access issues (Kumari, 2012; Mutaza & Sami, 2012). To promote digital literacy in rural India where only about five percent households owned a computer in 2011, Indian Government has implemented initiatives like, "National Digital Literacy Mission" (2014) and "Digital India" (2015), but potential disabled rural users are not mentioned in the published sources on these schemes (Patankar, Vyas & Tyagi, 2017). Existing empirical research, although at a small scale, indicates that the rural disabled women would engage in development projects if given an opportunity. In a study of nine urban and rural disabled women attending a prosthetic/orthotic technician training center, jointly conducted by two NGOs working in the field of disability in Bangalore, researchers asked two basic questions: "How do training and independent group living experiences influence personal, social and professional development in young disabled women?" and "How do such experiences affect family relationships and contribute to social awareness?" (Raja, Boyce, & Boyce, 2003). The study results suggested that *"several family attitudes towards women, their disability, education, independent development and marriage—attitudes perhaps peculiar to India and almost always assumed to be negative—have actually had a liberating impact on their lives"* (Raja et al., 2003, p. 239). The study participants presented a complicated picture about their families' attitudes toward disability and all felt loved and even valued in their household. The changes resulting from the occupational training took a typical trajectory of an adult gaining socio-economic independence after acquiring the means to earn a living and gaining skills of independent living—something more challenging for disabled persons due to the barriers presented by the inaccessible physical and social infrastructure of rural India. The researchers further reported that this one-year of training was a constructive time in these women's lives as they learned to be independent and form relationships outside their families. The crucial self-development experienced by students and noted by the researchers, especially pertinent to this article's purposes, was in the trainees' altered perception of their own disability—which falls more in the social and critical social model of disability—and their awareness of a social identity of their own separate from the family bonds (For a brief description of social and critical models of disability, see Ghai, 2003; Oswal, 2018). Research shows that ICT can also help in empowering rural women by improving job-finding skills and developing women's social networks (Nabanna: Networking Rural Women and Knowledge 2004).

Several ICT Development Projects at a Glance

In this section, we analyse several studies on information and communication technology to demonstrate how such projects often serve the purposes of the technology producers, the sponsors of development projects who might belong to the global north, international financial institutions, and non-governmental organizations rather than the so-called beneficiary communities. We try to underline that the movement of technology from the global north to the

global south always has strings attached to it even when it is offered as international aid for the poor and developing countries.

Disability and Development through Self-Help

Chaudhry (2015, pp.1158-1163) investigated the impact of "globalization and market-led development policies" on rural disabled people in a study of self-help groups in South India sponsored by the World Bank. Chaudhry found that although this project portrayed these groups as participant driven and their aim was self-empowerment, the project sponsors also drew on "disabled people's labour, energy and time without remuneration, in the name of doing good for the community". Chaudhry explained that this linking of participation with self-help groups is the replacement for the shrinking welfare state—welfare that existed to support those for whom the state had failed to construct an accessible economic infrastructure. Chaudhry concluded that in the neoliberal governmentality of today's India "Free labour not only serves to keep the project 'cost-effective,' but also aims at producing auto-regulating subjects. The politics of austerity operates precisely through these self-regulatory processes in material and immaterial realms." On one hand these disabled participants had to supply free labour to the project to receive less than what they received from the state under the earlier economic regime, and on the other hand, they had to be thankful to the government and the international NGOs for giving them an opportunity to participate. Those disabled people who could not provide this labour due to their disability, or family circumstances had to blame (or auto-correct) themselves for not availing the so-called opportunity.

Computer Training Center for Disabled Trainees or the NGOs?

Our broad search of published literature on ICT development and training projects meant for disabled candidates in India un-surfaced some local projects that also reflected tendencies similar to those of the international ICTD researchers and NGOs toward their participants' interests and needs. An ethnographic study of three vocational training centers in Bangalore showed that low-income deaf women and men were kept occupied with basic computer training courses by these centers; however, their prospects of finding any meaningful jobs were negligible (Friedner, 2016). This study concluded that sometimes the same deaf trainees were being recruited by different centers—often for the same course—more to fill the empty center seats than for providing them with upscale computer skills. Thus, these young adults were serving these nongovernmental institutions than being served by them purposefully. The centers also did not leave good impression about their attitudes toward disability and disabled people. The founder of one of these centers—a disabled woman herself and from a well-off family—expressed resentment about the presence of deaf adults in her center since she had originally established this institution for training disabled survivors of polio. The founder not only presents a selective charity mind-set by taking it upon herself to gauge the economic and social relevance of her program for the participants but also reveals her bias against the deaf by tying of it to a specific disability population.

Global North Teaches Breast Feeding through ICTD to Women in the Global South

ICTD projects targeted at disabled people are not the only ones that raise our eyebrows. The findings of an ICTD study on breast pumps¬—a highly promoted technology to new mothers

in industrialized countries of the north during the past four decades—came out with some interesting conclusions: it proposed an ICT technology for facilitating breastfeeding of infants, not a new pump, but it also claimed that only 39% of mothers worldwide breast-fed their infants, and it further claimed that almost the double of this percentage of mothers in the United States breast-fed their infants (D'Ignazio, Hope & Michelson, 2016). It is not clear from where these percentages came and it is possible that health researchers from the global south might have responses of their own to question these claims. How did breastfeeding in the world drop so dramatically and who was behind this trend even if the numbers were not skewed to this extent? How do poor mothers around the world afford to feed their infants with expensive baby formula? Going back to other research published on this topic, it becomes clear that just three years before this call to the women in the global south, a workshop at the 2013 CHI (Computer Human Interaction Conference) called upon the audiences to pay attention to the unexplored topic of motherhood, an area of "transitional life phase" where digital technologies could be inserted (Balaam et al., 2013). With the research agenda from this workshop, which included the suggestions for conducting ethnographic studies in ICTD spaces worldwide, the group members moved on to work on technologies that could be a part of the development projects for mothers in the global south and north (Peyton, Poole, Reddy, Kraschnewski, & Chuang, 2014). We see this research trend as ominous because we see these studies as another technological path to the colonization of the female body.

ICT Development as a Kind of Expansionist Education

In their abstract for an article titled, "Technology Use and Non-use by Low-income Blind People in India", Vashistha and Anderson (2016, p.10) report that "[t] he environment of constraint and disability has led low-income blind people to appropriate general-purpose technologies as assistive technologies, and use them to orchestrate new coproduction, consumption and sharing practices to address their educational needs." Continuing this complimentary spree, the abstract ends with an even stronger statement, *"Low-income blind people also use mainstream social media platforms not only to access instrumental information and entertainment, but also to demonstrate their technology acumen to the society, and build meaningful connections with both blind and sighted communities."* Reading this abstract at its face value, the reader would imagine that these researchers are complimenting the Indian blind for the entrepreneurial spirit they demonstrate in solving their own problems with the constrained resources they possess and probably they would further inform us how we can learn something from these low-income entrepreneurs. A few sentences further, however, in the introduction, Vashistha and Anderson go on to paint the same entrepreneurial adults of India—sighted or blind—as illiterate and lacking by citing percentages from development literature. Curiously enough, one of the cited percentages stress that 72% of Indian adults are "illiterate with respect to English" as if a society could arrive at literacy only with the acquisition of English. Moreover, they bypass any discussion of ICT development in more than a dozen major Indian languages, some of which have as many speakers as English or French does. The point in question is that the same researchers would never dare to make the same claim at home in regard to the woeful lack of knowledge of other languages among Anglo-Americans—the majority population of the United States at this time, which is actively participating in the processes of globalization. Since this claim comes from the community of ICTD academics and professionals, the imposition of this assumption is even more majestic than that of an imperial power ruling over another people.

Placing ICT Development Research by Western Academics and NGOs in a Broader Context

Scholars in rhetorical studies often talk about kairotic spaces and kairotic moments—informal, dynamic, power-wielding, and yet invisible spaces that are opportune, or just right, for a chance for people to come together momentarily, interact, and exchange ideas on an issue, develop knowledge, or formulate an action plan (Oswal 2013). However, in what we would call "neo-colonial" contexts, when these moments present themselves, they can be opportunistically grabbed by those who have surplus power, technology, or access by defining the kairotic moments in one particular way by closing out other possibilities and those who might have intentions of defining the moment some other way to attain their own ends. We expand the application of the concept of Kairos for these neo-colonial times by demonstrating through the Arab Spring example how the powerful get to deploy it not because they know most about the history of the place, the context or the issue entailed or are best suited for the critical aspects of the task, but simply because of their dominant position in the technology, networks, and knowledge markets. In such kairotic moments, access can become a key deciding point for who gets to put their oar into the water and who does not. While kairotic moments are always open-ended, particularly in the media-rich age we live in, and no one can predetermine whether or not they can be availed, we acknowledge that innumerable other factors can also obstruct access. We use "access" here capaciously and want to underscore that the neoliberal bent of the Indian state, the bullishness of the NGOs for the global markets, and the still intact colonial mentality among some about everything western, plays a role in determining this access to the moment for those who are already marginalized in the traditional gender, caste and class hierarchies of the Indian society.

What is now widely known as the "Arab Spring" could be used as an example of such power grab by the western media markets of an incident, which happened spontaneously and did not start with the intentions retrospectively assigned to the original moment? After all, the loss of life, intentionally or unintentionally, is a common sight in the global media projecting information both from the industrialized and developing countries. In the propagation of images of the uprisings outside the Western world, the information and communication technology was strategically inserted in the descriptions of the ensuing movement to position this technology in a central spot where the ordinary people, it seemed, doing the uprising were there more to enact this ICT for the media spectacle to be telecast to the global audiences than to behave as independent agents working toward the achievement of their local political goals with the tools available. Arab Spring eventually moved from the media world into academia where scholars first made much out of the event—the empowerment of ordinary people in developing countries by western ICT labelled as, New Media, and the humongous reach of the global networks—and then, the same academia and the global media rewrote that very event into myriads of critiques and disagreements over every one of its aspects (Bellin, 2012; Howard & Hussain, 2013; Khondker, 2011; Lotan, Graeff, Ananny, Gaffney, & Pearce, 2011). In short, the Arab Spring, as it was played out here in the United States, seemed more about the essentializing of ICTD as agent than about a people's movement.

Kairos in the ICTD Context

Reading these studies again and again, we discover that ICTD researchers, professionals, and NGOs make the same mistakes in diverse development venues in India and elsewhere around the globe. They arrive at a site with their preconceived notions, perceive themselves as knowing more than their participants, and impose on these participants their notions of use and usefulness of technology, social development, and economic progress without paying attention to what these might translate into the participants own socio-cultural and economic values. The concept of Kairos, or the opportune moment—from classical rhetoric is also pertinent to the deployment of ICT in numerous research and development sites in India where the local actors become incidental. These sites are not only described as places awaiting western ICT by technology and development professionals but also portrayed by university scholars as unexplored research spaces where no other local-level problem-solving process has happened or might be happening.

Having defined the people in these development sites as poor and illiterate, these researcher justify to themselves and their scholarly audiences their decision to take control of the development space—ask the research questions they want to ask, the data they want to gather, employ the methods and means they see fit, and enforce the answers or solutions they deem appropriate—to write their conference papers, publish journal articles, and win more grants to colonize other suitable sites to further their ICT agenda. Grech (2010, pp.6-9) explains that the documents from Western development organizations [and we would like to add "academic publications"] typically become the means for "transporting these Western epistemologies, models and ideas across cultures". Of course, these transactions are mediated by "local and national organisations such as DPOs, academics and other stakeholders". However, we should not confuse these intermediaries with the real local stakeholders who are often viewed of little significance in these projects due to these researchers and developers' skewed perception of poverty and low-resources. While disabled people living in low-resource environments are economically and politically challenged, they still have the possibility of drawing on their, howsoever, limited social networks. Grech describes these networks as "informal". Narayan (1999) further explains that "the norms and social relations embedded in the social structures of society that enable people to co-ordinate action and to achieve desired goals" also make accumulation of social capital possible (p. 44).

The Lure of the Low-Resource Regions for Information and Communication Technology Industry and International Financial Institutions

While ICTD has been framed in developmental terms for the global south and always has some employment generation and poverty elimination angle to its agenda; a cursory survey of ICT literature points toward other less benevolent and more expansionist insinuations. Take for example an ordinary-looking article in the *Journal of the European Economic Association* casually asking how important is ICT for outsourcing and offshoring of business services (Abramovsky & Griffith, 2006). The rhetorical question answered in the affirmative then becomes the pretext for dozens of ICT development project loans in these offshore economic development zones in the name of foreign economic and technological aid by international financial institutions and industrialized countries to the governments of so called low-resource,

developing host countries. While the ICTD researchers might include middle class women both from the North and South, the financial transactions complicit in these development projects invariably are not necessarily for the benefit of women alone, not to speak of low-income, rural women. The development project might have other motives from the perspective of the technology provider. It might provide the technology producers and financial sponsors a lay of the land so to say and that too with financial layouts from the governments and NGOs in the name of the poor with no obligation to proceed with the financial venture under consideration if something unforeseen pops up. Setting apart everything else, the sheer experience for the ICTD professionals and academics is a net value unavailable in the industrialized world (See Joyojeet Pal's commentary on ICTD academics in CHI 2017).

On the other hand, the so-called low-resource label itself is a misnomer since the host country provides abundant, cheap labour, easy land deals negotiated without any strings attached with the host nation, cheap supply of local raw materials, environmental regulations with relatively low thresholds and negligible penalties, tax- free zones for implementing the manufacturing side of the development project and plenty of free product promotion for the western corporation behind the technology at a global level.

Indian Disabled Women, Disability Law, and the Hope for a Home-Grown ICT Development Culture

In this section, we provide a commentary on the Indian disability law targeted at connecting it to the gendered rural setting.

Relevance of these Analyses to Disabled Women's Cause

Here, we selectively analyse RPD to underscore its strengths and weaknesses in relation to the specific needs of disabled women, accessible technologies, and opportunities for paid work in both rural and urban settings. We also embed suggestions for disability community throughout these analyses to put forth political demands for strengthening the 2016 Indian disability law so that it would have sufficient teeth to: 1) give disabled women strongly stated and enforceable citizen rights; 2) improve the clauses pertaining to provisos about women's economic and social rights, including the right to get paid work or acquire means for self-employment; 3) build specific clauses for holding bureaucrats and other civil servants administering the law accountable; and 4) institute paralegal aid cells in courts at all levels so that disabled women without resources would have a support mechanism to go to when their rights are violated.

The disability lobby, which is overwhelmingly male, and middle class, at this time, must argue for employment of disabled women paralegals in such positions so that these professionals have an understanding and sensitivity for their disabled clients' problems. Such cells are essential at least from the Tehsil (subdivision) level and up and they can serve all disabled people. The disability lobby itself needs to diversify its ranks by recruiting rural disabled women, learn about their educational and training needs, and their social support needs to become less dependent on their families. Most importantly, they must engage with them in a serious dialogue about building a publicly-funded, low-cost, formal and informal socio-economic infrastructure so that the disability community could demand of politicians

at local and state levels for such infrastructure. The purpose of this infrastructure is not to provide work but to create a socio-economic support network for finding jobs, training for work, and obtain appropriate knowhow to start small businesses. The existing rural, socio-economic infrastructure was never developed for disabled people and does not show any signs of becoming inclusive, therefore, disabled Indian women would be better off having socio-economic networks of their own, which are organically grown to serve their needs.

Overview of the Indian Disability Law of 2016

The current Indian disability law of 2016, Rights of Persons with Disabilities (RPD) is couched in the United Nations' 2007 Convention on the Rights of Persons with Disabilities (CRPD) and opens with acknowledgment of the key directive of this international convention, Section G) "equality between men and women". While CRPD has several directives, which go beyond any of the provisions in the various disability laws in the global north or south, its enforceability is at the mercy of the individual states. Moreover, simply reciting the directives of CRPD does not strengthen a national disability law unless the state builds in adequate mechanisms to implement the national law, issues some meaningful policies or regulations to enforce the law, trains judiciary to handle the related cases, and above all, has sufficient financial layouts for continued implementation and enforcement of the law and related programs. Thus far, the 2016 Indian disability law, or its referential use of CRPD has not benefited the low-income disabled women living in rural and urban India in any notable manner and the general language about the enforcement of the law by judiciary has proven ineffective.

Matters of Definition

Section (2) of Chapter I defines disability in relation to discrimination: (h) "discrimination" in relation to disability, means any distinction, exclusion, restriction on the basis of disability which is the purpose or effect of impairing or nullifying the recognition, enjoyment or exercise on an equal basis with others of all human rights and fundamental freedoms in the political, economic, social, cultural, civil or any other field and includes all forms of discrimination and denial of reasonable accommodation (p. 2). Later, Chapter I of RPD further defines disability under three separate categories in Sections r, s and t. According to (r) "person with benchmark disability" means a person with not less than forty percent of a specified disability where specified disability has not been defined in measurable terms and includes a person with disability where specified disability has been defined in measurable terms, as certified by the certifying authority. In comparison, Section (s) defines generally permanent disability (The law does not use the term, "permanent", but seems to imply it.) as "person with disability" means a person with long term physical, mental, intellectual or sensory impairment which, in interaction with barriers, hinders his full and effective participation in society equally with others". (t) "Person with disability having high support needs" means a person with benchmark disability certified under clause (a) of sub-section (2) of section 58 who needs high support". As the reader might have noticed the dizzying array of descriptors and differentiators in the above definitions of disability, in a court of law, the lawyers on both sides will definitely have a ball pinning down the exact meaning of these descriptors intended by the parliament while the disabled supplicant's hope of finding any justice waxes and wanes along with fast emptying pockets.

Disabled Women's Rights in RPD

Chapter II focuses on disabled women and children's rights by stating: "4. (1) The appropriate Government and the local authorities shall take measures to ensure that the women and children with disabilities enjoy their rights equally with others." (p. 5). While discussing the agricultural and housing development schemes, it asks for special consideration for women, but the language of the clause is weak: (a) five percent reservation in allotment of agricultural land and housing in all relevant schemes and development programmes, with appropriate priority to women with benchmark disabilities" (Chapter VI, section 37, clause a, p. 14). The vagueness of the modifier, "appropriate", almost makes this priority a non-priority and with the added arrogance and ignorance of bureaucrats toward rural and poor women in general, it is bound to result in little action for women with disabilities. The next sub-section (b) is less vague when it states that "(b) five percent reservation in all poverty alleviation and various developmental schemes with priority to women with benchmark disabilities"; however, the more crucial question here is whether or not this priority can be applied to the overall 5% reservation in cases to accommodate women applicants alone where there are a large number of disabled female applicants.

Section 92 of RPD should be of utmost interest, as well as, of concern for all of us as it gives certain means of protection to women against the widespread violence against them but then it takes these protections back in other instances when it hands over the final authority to decide on disabled women's reproductive rights to medical professionals and guardians. The sub-section relating to the right to bear or not to bear children in this section is rather disturbing, particularly in a society where the patriarchal family is structured around children and bearing these children is still otherwise considered the primary role of a married woman.

The last piece of direct relevance to the discussion of women, technology, and development in RPD is Section 47, which deals with the training of civil servants and elected officials from the village Panchayats to all the way up to the Central Advisory Board for RPD. The expansive description of this section has a great deal of relevance to rural disabled women if its potential could be realized; that is, if disability policy lobby and lawyers could have bureaucrats and politicians issue some meaningful regulations according to the needs of the disabled rural and poor women. Its language can be framed to make demands on development projects that disabled women might like to plan through their local, socio-economic networks. Likewise, women lacking support of such networks might draw on these sub-sections to seek fiscal and infrastructural resources to organize local networks of their own.

Sub-section (1) of Section 47 also mentions "Any other capacity development measures as may be required" (p. 16). This casual reference to capacity building might be of major significance for disabled women in rural settings when none of the other sub-sections appear to cover their specific local needs for building socio-economic networks. One last sub-section here could have been worded better to reflect the needs of rural disabled women and men. Sub-section (2) states a provision for the establishment of centers for the study of teaching and research in disability studies at all universities but has no reference to the majority disabled population living in rural India. While the realization of such research centers might be a long-term project for most universities, placing their focus on the concerns of rural disabled women

would require separate effort on behalf of this constituency. It might be almost as difficult to convince academics to share participatory power with rural disabled women altogether removed from the elite ivory towers as it is for the ICTD community of the global north is to see these disabled women as their business and innovation partners.

Discussions of Technology without Sufficient Context

From the perspective of this article's focus on technology, development, and disabled women, Chapter I, Section 2, Clause (f) of RPD offers a detailed list of assistive technologies and services with some definitions scattered here and there. It explains that " "communication" includes means and formats of communication, languages, display of text, Braille, tactile communication, signs, large print, accessible multimedia, written, audio, video, visual displays, sign language, plain-language, human-reader, augmentative and alternative modes and accessible information and communication technology" (p. 2). While this attention to detail by the legislators is praiseworthy, it is limiting in more ways than one. The list is skewed toward sensory disabilities and altogether leaves out citizens with mental disabilities. The list also reflects the characteristic use patterns of urban, educated disabled people than the likely needs of rural disabled communities whose educational and occupational conditions have been hardly considered and represented in this law. The list of these communication concerns seems to have directly come from the disability laws in the global north since some of the details could be of use only if the government would have widespread arrangements for developing these programs. Plain Language is one such item that might require an altogether fresh initiative to simplify the Indian English, which is a throwback to the Victorian English of the 19th Century England amalgamated with its homegrown characteristics in the shadow of various Indian languages.

Likewise, availability of augmentative devices in low-income populations, particularly in rural India, will require substantive financial, technical, and infrastructural support from the governments at all levels for anyone to use them effectively. Under the neoliberal economic regime's outward-looking thinking, the law gives little heed to whether or not these information and communication technologies will be developed locally to suit the socio-cultural and physical environment of different regions of the country, or they will be imported primarily to meet the needs of English speaking middle class. This missing contextualization of technology in the background and foreground of old and required new infrastructure is bound to keep disabled citizens running because India in her throws of neoliberal economic development has consistently shown a tendency to attend the needs of ascending middle class at the cost of the people on the rural and urban periphery.

Sections 40 through 47 cover an array of accessibility related clauses, including the production of communication content and accessible products by the state, an anathema for a neoliberal state keen to privatize the state to promote open markets. Nevertheless, it is a welcome clause from the perspective of disabled consumers because these state-sponsored products for the disabled remain within the reach of a majority.

Last critical aspect of RPD that requires a comment relates to gender representation for various offices and job quotas. It is highly questionable if the representational benefits of the

provision of five disabled men and women members each on the Central Advisory Board and similar state boards would extend to the disabled women from rural areas. The same concern is applicable to the three percent job quota in various central and state government categories. None of the job quotas designate a percentage for disabled women considering that women in general are underrepresented in most of the professions. Scholars have documented numerous problems in the delivery of special education in India and rural areas are even worse off in offering educational facilities to disabled children (Kalyanpur, 2008). To address this issue, if the Indian Government would develop earmarked schemes to offer special educational opportunities to disabled young women in rural areas, a pool of disabled women candidates could be developed for assignment to these job quotas.

Closing Reflections

Definitions of disability by law or decree, occupational situations, historical antecedents, and socio-culturally expressed or assumed predilections reflect societal values, biases, and tendencies, which in turn have complex political and social implications for technology policy. The analyses of the sample ICT development studies in this article have tried to uncover the implications of the development projects under the current neoliberal regimes to the disabled women's socio-economic conditions. The 2016 iteration of the Indian disability law tries to strengthen the definition of disability but loose terminology of these definitions, however, are still hostage to further redefining by employers' lawyers, bureaucrats, and courts of law. For example, the employers are free to include any number of requirements in a job description which can often create more barriers for disabled women than men because women's presence in most Indian workplaces is sparse and coalitions between nondisabled and disabled women have yet to be formed. The heavy influence of religion and historical precedence on disability attitudes in Indian life also will take a concerted effort to erode even in the presence of a comprehensive disability law. For instance, Indian history—as recorded in literature and spiritual writing—has accounts of disabled men in various roles going back to the *Mahabharata*. However, it is generally silent on disabled women's presence except as passive objects of others' actions as in the Shravan story where this idol of filial duty carries his blind mother along with his blind father on his shoulders to a pilgrimage.

In contemporary India, the characteristic of disability unloads a larger burden of discrimination on the poorer and the low caste women since they are not only low on the economic and caste hierarchies by the sheer accident of birth, they are pushed further down due to the exclusions experienced within these hierarchies due to the difference of the body/mind they possess. Ghai (2003) assesses this twofold marginalization in terms of the labels attached for being low on each of these socio-economic strata (p.64). Middle class disabled women from both the global South and North have complained about the absence of disabled women from the feminist and male disability agendas (Morris, 1992; Ghai. 2003).

However, disabled women with multiple labels of marginalization have even a lesser chance of being heard in a neoliberal economy where voices communicated through and amplified by this flashy ICT technology are the loudest and can reach the farthest and also receive attention because the technology engaged by these middle class voices directly, or indirectly, advances the agenda of globalization and open markets.

We also want to mention that when ICTD research community marginalizes disabled women in their technology designs, as well as, in the ways these researchers imagine social structures within which these technologies are planned to function, they are further contributing to the disabled women's present invisibility in Indian society and pushing them farther down in the existing economic and social stratification. The ICTD community both in India and the foreign ICTD developers availing the opportunities for conducting research in a highly diverse and rich user market of the dimension of India, must come up with technology development research projects that integrate low-resource disabled women in conceptualizing designs, pay heed to their economic, social, and personal priorities, and engage them in conducting paid user research activities. Because ICTD field bears the mantle of development and receive funding from western governments' research agencies, such as, National Science Foundation (NSF) and from private foundations in the name of low-income and low-literacy communities, they cannot leave out the neediest of disabled members in these communities when determining their program goals and conceptualizing technologies.

Ultimately, ICT development of the right kind needs to go hand in hand with social development resulting from the disabled women's own leadership and activism so that disabled women could move in a middle place in the family, in the socio-economic hierarchy, and in the society. Disabled women in rural India cannot expect any more meaningful help from the current ICTD globalization projects than what has been seen in the recent decade. The best option for the disabled is to self-organize politically and socially to struggle against the neoliberal economic regimes and continue to demand resources from the state to design and develop their own small scale ICTD projects that are sufficient for local needs. Since the 2016 version of the Indian disability law covers information and communication technology rights for disabled citizens in some detail, both disabled women and men have the possibility of drawing on this potential through further lobbying for strengthening this law, have meaningful policy documents issued by the government to implement this law, and receive legal support when these policies are not implemented appropriately by the responsible authorities. The disabled lobby will need to work, no doubt, for consistent funding for the various ICT programs on a regular basis and disabled women from rural and urban areas have a great deal to lose if they do not take a leadership role in this struggle for realizing the ICT rights and the funding necessary to implement them.

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