Introduction

The digital divide is a major source of inequity in the United States. According to Robinson, Schulz, Blank, et al. (2020), research in the field on the digital divide focuses on 3 main components: access, use, and outcomes. Robinson et al.(2020) share how the term “Digital Divide” was first coined in1995 by the National Telecommunications and Information Administration (NTIA) in an article titled “Falling through the Net: A survey of the ‘have nots’ in rural and urban America.” This first report covered what Robinson, Schulz, Blank, et al. (2020) refer to as the “first-level digital divide” which is concentrated on who had or did not have access to hardware, such as computers, and Internet access. The “first-level digital divide” research also presented how demographic data would predict certain groups’ access to the Internet. Robinson, Schulz, Blank, et al. (2020) explain that over time the body of research on the digital divide shifted to shine a lens on who was able to effectively use digital technologies.

This second wave of research, referred to by Robinson, Schulz, Blank, et al. (2020) as the “second-level divide,” illuminates participatory inequities that exist in how the Internet is used, users’ digital skill level, as well as demographic data that might predict proficiency or lack thereof in these two areas. Robinson, Schulz, Blank, et al. (2020) purport that the research in these first two levels of the digital divide, that address access, usage and skill level, are all “inputs” and therefore do not reflect the “outcomes” of those “inputs,” such as information research and learning that could advance a user’s income or influence in society. Studies completed with research questions surrounding these “outcomes” characterize what Robinson, Schulz, Blank, et al. (2020) call the “third-level digital divide.” Robinson, Schulz, Blank, et al. (2020) found that these studies showed a consistent pattern of users of more privileged backgrounds using the Internet to increase their capital.

More than twenty-five years after the concept of the digital divide was first introduced, Robinson, Schulz, Blank, et al. (2020), claim that the 3 levels of the digital divide that emerged out of the initial body of research, remain. Robinson, Schulz, Blank, et al. (2020) refer to these 3 levels as “legacy digital inequalities”. Robinson, Schulz, Blank, et al. (2020) contend that “legacy digital inequalities persist vis-à-vis economic class, gender, sexuality, race and ethnicity, aging, disability, healthcare, education, rural residency, networks, and global geographies”. They maintain that while these “legacy digital inequalities” continue to exert a stronghold, that emergent forms of inequality are presenting themselves alongside the “legacy digital inequalities” uncovered in the initial body of research (Robinson, Schulz, Blank, et al., 2020).

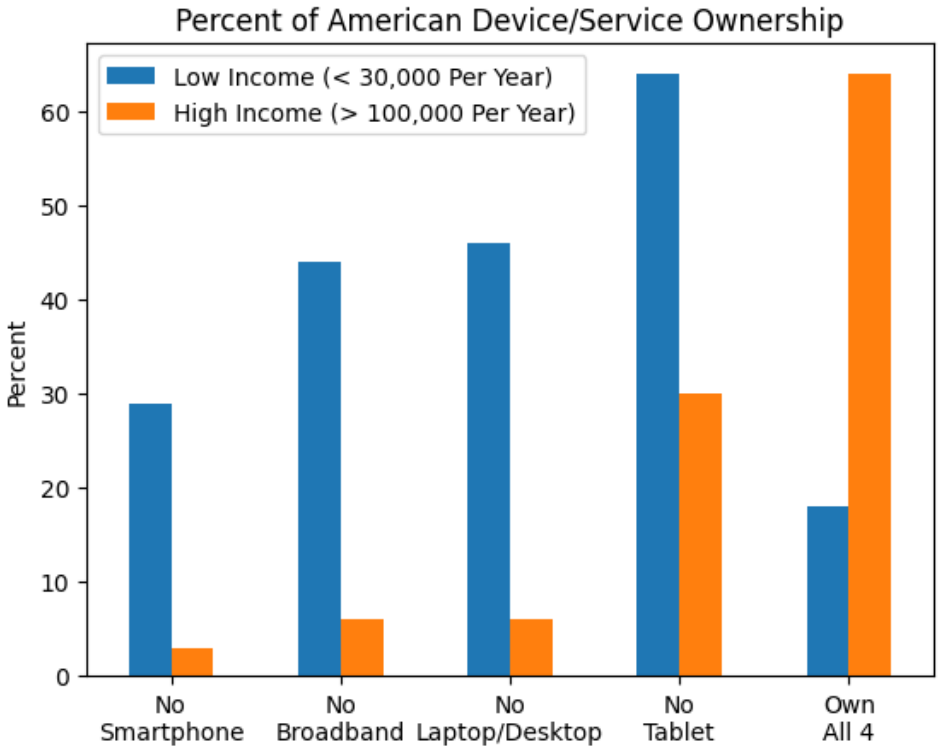
Robinson, Schulz, Blank, et al. (2020) conceived of the term “digital inequality stack,” inspired from the computing stack. They share that just as the computing stack includes multiples layers: operating system, network, software, and user interface that must work together, similarly, there must be a partnership between the multiple layers of access, skills and usage in order to result in better outcomes (gains in societal influence, financial growth and digital inclusion) for more people, thereby lessening the digital divide gap (Robinson, Schulz, Blank, et al., 2020).

One of the key underlying issues causing the divide is the lack of or inconsistency of quality Internet access. Browning (2021), describes the Internet as “the infrastructure of life” with Covid-19 resulting in more experiences like jobs and schooling, both K-12 and higher education moving online. According to Browning (2021), FCC (Federal Communications Commission) estimates show that 21 million Americans do not have access to broadband internet. Broadband internet is defined, by the FCC, as reliable and high-speed, meaning “download speeds of at least 25 megabits per second (Mbps) and upload speeds of at least 3 Mbps” (Browning, 2021). Browning (2021) claims that these numbers may in fact be an egregious underestimation. Browning (2021) argues that Microsoft, in its most recent reports, disclosed that “162.8 million Americans are not using the internet at broadband speeds.” What is more Alarming is that “research shows that 40% of schools lack broadband, and 60% of healthcare facilities outside of metropolitan areas lack access.” (Browning, 2021).

To alleviate this one component of the digital divide, internet access should be regulated as a public utility. This would allow for oversight and regulation of the construction, maintenance, and resilience of internet infrastructure, as well as cost to consumers (Crawford, 2019). The FCC actually did reclassify broadband as a utility in 2015, for the sake of enforcing net neutrality. The term “net neutrality” refers to a collection of rules preventing ISPs from blocking or slowing down applications or websites, as well as from offering prioritized consumer access to those sites in exchange for payment (Brodkin, 2020). The FCC ultimately did not take any other regulatory actions to manage costs, but even these limited protections were repealed in 2018 (Brodkin, 2018).

Background - what is the digital divide, and why is it a problem?

The digital divide has very real and tangible consequences across multiple demographic groups, which is why it is so important that it be addressed. For example, the data and statistics in the U.S. Pew data illuminate stark differences in level 1 access “between Americans earning less than $30,000 per year and those earning more than $100,000 per year”. (Robinson, Schulz, Blank, et al., 2020)



(Anderson and Kumar, 2019)

In conclusion, those who are economically advantaged use the Internet for a greater variety of purposes and in more skilled ways that have an informational or service focus than those who are economically disadvantaged who on average use digital resources for entertainment (Bonfadelli, 2002; Peter and Valkenburg, 2006 as cited in Robinson, Schulz, Blank, et al., 2020).

The digital inequality stack also has an affect on digital health technologies and the positive outcomes of lack there of for particular populations. According to Kvedar, et al. (2014), digital health technologies have quickly risen in number and usage and are an important part of the puzzle in the improvement of healthcare and promoting healthier life habits and choices (as cited in Robinson, Schulz, Blank, et al., 2020). Phelan (2010) states that new digital health technologies have little effect on social health inequities, as more advantaged populations, such as those in higher socio-economic brackets, are more likely to use and reap the benefits of these new technologies (as cited in Robinson, Schulz, Blank, et al., 2020).

Additionally, educational inequities are linked to every layer of the digital inequality stack (Robinson, Schulz, Blank, et al., 2020). Robinson, et al. (2018) asserts that students in low income areas, that lack access to digital resources, have a lower chance of earning high grades and leveraging skill-building opportunities to gain advantages (as cited in Robinson, Schulz, Blank, et al., 2020). Furthermore, Drabowicz (2014) explains that occupations are being transformed by the information economy, requiring employers to seek employees highly skilled in digital literacies (as cited in Robinson, Schulz, Blank, et al., 2020). Robinson, Schulz, Blank, et al. (2020) argue that the probability of youth, from low socioeconomic backgrounds, taking STEM classes in college is low, despite being a group that would have the most to gain from employment in thes high-salaried professions. Moller, et al. (2015) contends that "STEM intent is positively associated with school-based and extracurricular enrichment activities as early as primary school."

Furthermore, inequalities represented across all three layers of the digital inequality stack reveal themselves when looking at the differences between rural and urban communities. Robinson, Schulz, Blank, et al. (2020) describe how Internet users in U.S. rural communities "not only lack high-speed Internet infrastructure but also have lower adoption levels of Internet devices compared to urban users." Robinson, Schulz, Blank, et al. (2020) found that, with resources and intervention, however, the negative effects of these differences in use and access for have and have nots, could be lessened. For example, Robinson, Schulz, Blank, et al. (2020) share how equipping disadvantaged populations in rural areas with improved Internet access and the computer classes helped close the digital gap for residents in Taiwan.
Moreover, inequities are also illuminated in individuals' abilities to maintain social and professional networks. Robinson, Schulz, Blank, et al. (2020) detail how individuals who spend no time or less time participating fully in digital networks live the consequences of becoming less connected to other individuals or groups. Conversely, those who are considered "networked" may have multiple and/or complex networks in which they connect with others who may have greater diversity of thought and resources. (Burt, 2001 as cited in Robinson, Schulz, Blank, et al., 2020). Hampton and Wellman (2018) explain how those with digital resources are able to create networks across large distances and can easily rekindle relationships through digital communication when those ties have faded (as cited in Robinson, Schulz, Blank, et al., 2020). They also afford the digital "haves" the potential to connect with a larger number of social networks (Hampton and Wellman, 2018 as cited in Robinson, Schulz, Blank, et al., 2020). It is not difficult for one to extrapolate how these larger and more diverse social networks, spread across greater distances, might serve as the underlying fabric in supporting the professional and social success of said digitally networked individuals.

The digital divide is not a problem that is localized to the United States. It is a global issue that research has illuminated across nations. Statistics from 2018 illustrate that the highest levels of Internet adoption and use exist in North America, with a 95 percent adoption/use rate, and Europe, with an 85 percent adoption/use rate. The data story in Africa and Asia, however, unveils a very different reality, with adoption/use rates reported at 36 percent for Africa and 49 percent for Asia (Robinson, Schulz, Blank, et al., 2020). These divides, which researchers continue to seek solutions for, have consequences for individuals and nations such as reduced

quality of life and decrease participation in the global economy (Ragnedda and Muschert, 2013; Boas, et al., 2005 as cited in Robinson, Schulz, Blank, et al., 2020). Several key efforts include ICT4D (Information and Communication Technology for Development), One Laptop per Child, and the UN 2030 Agenda (Ragnedda and Muschert, 2013; Boas, et al., 2005 as cited in Robinson, Schulz, Blank, et al., 2020). Robinson, Schulz, Blank, et al. (2020) note that "National communication solutions must include improvement of literacy levels, professional education, multi-stakeholder cooperation, appropriate and flexible regulation, and user-friendly access to governmental and institutional information." They suggest that more research needs to be done on some of the social problems that digital technologies are creating, or emergent digital divides, such as the uneven distribution of digital production and consumption as well as the exploitation of digital laborers (Robinson, Schulz, Blank, et al., 2020). Robinson, Schulz, Blank, et al. (2020) assert that these issues are "the new face of global digital inequality."

The Ethics

Reliable broadband is essential for living in the US in the 21st century; access to information, public services, health care, and education are increasingly dependent on reliable internet access.

Regulating broadband as a public utility would allow better allocation of state and federal funding to ensure that expanding internet connectivity does not fall solely within the control of ISPs. Under the current system, they have no incentive to expand service to low-population areas; the expense of laying down infrastructure is not financially worth the limited profit they can earn from a location. As a result, people in poverty and especially in minority ethnic groups are disproportionately affected by lack of broadband access. Opponents to regulating broadband as a utility argue that this solution does not actually address the problem; expanding broadband access is still expensive, especially in remote areas with dense forests and mountains (Wallsten, 2021). This can be improved by implementing a Dig Once policy, which mandates that fiber infrastructure should be installed while other right-of-way excavation is in progress. This can lead to a significant cost savings of 25-33% in urban areas and about 16% in rural areas. A Dig Once policy is still under discussion in Congress, but has already been adopted by some state and local governments (Aman, 2020).

Furthermore, regulation as a utility would allow for control of consumer rates. According to a 2021 Consumer Reports survey, one-third of consumers who do not have broadband in areas where it is available cite cost as a reason (Schwantes, 2022). Advocates for allowing the current free-market system for ISPs argue that regulating broadband as a utility creates monopolies, removing competition and therefore increasing costs (Downes, 2016). However, 26% of consumers who have broadband in their households reported that only one ISP was available when they were choosing their internet service; these consumers face a monopoly already (Schwantes, 2022). ISPs that have a monopoly in an area (which often occurs in rural areas) can charge essentially whatever they want; areas where more competition is present show lower prices. Consumers with a choice of at least three ISPs can expect to pay 15% less than

their counterparts with only one, and in cities with high competition prices may be up to 40% lower (Cooper, 2022). Current federal financial support exists for laying fiber in locations where it is not already present, but this does not address areas in need of competition to reduce prices (NTIA, 2021). Even if such funding were available, laying fiber multiple times for different providers in locations where doing so is already expensive would be a tremendous waste of resources. Regulation as a utility would allow regulatory bodies to limit an ISP's ability to hike up prices, and would not leave rural areas to the mercy of whatever single ISP received enough funding to make it worthwhile to build the infrastructure.

An additional case that opponents of utility broadband make is that regulating broadband as a utility will stifle innovation and cause stagnation in the technology because of the lack of competition and limited profits. They point to electrical infrastructure as evidence of this (Downes, 2021). The problem here, however, is not that utilities are inherently immune to progress, but rather that the United States struggles to effectively fund the construction and maintenance of its infrastructure. Different experts and policymakers disagree on how best to address this, which slows down and often stops funding completely (McBride & Siripurapu, 2021). This is a policy failure, not a conceptual failure.

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