'Disability and Digital Inequalities:
Rethinking Digital Divides with Disability Theory'

by

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Abstract:

Disability has had a chequered career, when it comes to discussions, policies, and practices addressing digital divides and digital inequalities. Over time disability has become an acknowledged element in digital inequality approaches, yet still it is often passed over briefly, and not well understood. In this chapter, I argue that we need better theory of disability and digital divides. However, I also contend that this cuts two-ways: that we cannot have an adequate understanding of digital inequality and divides unless we engage with, and draw upon, critical theories of disability. To make this case, the chapter reviews how disability has been regarded in digital divide and associated digital inequality and inclusion literature. With some exceptions, I suggest digital divide research is fissured by a theoretical awareness of contemporary disability research and, especially, theories of disability. To redress this, I look at what an adequate critical theory of disability and technology can tell us. I also propose key elements of an ideal approach to digital inequality that are evident when we do rethink the digital divide via disability theory.

Keywords: disability; digital technology; digital divide; inequality

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Introduction

Disability has had a chequered career, when it comes to discussions, policies, and practices addressing digital divides and digital inequalities. This is evident when we look at the digital divide, a thoroughly inadequate concept yet still often used to draw attention to issues of inequality in information and communication technologies (ICTs). Digital divide discussions often overlook disability. If addressed, disability is often just "tacked on" to other concerns, and tends to be little understood — despite a broadly shared, "nodding" recognition that disability must now be part of any serious attempt to grasp digital inequality.

It does not help that there has been an awkward fit between disability and the concept of "digital divide." As least as much as other areas, if not more, the lack of theorizing of digital divide has resulted in a flawed and narrow understanding of how disability relates to digital inequality. The implications of this theoretical cul-de-sac are not just a problem for disability. As I shall argue, we cannot have an adequate understanding of digital inequality and divides unless we engage with, and draw upon, critical theories of disability.

In making this argument, I rely on assumptions which have wide support among digital divide researchers. To start with, while the "digital divide" is a term that has its uses — mainly to draw attention to injustice and unfairness in the realm of digital technologies and society; and also as a "rough" category to constellate research and policy efforts, as, for instance, embodied in the longstanding Partnership for Progress on the Digital Divide (http://www.ppdd.org/) in which I have been involved — the inherent suggestion it encapsulates the flawed notion that there is a clearly *identifiable* chasm when it comes to digital technology. This critique of the concept of digital divides, singular and plural, has been consistently raised, and the literature has gone well beyond the binary division, in acknowledgement, as Eszter Hargittai and Yuli Patrick Hsieh have put it that "it is better to recognize that individuals, organizations, and countries may be differentiated by online experiences and abilities beyond core technical access" (Hargittai, & Hsieh, 2013, p. 129) Consequently, research, policy, and public discourse alike have moved on to other concepts, such as "social inclusion" (Warschauer, 2004; Sparks, 2013; Andreasson, 2015). In particular the liaison between social inclusion and digital divide is very interesting, and needs further investigation. This shift can suit the purposes of government and corporate interests, of course (cf. the moves of the Bush government in the US, for instance, noted by Wilhelm, 2004, p. 80). Nonetheless, when digital divide is retained, there is a common acknowledgement that it is surely complex, dynamic, gradual, differential, specific to location and context, and inflected by the media, information, and communication "repertoire" of individuals and their groups (van Dijk & Hacker, 2003: Livingstone & Helsper, 2007; Donner, 2015). So there are a long list of inter-related factors: users, their socio-demographics, settings, patterns of access and use, and social contexts and media geographies; infrastructures, market conditions, and policies; available technologies (hardware and software), affordances, content, format, and applications; as well as literacy and education, user support, social and cultural capital.

My preferred approach is to re-centre discussion on the concept of "digital inequalities" (Robinson et al., 2015), which helps us navigate between the tensions of being too "digital" or "media" centric (Couldry, 2012), on the one hand, and not

paying sufficient attention to the particular role digital technologies do play in inequality. As Hargittai & Hsieh point out:

> … digital inequality can refer both to how existing social inequalities influence the adoption and use of digital technologies as well as how differential uses of the Internet itself may influence social stratification. (Hargittai & Hsieh, 2013, p. 141)

Over a decade ago, Jan van Dijk pointed us firmly in this direction. Crucially, van Dijk contended that "[u]nequal access to digital technologies brings about unequal participation in society" (Van Dijk, 2005, p. 15). That is, he emphasized that digital technologies are involved in a crucial intermediate process in the overarching forces and structures in social life. In his account, Van Dijk briefly discusses the "disability gap", or relatively unequal access to and use of digital technologies by people with disabilities, but does not otherwise specifically discuss the disability dimensions and dynamics of social or digital inequality.

As I shall outline, such an account is developed by a small handful of scholars, especially Paul T. Jaeger in his pioneering book-length study *Disability and the Internet: Confronting the Digital Divide* (Jaeger, 2012). At this point, let me note that historically there has been a long recognition that disability is often closely entwined with inequality. However, while the approaches used to understand and address inequality been widely debated as they have evolved over the past two centuries. Especially with the advent of welfare state in the twentieth century and its aftermath stretching into the early decades of the twenty first century (Greve 2013), the issues for disability have remained relatively obscure in wider debate and research (Nussbaum, 2006; Priestly, 2005; Oliver, 2012). This is perforce the case concerning disability and digital inequality.

Given disability remains an area of social and digital life not well understood, in the first part of this chapter, I review and analyse the ways that disability has been discussed in digital divide and associated digital inequality and inclusion literature. In the second part, I offer a brief account of the main social theories of disability relevant to theorize technology. I suggest what an adequate account of disability and technology can bring to gain a better understanding of disability issues for digital inequality – but for a bolder, fundamental move to draw on disability to tackle many of the key problems digital divide theorists and policymakers have confronted for two plus decades. I also propose key elements of an ideal approach to digital inequality that are evident when we do rethink the digital divide via disability theory, then make some concluding remarks.

Disability in Digital Divide and Inequality Theories

The first elaborated scholarly attempt to comprehend disability as an integral part of the digital divide is Kerry Dobransky and Eszter Hargittai's pioneering paper "The Disability Divide in Internet Access and Use" (Dobransky & Hargittai, 2006). Dobransky & Hargittai draw attention to various issues in the emerging research that remain applicable. Firstly, they note that "many existing studies draw from small and/or non-representative samples" (Dobransky & Hargittai, 2006, p. 314). Presumably this would be a problem that could be addressed by large and representative sample sizes, however they find that the "[North American] studies that have used large, random samples (Kaye, 2000; Lenhart et al., 2003; Mann et al.,

2005; NTIA 2000, 2002) have limited their analysis to descriptive statistics" (Dobransky & Hargittai, 2016, p. 314). The third issue Dobransky & Hargittai detect is that "there has been little consistency between studies in the definition of disability … due to the fact that the definition of what constitutes disability is debated" (Dobransky & Hargittai, 2006, p. 314). Dobransky & Hargittai argued that "[t]aken together, these issues have hampered attempts to discern causal relationships concerning digital inequality regarding disability status" (Dobransky & Hargittai, 2006, p. 314). In the intervening period the situation Dobransky & Hargittai characterize has improved, these basic problems the research and conceptualization concerning disability and digital inequality still remain. So it is important to review their analysis and the subsequent research to better come to grips with these fundamental problems.

Dobransky & Hargittai's paper is premised on critical analysis of a large, robust data set, viz. representative data from US Bureau of Labor Statistics and the Census of the United States from survey conducted in 2003. In doing so, Dobransky & Hargittai offer a much better theorization of disability that those of the precending empirical, quantitative studies. They note that key shortcomings of the existing research have been in understanding the "relative impact of disability", and a focus on just understanding the "differences in access to ICTs" rather than "differences in what people do online once they have gained access" (Dobransky & Hargittai, 2006, p. 319). They note the importance of understanding how "other statuses interact with disability in regard to ICT access" but nonetheless do perceive a "disability divide" (p. 138). Broadly speaking, their findings hold true a decade later.

Since the first wave of serious attention accorded disability in the early 2000s, there have been several significant attempts that explicitly reference and draw upon the digital divide concept in understanding disability and digital inequality. Broadly speaking, the most systematic work has come from the US, UK, and Europe, with scattered studies from a few other countries (such as Australia, and some Asian countries). A key study is a 2007 survey of local residents belonging to socially excluded groups in the British city of Sunderland. This research raises significant questions about the dominant social imaginary of digital technology supporting social transformation for people with disabilities. As researchers Stephen Macdonald and John Clayton put it "there is still a long way to go before digital technology successfully impacts on the lives of disabled people in order to reduce social exclusion" (Macdonald & Clayton, 2013, p. 716). Another notable conceptual, as well as empirical, contribution is that of María Rosalía Vicente & Ana Jesús López, with their view of the "digital divide between people with disabilities and the rest of the population as a multidimensional phenomenon" based on a 2005 data set of users in 10 European countries (Vicente & López, 2010, p. 49). They also underscore the need to understand how people with disabilities negotiate the threshold technology to access and use the Internet (Vicente & López, 2010, 62). The most systematic account to date is Paul T. Jaeger's *Disability & The Internet: Confronting a Digital Divide* (Jaeger, 2012), which looks across a wide range of Internet-enabled technologies and settings in the US, which he brings together in a comprehensive account of disability and digital divide. Jaeger notes that the advent of the Internet raises the stakes in equality, especially for people with disabilities, suggesting that the "need for equal access to the Internet is the most pressing of civil rights issues that people with disabilities now face, and it is the biggest challenge they must overcome (Jaeger, 2012, pp. 178-179)." His work, and subsequent studies (cf. Jayakar et al.'s 2015 US

and Asia-Pacific comparative study) leave no doubt that there remain stark inequalities when it comes to access and use between the populations that might be categorized as people with disabilities, and those not regarded as having significant disability and impairment.

There are important reflections arising from the relatively slim yet rich literature on disability and digital divide. Fortunately to gauge the progress and issues remaining there is a handy marker. In 2016, Dobransky & Hargittai returned to the topic with a thoughtful paper that offers a handy signpost for where conceptualization of disability and digital divide agenda sit (Dobransky & Hargittai, 2016). Dobransky & Hargittai note that people with disabilities are "stigmatized and excluded in many domains of life, with consequences for their health and wealth", and that as well as "being a marginalized status in its own right, disability tends to overlaps with other disadvantaged positions in society, multiplying exclusion" (Dobransky & Hargittai, 2016, p. 1). Given this situation of inequality and exclusion, there is widespread interest in whether and how ICTs could make a difference for the better. Yet as Dobransky & Hargittai note "relatively little research examines how PWD compare to others in incorporating such resources [of ICTs] into their everyday life" (Dobransky & Hargittai, 2016, p. 2). In analysing US data sets, Dobransky & Hargittai draw on recent advances in disability theory, including a very interesting use of the concept of "disability culture." Disability culture is the idea that there are identities, meanings, rituals, infrastructures, and resources — the stuff of culture as a "way of life", as cultural theorist Raymond Williams famously put it (Williams, 1968) — that are crucial to the social participation of people with disabilities (Kuppers, 2014; Mitchell & Snyder, 2000 & 2015; McRuer, 2006; Siebers, 2008) that might be available if people cannot avail themselves of sufficient resources in the digital realm (Ellis, 2015).

In light of this brief discussion of the research, bookended by two key papers, we can see that disability makes a serious entry into digital divide and inequality research in the early 2000s. While we have notable research that has advanced our understanding of the dynamics of disability and digital inequality, the area has a long way to go before we have the kind of sophisticated conceptualization and research agenda that exists in other kindred area (for example, gender, income and wealth, location, and other kinds of inequality). One area where this has occurred to some extent in the critical literature on web accessibility (Adam & Kreps, 2006; Ellcessor, 2016; Lewthwaite, 2014), though, interestingly, it has not been as explicitly connected to digital divides and inequalities discussion. As disability is finally gaining recognition across various relevant disciplines, there are good prospects the research base will improve markedly. What this new research points up is the continuing fundamental problem in theorizing digital divides and inequality: the bedrock understanding of disability. Theories of disability have gone ahead in leaps and bounds, yet such conceptual innovation has not been sufficiently registered in the framing of digital inequalities by both specialist and non-specialist researchers.

Uses of Disability Theory for Rethinking Digital Inequality

Globally, many people would be aware that a seismic shift is underway in how societies approach disability (Heyer, 2015). The previous ways of seeing disability, summed up in constructs such as the "charity" discourse, and the "medical" (or "bio-medical") model, of disability, have been dislodged and challenged by a range of

other approaches. Broadly, these alternative models seek to grasp the "relations" of disability — how disability is decisively shaped by dynamic social, cultural, political, and economic dynamics, rather than being a relatively fixed aspect of someone's body and mind, and thus subject to "special treatment", exclusion, and segregation often in the form of regimes of medical and health treatment, welfare and work systems dedicated for people with disabilities, as well as deep cultural and social dynamics of disablism. Such alternative approaches have a common interest in challenging the oppressive situation in which people with disabilities find themselves.

In technology research, the famous "social model" of disability (Barnes & Mercer, 2005; Oliver, 2012) stemming from British theorists and activists, was influential on early critical theory on disability and technology, such as Alan Roulstone's pioneering book on work, technology, and disability (Roulstone, 1998). The social model is explicitly used, for instance, in an important 2005 paper on the digital divide in China that sought to assess whether the prospects for the Internet to improve social participation (Guo, Bricout, & Huang, 2005, p. 51). Subsequent theoretical and political debates about disability — including critiques of the social model (e.g. Shakespeare, 2014) — have generated alternative approaches to disability, pointing out the foundational ways in which disability is structured into the power relations and inequalities of societies (Davis, 2013; Grue, 2015; Watson, Roulstone, & Thomas, 2012). Allied with the disability human rights movement such ferment has helped bring about the 2006 United Convention on the Rights of Persons with Disabilities (CRPD), which is deeply involved informed by the new social, cultural, and human rights approaches to disability. As noted by various scholars, the CRPD puts an obligation on signatory governments to implement an extensive number of entitlements to accessible digital technologies. Advising and guiding the UN on this effort is the organization called G3ICT. Headquarted in Atlanta, Georgia, G3ICT aims to "facilitate and support the implementation of the dispositions of the Convention on the Rights of Persons with Disabilities on the accessibility of Information Communication Technologies (ICTs) and assistive technologies", relying an an international network of accessibility experts to "develop and promote good practices, technical resources and benchmarks" (http://www.g3ict.org/about). All very promising, but the scale and scope of the task is Herculean, which is where the need for better theory comes in.

This is especially pressing because digital technologies are crucial to human rights now, yet the main frameworks used to understand digital inequality often fail to engage disability in any serious or sophisticated sense. On the occasions when disability is a focus, its basic character and its wide, diversity is not acknowledged. So we see that important areas of digital inequality have been neglected. A key example here are the concerns of people with cognitive impairments, as Peter Blanck has comprehensively shown in his study of people with cognitive disabilities and "web equality" (Blanck, 2014). Rather than a multifaceted approach being adopted, too often digital divide and equality accounts follow the technology, communication, and media areas with their default tendency to allow particular kinds of disability, construed often in narrow ways, stand in for the complex whole. Particular notions of physical disability — for instance, an assumed ideal type of the wheelchair user, or impairment category (such as a stereotype of a Blind or Deaf user) often is the reflex response, and many kinds of impairments and situations and experiences of disability are overlooked. Also challenging is the recognition that many people may have a combination of different impairments, and that disability is dynamic, changing over

time, life course, and with distinct implications for people in different locations and socio-demographic groups. The need to move forward in understanding disability is something raised by Eliza Varney in her comparative technology of disability, accessibility, and media policy, when she argues that "[r]egulatory frameworks must move away from a hierarchy of disabilities in the regulation of ICTs, and must offer accessibility solutions that rely upon a wide definition of disability. (Varney, 2013)

Thus challenging the taken-for-granted nature of disability in digital inequalities frameworks is a necessary first step. It also has a potentially very wide reaching benefit, because retheorizing disability in digital equality will help us understand how disability is deeply involved in the construction and governance of "norms" in society and technology generally (Tremain, 2005).

A key part of the theoretical impasse for digital divide and inequality frameworks has been the dearth of critical research and conceptions of disability and technology. So, there has been even lesser theoretical, conceptual, and methodological traffic among disability technology researchers and digital divide researchers, than can be seen in other areas (though, in these areas also, much more cross-fertilization would be welcome). This is now no longer the case, as a number of substantial accounts of disability and technology are now available, that taken together, help us shift the foundations of work on digital inequality (Alpers, 2017; Ellcessor & Kirkpatrick, 2017; Ellis & Kent, 2012; Goggin & Ellis, 2015; Goggin & Newell, 2003; Mills, 2017; Roulstone, 2016). In particular, here it is useful to draw upon Alan Roulstone's 2016 account, where he lays out an argument for a "complex model of disability and technology", that would:

> … seek international evidence, to acknowledge diverse social and cultural contexts, to register disabled people's perceptions and experience and to factor in age, generation, gender, impairment and locality wherever possible. The increasing marketization of technology, aids and equipment also requires a greater understanding of the interplay between "need", market-imperative and the just allocation of technologies to provide assistance. (Roulstone, 2016, pp. 2-3).

Roulstone underscores the unpredictable complexity of disability and technology, suggesting that only by "comprehending the above mix of variables can technology, enablement and the social gains and disbenefits of technology be fully understood" (Roulstone, 2016, p.3). Roulstone notes the unpredictability by which technology might be experienced as serendipitous, such as text messaging for Deaf people, or perceived as threatening and negative, such as the cochlear implant is viewed by many in the Deaf community. Further, it might be noted that digital technology, as well as potentially providing a boon, in the ways that Jaeger or Roulstone discuss, it can also be deeply inscribed in new systems of control and governance of disability and normalcy — involving new kinds of constraints, oppression, and duties, as well as new rights and opportunities, the nature and price of connection (Couldry, 2016) of "being digital citizens" (Isin & Ruppert, 2015).

In the spirit of van Dijk, we could summarize these alternative ideas about digital technology and disability in the following statements, which could reorient a new potential theory of digital inequality:

1. *Disability is socially shaped,* and crucially arises from historically long-lived, yet culturally specific and adaptable systems of power that sort,

order, value, govern, and oppress people in relation to binaries of disabled/non-disabled;

2. *Disability spans a wide variety of different bodies, conditions, and situations*, and people can easily — and more often than not (especially due to age, war, poverty, gender violence, work conditions, accidents, and so on) — we can find themselves more or less "disabled," identifying or dis-identifying with disability, through the course of our lives;

3. *In relation to technology, there are many ways in which barriers, obstacles, and inaccessibility can be "built-in" systems, rather than producing "enabling" environments,* which seek to make technology accessible, usable, and respond to user needs and preferences;

4. *Disability has an especially close association with design*, offering many ways to rethink "universal" and "inclusive design";

5. *Disability also involves new aspects of literacy, education, and user support*, requiring accessible formats, inclusive education, as well as drawing attention to cultural and linguistic aspects of digital inequality (the importance of sign language for Deaf communities, for instance);

6. *There is a high incident of people with disabilities in the "majority world", or "global south"*, the low-income countries where for much of the population digital inequality is profound; and yet many of the proffered solutions for global connectivity, such as cheap mobile phones, fall well short of meeting the needs, preferences, and desires of users with disabilities;

7. Due to the social inequalities associated with and creating disability, and lack of support and resourcing for advocacy and participation in decision-making and governance, *people with disabilities are marginalized in the research, policy, technology design, and policy formulation* relating to digital inequality.

With these elements for a disability-adequate theory of digital inequality in mind, how would we mobilize and operationalize such understandings?

First, we need to revisit and fundamentally revise our definitions of disability, to acknowledge contemporary accounts and theories of disability.

Second, we need to extend our efforts to gain a clear picture of people with disabilities' use, consumption, and access when it comes to digital technologies. This will involve better designed, more accurate, comprehensive data, including:

- greatly improved national-level data on people with disabilities and digital technologies, based on best available categories of identifying disability, as well as best available categories of technology, use, and social practices;
- systematic data on people with disabilities and digital technologies internationally, especially countries, when no or little data is available;
- qualitative research on the diversity of disability and digital technology users, especially exploring "intersectional" aspects combining disability, gender, sexuality, race, caste, income, and other aspects;
- systematic research on what kind of policies, initiatives, and measures are most effective in addressing digital inequality issues for people with disabilities;
- extending research across the new frontiers of digital society and participation for people with disabilities, including: audiovisual media, including new kinds

of Internet-based television; e-books, and new publishing and reading formats; access to and capabilities of essential and emerging infrastructures, such as Wi-Fi; networked publics and political participation; digital government, beyond web accessibility, such as "digital by default" provision of government services; libraries; new areas of participatory digital culture, including "maker spaces"; data infrastructures and cultures;

- systematic research and policy initiatives on disability and participatory design.

Third, there are major challenges in the participation of people with disabilities in the debates, policy processes, initiatives, and design when it comes to tackling digital inequality. So this needs to be a priority area, not just in its own right, but to be incorporated in the framing and conduct of global initiatives to address digital inequality.

Conclusion

In this chapter, I have sought to reflect on the place of disability in digital divide, digital inequality, and associated theories. As I have suggested, disability has been present from early on in the history of digital divide discussions. The research and policy literatures and debates, as well as the measures and experiments undertaken, have expanded in recent times, and there are important advances in extending access, participation, use, and inclusion. Yet, there remains a great shortfall. Rather than just redoubling our efforts — which certainly would be a good thing! — my argument is that we should take the opportunity offered by this volume, to consider what the impasse might be.

What I have contended is that we need to go much deeper in thinking about disability, digital technology, and inequality. Here, as I have argued, critical theories of disability and technology are crucial. Such theories, as I have suggested, not only stands to give us a more accurate understanding of disability in its diversities, across the live course of individuals, across cultures and communities, across public, private, and everyday life. There is an extraordinary centrality of digital technology to the participation, social lives, opportunities, and freedoms of people with disabilities, which, as key scholars remind us, needs to be approached carefully, as whether it is boon or further source of exclusion and oppression is often unclear, especially early on in the process of adoption of new technologies. Thus combined with interdisciplinary research, such theories offer rich resources indeed to help us think about the stakes in digital inequality, and offer a tool for opening up technologies, and their social, political, economic, and cultural arrangements in ways that are consistent with democratic aspirations.

Finally, not only is the question of how we theorize disability and digital inequality a very important issue, it has wider ramifications for how we understand humans, social life, and our worlds in which technology plays such a vital role. Thus, retheorizing disability and technology will make a rich contribution towards the project of rethinking the foundational assumptions underpinning digital theory, and digital inequality theory, generally.

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