

The Digital Divide: Class and Equality Education

Xiangning Zhang^{1*}

¹ New York University

Abstract. The closure of schools has left some students behind without computers or the Internet. The unfair phenomenon caused by information gap is called digital divide. This article will introduce in detail the concept of digital divide, its existence in the global context and its impact on the educational equity of young people of different classes. Finally, the article will provide some ways to narrow this difference.

1 Introduction

Digital divide is a gap. It's the gap between those who have access to computers, mobile devices, and the Internet, and those who do not. It's also a gap between people who benefit from the digital age and economy and those who do not. Digital divide has 3 stages: physical access, the skills to use the Internet, and the ability to make full use of it. In general, it is evident among gender, age and race. According to "Guide to the Digital Divide" [5], "Men are 21% more likely to be online than women." Study also shows that older people over 60 are less likely to use the Internet than the young people. And as for the racial digital divide, communities of color are less likely to have access to the Internet or benefit from it mainly due to economic factors and racial discrimination. Online platforms allow the publication of statements that discriminate against people of color, but at the same time, such content is also restricted by them.

Education could be the cause of digital divide, for the reason that higher educated people tend to have better digital literacy. The income could also be the cause for the divide that low-income families cannot afford access to the Internet. According to the data [12], wealthy families are more likely to own computers and high-speed Internet than low-income families. Moreover, geographical restrictions, motivation and interests could also lead to the gap. Developing countries and rural areas lag behind developed countries and urban areas because of the economy, and lack of infrastructure and technology support. For the public, some people state that they're too busy to go on the Internet; others think that it's too complicated, and they lack interest in online stuff.

Digital divide has also caused inconvenience to society. In terms of educational field, digital divide is the barrier to education inequality, that is, some teachers lack technology-based skills and some students lack access to online resources and technology. During the Covid-19, people without or lack access to digital technology have trouble working from home, resulting in a negative effect

to their lives. Students are also affected by the digital divide. They have trouble studying at home or finishing homework on the Internet. Digital divide will also have a negative influence on the economy, the Internet is good for economic growth while some areas lack it. For the whole society, Internet is good for communication and lack of its access will cause isolation. To be specific, digital divide has contributed to the segregation of individuals in the society including ethnicity, age, race, and gender.

Digital divide is wider than it seems, and the request on the form that FCC uses to collect broadband data is too broad. They ask providers if they are "providing or could ...without an extraordinary commitment of resources provide broadband service to an area" [3]. This means that the officials underestimate the number of people who lack access to high speed broadband, i.e., the real situation is worse than we know.

Nowadays, the society is a high-technology era and the use of technology in teaching and learning is increasing. Electronics like computers have become essential teaching tools due to the outbreak of the global Covid-19 epidemic. However, a majority of researches show that: digital access is not available to students from all class backgrounds. This means that digital inequality is happening "everywhere"! This study will explore digital divide among young people in detail.

2 Literature Review

Many scholars have studied and acknowledged the educational inequity caused by the digital divide. As Ma points out in 2021, despite efforts to improve digital access in schools, a persistent digital divide is identified worldwide [9]. The same finding is also asserted by Graves et al. in 2019, UNESCO in 2015, Warschauer in 2016 [4][12][16].

Scholars have also pointed out that the digital divide is related to per capital income [9] [16]. For students from different countries, despite the spread of technology around the world, the effect of the digital divide on students from developed countries is relatively smaller

* Corresponding author: Xiang19970808@163.com

than that from developing countries. This is caused by differences in the per capital economic level of each country. In addition, digital divide is also associated with the country's degree of emphasis to education, which affects the proportion of investment in education.

According to previous studies, socio-economic status will also cause the emergence of the digital divide. This is identified by Rafalow and Scheerder in 2014 and 2019 as a crucial source of the gap in Internet engagement and digital skills for learning [11] [12]. In Ma's research in 2021, finding shows that students attending high-SES (socioeconomic status) schools are more likely to use computers for schoolwork within and outside of schools, and have more digital competence than those attending low-SES (socioeconomic status) schools [9].

In addition, researchers have offered remedies to the issues brought by the digital divide. One solution mentioned by Downey and Condrin in 2016 is to enrich school resources so that disadvantaged students can have access to the information they need [2]. which would reduce educational digital inequality.

However, previous studies have not specifically discussed about the existence and influencing factors of the digital divide among young people and related human rights and social justice issues, which will be discussed in this study. It will also offer some concrete strategies to bridge the digital divide.

3 Methodology

This research will take a quantitative approach. By analyzing the data of young people (9-19 years old) accessing the Internet given by UKCGO, the influencing factors of the digital divide among young people are summarized [7][8]. At the same time, it examines the negative impact of the digital divide on young people. And through the analysis of specific examples of narrowing the digital divide, the study gives practical methods.

4 Digital Divide and Young People

This section mainly use UKCGO data to analyze digital divide among young people. According to UKCGO survey, it shows that among 9-19 years old young people, just a few have not used the Internet [7][8]. To be specific, home access to Internet is growing, and school access to Internet is common. These young people are mainly divided between daily users (41%) and weekly users (43%). Only 13% are occasional users, and just 3% count as non-users. For home computer users, compared to 23% of 9 to 19-year-old young people who have never used a computer at home, 75% of people have used a home computer to access the Internet [7][8]. Additionally, 74% of people have access to the Internet through a computer, video game console, or digital television, and 29 % who do not currently have such access. For school computer users, 92% of students have used the Internet at school, with 25% of them who do not have the access to Internet at home [7][8].

Factors that affect digital divide of young people are age, gender and socio-economic status [7][8]. For

example, older children are more likely to find the access of Internet elsewhere, while young ones rely more on access at school. As for the factor of gender, boys spend more time online per day. They have higher levels of online skills and self-efficacy. Compared with other children, middle class children are more likely to have access to the Internet at home, who use the Internet more longer. Meanwhile, children from middle class families have more years of online experience and more advanced Internet skills. They have varied electrical products to access Internet as well.

Internet access vary greatly depending on the locale, which is related to the level of a place's broadband. When it comes to access and usage of the Internet, there aren't many notable disparities across the various ethnic groups for young people.

The digital divide has brought difficulties to young people as well. It makes some of them lack of communication. People in remote areas who do not have access to the Internet are disconnected and something similar happens to urban residents, which causes social isolation. In addition, COVID-19 outbreak has clearly demonstrated the impact of the digital divide in education, with both teachers and students falling behind due to a lack of technology and digital literacy.

5 Digital Access as a Human Rights and Social Justice Issue and Its Influence on Healthcare

A traditional human rights issue aggravated by digital technology is global inequality, which is caused by the lack of access to technology rather than technology itself. Globally, 6/10 people are not connected to the Internet. Concretely, 65% of people in developing countries do not yet use the Internet and women generally have less access to Internet [7][8].

Digital divide can negatively impact personal, political capabilities. According to Dari Sylvester and Adam McGlynn, the vast majority of people's political participation is realized through the Internet, such as writing emails or leaving messages to government websites. Therefore, inadequate knowledge or lack of access to the Internet means that it is less likely to be civically active.

In terms of the impact of the digital divide on telehealth, access to telehealth requires the use of broadband Internet access, access to technology, and some level of digital literacy. However, the adoption of telehealth is not equal across populations. Individuals such as the elderly in the United States, rural communities, vulnerable groups, racial and ethnic minorities, and low socio-economic status have been negatively affected by digital divide. A study named Characteristics of Telehealth Users in NYC for COVID- Related Care During the Coronavirus Pandemic have conducted in 2020 [15]. The study investigated the experiences of 40000 patients in Mount Sinai (March 20 to May 18). The purpose of the study is to explore racial/ethnic differences in telehealth, emergency department (ED), and in-clinic care access during peak pandemic period among NYC

patients. Regression parameter are used to estimate patients' probabilities of using different encounter types based on their characteristics. Data from the research finds that, White and Asians more likely to use telehealth than Black and Hispanic peers and black patients 4x more likely to access emergency department (ED). Additionally, living in rural and urban communities have stark contrasts in technology ownership and broadband penetration, affecting access to telehealth.

6 Bridging the Digital Divide

Since the digital divide has brought a series of negative effects, bridging the digital divide has become a key topic discussed by scholars. Kelly Krick states that "bridging the digital divide is a problem that requires solutions for accessibility, affordability, and digital skills that touch social economics, infrastructure, and technology" [6]. Accessibility, affordability and digital skills are the three most basic aspects of bridging the digital divide.

US NTIA (National Telecommunications and Information Administration) has launched a program that funds providers of broadband [10]. NTIA will first give funding to those who provide high-speed and cost-effective service, and those who make the service spread to the greatest number of households, as well as to rural areas [10]. At the same time, 5G provides a connection of high speed and quality, which makes amazing things possible, like the Zoom class, Google Drives and various remote labs. 5G will definitely help to bridge the digital divide. However, it costs a lot of money and energy.

When it comes to the affordability, India had launched the world's cheapest laptop, which spread the wishes that affordable digital devices could bring power and opportunities for the one who suffer from marginalization and inequality [1] The Emergency Broadband Benefit program launched by FCC [3] during the pandemic had give financial support to low-income families. It offered a discount for purchasing Internet services as well as devices [3]. Some companies like Apple also provides education discounts for students and schools. Besides, a Chinese company, Tencent, made a Zoom-like app free for students and educators to use as online classrooms when the pandemic first outbreak in Wuhan, China.

In terms of digital skills, Jim Sevier believes shamanic interfaces could eliminate digital divide [13]. Shamanic refers to the technology that we control with actions or sounds. People no longer need to learn how to use technology, because the ways to use it become easy and direct. Additionally, many locations in China have created programs for seniors to learn digital skills. Older adults can learn how to use mobile phones and applications from teachers. Even when students have access to devices and the Internet, the educators can perform differently in using technology. It might be a different degree of digital literacy, capability to use certain software, or personal preference.

7 Conclusion

This study presents the idea of the digital divide and demonstrates its prevalence in a global context as well as its detrimental effects on young people. It proposes three approaches to bridging the digital divide: accessibility, affordability, and digital literacy. To attain educational equity, educators need to understand how the digital divide form, be aware of its drawbacks, and narrow the gap in their own classrooms.

References

1. Associated Press. (2011). World's cheapest hand held computer launched. Associated Press. https://video-ebshost-com.proxy.library.nyu.edu/details/1_cru41qdb?q=digital+divide+eliminate&deviceId=e8821776-521f-4777-9936-c8c3d783faa1&lang=en&minDate=&maxDate=
2. Downey, D.B., & Condrón, D.J. (2016). Fifty years since the Coleman Report: Rethinking the relationship between schools and inequality. *Sociology of Education*, 207–220.
3. FCC. (2021). Emergency broadband benefit. Federal Communications Commission. <https://www.fcc.gov/broadbandbenefit>
4. Graves, K.E. (2019). Disrupting the digital norm in the new digital divide: Toward a conceptual and empirical framework of technology leadership for social justice through multilevel latent class analysis [ProQuest LLC]. In ProQuest LLC.
5. Guide to the Digital Divide: Causes, Impact, and Solutions. (2018, June 25). Retrieved from <https://techboomers.com/guide-to-the-digital-divide>
6. Krick, K., Boswell, J., & Poretzky, S. (2021). Bridging the digital divide for an inclusive digital economy. Ericsson. Retrieved from <https://www.ericsson.com/en/blog/6/2021/bridging-the-digital-divide-for-an-inclusive-digital-economy>
7. Livingstone, S., & Bober, M. (2003, October). UK Children Go Online: Listening to young people's experiences. London: LSE, www.children-go-online.net.
8. Livingstone, S., & Bober, M. (2004, July). UK Children Go Online: Surveying the experiences of young people and their parents. London: LSE, www.children-go-online.net.
9. Ma, J. K. H. (2021). The digital divide at school and at home: A comparison between schools by socioeconomic level across 47 countries. *International Journal of Comparative Sociology*, 62(2), 115–140.
10. NTIA. (2021). NTIA's broadband infrastructure program receives over 230 applications, more than \$2.5 billion in funding requests. National Telecommunications and Information Administration. <https://www.ntia.doc.gov/press->

release/2021/ntia-s-broadband-infrastructure-program-receivesover-230-applications-more-25

11. Rafalow, M. H. (2014). The digital divide in classroom technology use: A comparison of three schools. *International Journal of Sociology of Education*, 67–100.
12. Scheerder, A.J., van Deursen, A.J., & van Dijk, J. A. (2019). Internet use in the home: Digital inequality from a domestication perspective. *New Media & Society*, 21(10), 2099–2118. <https://doi-org.proxy.library.nyu.edu/10.1177/1461444819844299>
13. Sevier, J. (2017). Bridging the digital divide. YouTube. Retrieved from <https://www.youtube.com/watch?v=fzokRz1pqb0>
14. UNESCO (2015). *Education for All 2000-2015: Achievements and Challenges*. Paris: UNESCO.
15. Vogels, E. A., Perrin, A., Rainie, L., & Anderson, M. (2020, April 30). 53% of Americans Say the Internet Has Been Essential During the COVID-19 Outbreak. Retrieved from <https://www.pewresearch.org/internet/2020/04/30/53-of-americans-say-the-internet-has-been-essential-during-the-covid-19-outbreak/>.
16. Warschauer, M. (2016). Addressing the social envelope: Education and the digital divide. *Education and Social Media: Toward a Digital Future*, 29–48. The MIT Press.
17. Sina Finance. (2020, November 10). Smartphone classes for the elderly opened in many places across the country. Sina Finance. <https://baijiahao.baidu.com/s?id=1685695453983101839&wfr=spider&for=pc>