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Investigating the Phenomenon of the Rise of the Digital Divide: A Sociological Perspective and Analysis to Decode the Modern Internet Problem

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ABSTRACT

Inequality has existed since time immemorial in one form or the other and there has always been a social ,economic or cultural gap that seems to persist among the haves and have nots this problem has aggravated in modern terms with the advent of the internet and the rise of the Modern Inequality Problem : The Digital Divide. The following paper seeks to analyze the modern internet inequality problem from a fresh sociological perspective and provides an empirical and insightful analysis into the concept of Digital inequality and the broader outlook of the digital divide, to aid in this effort the paper first analyzes the rise of the digital divide and how factors such as race, gender. Education, age and sexual orientation play a role in it.   The paper finally provides novel solutions for the same and seeks to advocate and reason a previously unexplored link between Digitalization and Sociology two concepts that are inseparable in the modern digital era.

Keywords: *Digital Divide, Sociology, Inequality, Digitalization.*

I. INTRODUCTION

The COVID-19 Pandemic has so far proven to be a catastrophe of unprecedented measures, at the time of writing this paper, COVID-19 has affected 161 million people worldwide out of which 3.36 million cases have proved to be fatal[2]. Although some have struggled more than others the COVID-19 Pandemic has muddled governments worldwide.

Most governments have struggled to cope with the ever-increasing case load of the virus and as a result of weak administration the citizens are forced to bear the brunt of the pandemic. In order to contain the spread of the virus governments have begun to exercise isolationist measures and quarantine mechanisms. From a sociological perspective this has led to a breakdown of traditional interaction mechanisms and increased our dependency on online tools and media.

The Digital and Online World has become more mainstream than ever before, the spotlight

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falls on this digital transformation as almost all activities have moved to the digital forefront. Now more than ever a boom is seen in the active users in the online world as people are forced to stay at home, conventional means of interaction are supplemented by digital means of interaction. However, in light of this another concept comes to the forefront the concept of "The Digital Divide". It is a problem that transcends boundaries of race, gender, geography and culture but all these factors definitely play an influential role in it.

The COVID-19 pandemic has displayed to us in bold red letters the 'Privilege' we hold in terms of access to digital services. Unfortunately for a majority of people worldwide this 'Digital Privilege' still seems a distant dream that they hope to achieve. With the onset of the pandemic virtually almost all activities have been pushed into the digital realm this has further accentuated the traditional problems that plagued those that did not have access to digital resources. With most jobs, education and services now being all digital it inevitably creates a problem for those that are unable to avail these digital resources.

It becomes important to understand what steps need to be taken to address this 'Digital Divide' that has been further aggravated in recent times due to the pandemic and how we can counter this phenomenon through collective action as a society. Moving forward the paper explores these dimensions and how a link between sociology and the digital space can help serve as the means forward.

II. ANALYZING THE SOCIOLOGICAL IMPACT OF THE DIGITAL DIVIDE

This part of the paper seeks to apply sociological theory and concepts to online dimensions in order to gain a better understanding of the impact the online world has had from a sociological perspective , to do this comprehensive sociological analysis the paper will follow research trends that were first illustrated by Di Maggio in his article titled "Social Implications of the Internet" [3], the paper will attempt to provide conclusive sociological evidence for all research topics mentioned further on, moving on to the first sociological concept analyzed:

III. THE GROWTH OF THE DIGITAL DIVIDE

The Digital age is the age that we currently live in it is also known as the computer age or new media age, it began in the Mid-20th Century characterized by a "rapid epochal shift from the traditional industry established by the industrial revolution to a society primarily based upon information technology".[4] The Digital Divide refers to the gap between those who are able to

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[3] Paul DiMaggio, Eszter Hargittai, W. Russell Neuman, and John P. Robinson, *Social Implications of the Internet*, Annual Review of Sociology, Vol. 27: 307-336 (2001),
[4] Zimmerman, Kathy Ann "History of Computers: A Brief Timeline" (2017).

derive the benefits of this digital age and those who are unable to do so.[5] The main concern that is highlighted that the existence of a digital gap leads to those people that are unable to utilize it devoid of access to the internet and its online sources as a result it creates a situation where in people are unable to gain digital information, provide or give services online and leads to social isolation from the online medium, this gap thus leads the strata of society unable to derive its benefits in a highly disadvantaged position.

With the onset of the Pandemic and a majority of activities and information now only available online the digital gap has become prominent and dangerous, as those from the lower strata of society in particular socially and economically vulnerable backgrounds that have been unable to gain access to the digital mode of information suffer the most. In the Indian context the most striking example of this was with regards to the movement of migrant laborers who due to inaccessibility to digital sources and media were unaware of the impending lockdown and closure of transport services as a result several of them were struggling on the streets without a means of living , several even attempted to return to their hometowns however due to the sheer magnitude of distances between their workplace and hometowns and lack of resources this journey more often than not became their last. Before moving on towards analyzing the different aspects of the digital divide that affect us during these unprecedented times it is first important to gain some conceptual clarity and perspective of the concept

IV. THE GLOBAL DIGITAL DIVIDE

The Global Digital Divide refers to "global disparities which primarily exist between developed and developing countries with regards to access to computing resources such as the Internet and the opportunities derived from such access"[6], the global digital divide is an inequality analyzed through a global reference scale. The global digital divide affects all spheres such as education, workplace development and gender equality and harmony to name a few.

The Internet is expanding at a rapid pace and not all countries can keep up with this expansionary pace, the term "Digital Divide" does not mean that someone does not have access to digital technology at all it could simply mean a difference in the technology being employed. These differences can be varied and many for example high quality computers and technical equipment, faster internet speed, technical assistance and technological services all these

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[5] Hilbert, Martin. "The end justifies the definition: The manifold outlooks on the digital divide and their practical usefulness for policy-making". *Telecommunications Policy*. **35** (8): 715–736. (2011)
[6] Lu, Ming-te . "Digital divide in developing countries". Journal of Global Information Technology Management (2001)

differences also highlight a digital gap that exists between developed and underdeveloped countries.

A factor that can be taken into account is the large inequality in terms of the distribution of installed telecommunication bandwidth which is a critical element to set up communication channels in a country, As recent as 2014 only three countries (China, United States of America and Japan) hosted more than 50 percent of the globally installed bandwidth potential[7] , the following example highlights the critical fact that the global digital divide is a harsh reality that continues to affect the digital capabilities of millions of individuals, from a sociological perspective it shunts the growth of people on a global scale and creates discrepancies and gaps between the haves and have nots.

V. DIGITAL DIVIDE: THE SOCIOLOGICAL PERSPECTIVE

To analyze the digital divide from a sociological perspective the following paper draws upon a leading method developed by renowned sociologist Jan Van Djik who mentions it in his book "The Digital Divide".[8] The four key perspectives that we will be utilizing are as follows:

(i)   We start by analyzing **What** kind of technology is responsible for creating the digital divide such as phones, internet or other forms of digital media.

(ii)   We then analyze the stakeholders **Who** is the main subject matter that is affected by this digital divide it can be a group of individuals, an organization or subset or even an entire country that suffers through a digital divide due to lack of equitable distribution of digital resources.

(iii)   We then move on to the attributes **Which** ones matter the most, attributes range across a varied list of categories such as income, capacity, geography etc.

(iv)   Finally we move on to the **How** to connect which in essence is to help us understand how we can help bridge the gap presented by the Digital Divide under this we can talk about the effective adoption of government schemes from paper to practice and how equitable access to all can be made a reality.
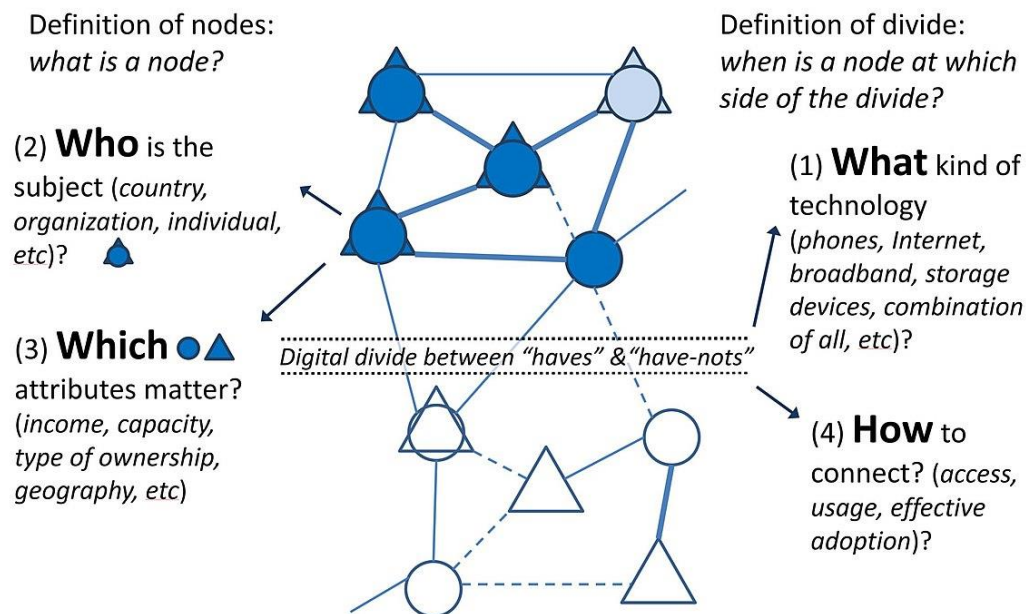
Given below is a concise flowchart that further summarizes the four main research perspectives the following paper seeks to employ:

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[7] Hilbert, Martin, "The bad news is that the digital access divide is here to stay: Domestically installed bandwidths among 172 countries for 1986–2014". Telecommunications Policy. (2016)
[8] Dijk, J. van. The Digital Divide (1st edition). Polity. (2020)

4 Perspectives to analyze the Digital Divide

Definition of nodes:
what is a node?

(2) Who is the subject (*country, organization, individual, etc*)?

(3) Which attributes matter? (*income, capacity, type of ownership, geography, etc*)

Digital divide between "haves" & "have-nots"

Definition of divide:
when is a node at which side of the divide?

(1) What kind of technology (*phones, Internet, broadband, storage devices, combination of all, etc*)?

(4) How to connect? (*access, usage, effective adoption*)?

Hilbert (2011). The end justifies the definition: The manifold outlooks on the digital divide and their practical usefulness for policy-making. *Telecommunications Policy*, *35*(8), 715-736.

Flowchart Source: Hilbert Hill on Digital Divide and Telecommunications Policy

Now that we have gained a basic understanding of the Sociological Perspective that we seek to employ to study the Digital Divide we move on towards more specific intricacies starting with the Gender Digital Divide.

VI. THE ROLE OF GENDER IN DIGITAL DIVIDE

The Gender Digital Divide can be defined as "gender biases that are coded into technology products, technology sector and digital skills education."[9] Although education systems across the world are trying to bridge the gap in digital skills learning so far a disturbing trend has been seen where in women and girls often lag behind to derive benefits from this system.

Reports by UNESCO have found that women in a whole host of countries are 25 percent less likely compared to men to know how to utilize Information Technology (ICT) services for even basic purposes such as using simple arithmetic formulae in a spreadsheet.[10] Further a study conducted by recruiters in Silicon Valley (the global hub for digital technologies) have estimated that the applicant pool for technical jobs in the Artificial Intelligence (AI) and Data Science is less than 1 Percent female.[11] Further studies have found that there were 2.5 Million

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[9] EQUALS Skills Coalition – Digital Survey and Report by the United Nations Educational, Scientific and Cultural Organization {UNESCO} (2019).

[10] *Global Education Monitoring Report. Accountability in Education: Meeting Our Commitments*. (2017)

[11] Shah, Huma; Warwick, Kevin . "Imitating Gender as a Measure for Artificial Intelligence: - Is It Necessary?". *Proceedings of the 8th International Conference on Agents and Artificial Intelligence*.

college educated women working in the STEM field compared to 6.1 Million men which highlights the clear gender gap that exists within the digital divide.[12]

VII. PRIMARY CAUSES THAT CAN BE LINKED TO GENDER DIGITAL DIVIDE

Moving on towards what causes this gender bias within digital divide the number one root cause continues to be patriarchal societal culture and society often times than not girls and women are prevented from gaining digital skills and education due to pre conceived notions and stereotypes where in they are expected to remain within the confines of their home rather than venture into the online space, further examples of this patriarchal mindset include unsafe roads, limits and restrictions posed on their freedom of movement or because the digital facilities are considered unsuitable and inappropriate to be utilized by women.

A testament to this fact is the study conducted by the Organization for Economic Cooperation and Development (OECD) which highlighted that in countries known to have a typically patriarchal setup 0.5% of girls aspire towards ICT-related careers at age 15, versus 5% of boys.[13] A study by Vodafone Foundation the global internet network provider found that women and girls in general were more likely to face physical violence from oppressive male members if they were found using digital devices as a result most of their device usage was in secret this would often make them vulnerable and easy targets for hackers and make it difficult for them to gain digital skills in the process.[14] What is interesting to note that this gender bias in the digital realm was not always so as during the inception of computers and programming languages following the second world war 'programming' in industrialized countries was considered 'woman's work' due to the stereotypical notion that women were good at following commands without asking too many questions. As a result, during the inception of the digital world women had a prominent role to play.[15]

VIII. HOW THE GENDER DIGITAL DIVIDE CAN BE BRIDGED

Now that the main causes responsible for the creation of a Gender Digital Divide have been discussed we move on towards how this gap can be minimalized to the greatest extent possible. Firstly, taking the example of global tech giant Accenture that utilizes the concept of grassroot development in order to bridge the gap. "**The Accenture Model**"[16] focusses on evolving digital

SCITEPRESS - Science and Technology Publications (2016)

[12] Beede, David N.; Julian, Tiffany A.; Langdon, David; McKittrick, George; Khan, Beethika; Doms, Mark E. "Women in STEM: A Gender Gap to Innovation" (2011)

[13] "Bridging the rural Gender digital divide". *OECD Digital Economy Papers.*

[14] Girl Effect & Vodafone Foundation. "Real girls, real lives, connected". (2018)

[15] Thompson, Clive. "The Secret History of Women in Coding". (2019)

[16] Accenture. *Getting to Equal 2017: Closing the Gender Pay Gap.* (2017)

skills among women through sustained and early exposure to varied digital technologies, the model focuses on a multifaceted approach in order to ensure women get the opportunity to evolve digital skills not just relying on traditional methods of learning such as the classroom but through a host of opportunities both conventional and non-conventional.

Further a few pointers through which the development of digital skills among women can be strengthened are as follows:

- Establishing Incentives, Targets and Quotas the advantage of utilizing an incentivized approach is that it motivates women to perform to the best of their abilities as well as helps in creating a level playing field.

- Creating Safe Spaces for women, it is important that in order to foster learning and development in the digital sphere women are comfortable in their surroundings and do not face retaliation which can hinder the learning process and further broaden the gap in the process.

- Promoting Role Models and Mentors, utilizing examples of women that have successfully overcome barriers to make it big in the digital world will definitely serve as an inspiration to millions of women who will believe that they can empower themselves through digital learning and skills.

- Embedding Information Technology Education in formal settings such as the school and collegiate system this is an effective tool that can be utilized in developed countries as it gives women in schools and colleges to gain digital skills during their basic education itself making them better prepared to handle the real world and bridging the digital gender divide.

IX. SOCIOLOGICAL IMPACT OF THE DIGITAL DIVIDE ON EDUCATION

As we continue to analyze the sociological impacts of the digital divide on society it would be incomplete without mentioning its impact on our future "the children", the digital gap in education can affect a child's development and place them in severely disadvantaged positions when compared to the children who have had access to digital education and learning. A report by the United Nations Children's fund (UNICEF) have found that "two thirds of the world's school age children or 1.3 billion children aged 3-17 years old do not have access to internet at home".[17] This gap is especially dangerous during COVID-19 as with restrictions and

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[17] How Many Children and Youth Have Internet Access at Home? United Nations Children's fund and International Telecommunication Union (2020)

lockdowns worldwide nearly a quarter of a billion students are affected by school closures due to the pandemic forcing hundreds of millions of students to rely on digital learning through the online medium under these circumstances not having access to the internet prevents these children from the benefit of education further without internet access children are unable to cultivate the necessary technological skills required to understand today's dynamic and vibrant economy.[18]

A study by the Federal Communications Commissions Broadband task force found that roughly 70% of teachers assign homework to students that necessitates the use of bandwidth. Furthermore, about 65 percent of young students use the Internet at home to complete assignments and communicate with teachers and other students via discussion boards and shared files. Further according to a new survey, nearly half of students claim they are unable to complete their homework because they are unable to connect to the Internet or, in some cases, locate a device. This has resulted in a new finding: 42% of students claim to have earned a lower grade as a result of their disadvantage.[19] Finally, according to research conducted by the Center for American Progress, if the United States could close the educational outcome disparities between native-born white children and black and Hispanic children, the United States' economy will be 5.8%—or roughly $2.3 trillion—larger in 2050.[20]

Even before the pandemic a growing need was felt for training the newer generational cohort with digital entrepreneurial skills required to survive in the 21st century however this need is yet to be realized. Globally, 58 percent of school-age children from the wealthiest households have access to the internet at home, compared to just 16 percent of children from the poorest households. The gap persists regardless of country income level. In low-income countries, only about 1 in every 20 school-aged children has access to the internet at home, compared to nearly 9 out of 10 in high-income countries. According to the study, the digital divide is exacerbating gaps that already exist between countries and communities. Children and young people from low-income families, rural areas, and lower-income states are slipping further behind their peers, with no chance of ever catching up.

X. ANALYZING THE EDUCATIONAL DIGITAL DIVIDE IN INDIA

Now that we have understood the broader notion of the education digital divide we delve into the educational digital divide in India, According to literature, countries with already poor learning results, high dropout rates, low shock tolerance, and insufficient infrastructure to

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[18] "Digital Divide: The Technology Gap between the Rich and Poor". *Digital Responsibility*.
[19] "The Homework Gap: The 'Cruelest Part of the Digital Divide'". *NEA Today*. (2016.)
[20] "The Digital Divide in the Age of the Connected Classroom | NetRef". *NetRef*. (2016.)

recover would feel the effect on education due to this digital divide much more severely.

A total of 320 million Indian students have been affected by the COVID-19 pandemic and have switched to e-learning. This transition however has not been feasible for all students and educators due to significant geographic and household inequalities in internet and technology access. After China, India has the world's second-largest school system. The most logical way to prevent group transmission during the COVID-19 crisis was to close schools to preserve social distancing measures. However, the most disadvantaged students are disproportionately affected by this extended closure. The pandemic has not only widened the gap in educational opportunity, but it has also intensified existing inequalities for instance the 2014 report by the National Sample Survey Organization (NSSO) which highlighted that over 32 million children were already out of school before the pandemic even began[21] in the absence of offline learning and with the closure of schools the ability of these children to rejoin becomes greatly diminished and as a result India is loosing out on valuable assets that could be contributive towards the country's future due to lack of resource availability in the digital realm. While the government recognizes India as a leader in the digital revolution and recognizes that it is a dynamic and multicultural nation, as evidenced by the recently drafted new education policy, e-learning platforms cannot replicate the variety of dialects, backgrounds, and personal experiences that physical classrooms bring together. If e-learning is the "new standard," then it is imperative on the part of the policymakers to discuss the viability of digitalization in order to ensure educational equality and efficiency.

E-learning has a wide range of applications which can assist students in realizing their full potential. For the government and the private sector, there are both opportunities and challenges. As the country continues to globalize and catch up with advanced economies, the aim should be to ensure fair and sufficient access to such platforms. If India's education system is to transition to online learning in the future, policies that transcend the digital divide and bring the country closer to achieving the Sustainable Development Goals must be prioritized.
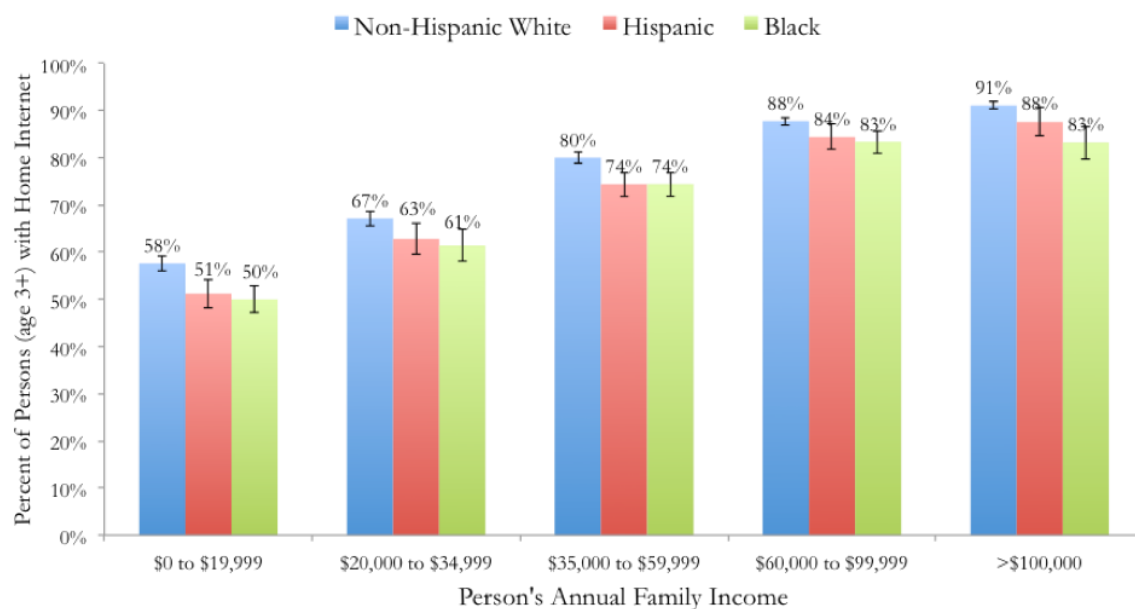
XI. THE RACIAL DIGITAL DIVIDE

As we continue to analyze the sociological implications of the digital divide we now look into a very important sociological aspect the concept of race on the digital divide, a report titled "Digital Denied" in the United States of America found that nearly half of the people in the country that lacked internet access were people of color.[22] Most of this gap has to do with

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[21] "National Sample Survey of Estimation of Out-of-School Children in the Age 6-13 in India, Social and Rural Research Institute (Subset of National Sample Survey Organization)
[22] Digital Denied, S. Derek Turner, Free Press Media Group (2020)

inequalities in income the fact that people of color earn lesser than the average white household as a result it is much more difficult for people of color to afford expensive broadband connection. Even after accounting for these disparities however in income as well as other demographic factors such as schooling and jobs, a racial digital divide remained. Even in the same income brackets, Blacks and Hispanics lagged behind Whites when it came to broadband adoption. However Income disparities are not the only factors responsible for the prevailing racial digital divide , systemic inequalities and historic oppression that have existed against people of color is another prime reason for the racial digital divide to exist, it is theorized that the systemic inequalities that have existed prior to the digital age have simply carried over to the current digital age and continued to manifest themselves in the form of Racial Digital Divide.

Graph Source: Digital Denied (Free Press Media Group)

## XII. SOLUTIONS TO THE PROBLEM OF RACIAL DIGITAL DIVIDE

Now that we have understood the existence of a racial digital divide, we must look at effective solutions in order to bridge this gap the author of this presents a few novel solutions that should be utilized from both a sociological and political perspective to try and limit the gap created namely:

- Collection of Demographic data from every state, tribe and region this will help governments keep a track of the various demographics associated with racial digital divide, a well-informed government will be better equipped to handle and bridge the prevalent gap.

- Education Drives among the racially and economically vulnerable strata of society, the government can do this with the help of private entities and follow a public private partnership (PPP) Model the private companies will be able to bring in the required capital and equipment for the drive and the government will be helpful on the logistical side of things. Increased digital literacy drives among the racially subjugated will help them overcome stigmatized notions associated with race and color and empower them to rise up overlooking such notions.

- The final solution is a bold however effective one at that , the idea of setting up reservations in digital companies for the hiring of persons of color and those from socially advantaged backgrounds this would help set them on an equal footing with those who have had access to digital education right from the get go.

These are a few solutions that if utilized in an efficient manner with the help of an effective administration can bring in major changes in the right direction for the affected communities. However for any of these changes to be successful the first step required is a proactive and encouraging societal structure , racial biases continue to exist due to pre conceived notions that are embedded in a societies core structure and thus vary from society to society, however for any functional improvement to be seen it is important that firstly these preconceived notions of bias are ridden from the structure encompassing the society only once this is achieved can we move hope to eradicate the racial digital divide that exists.

Figure 1: Smart Phone and Internet Use by Race and Ethnicity
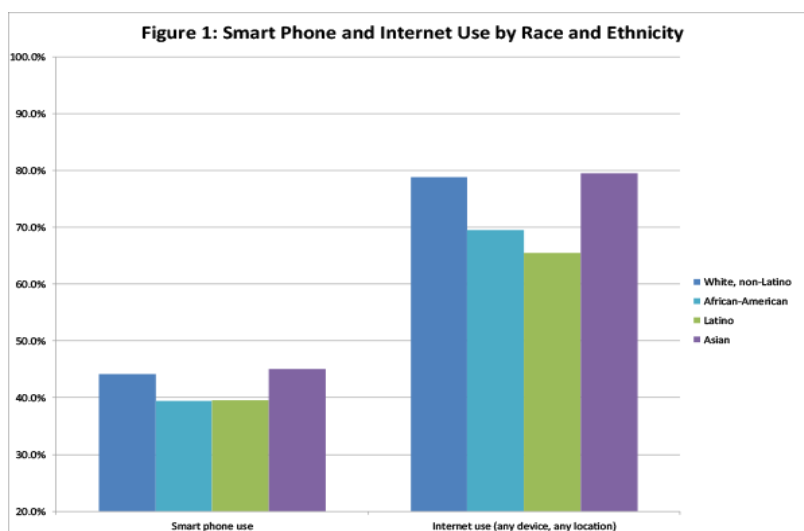
XIII. THE DISABILITY GAP IN THE CONTEXT OF DIGITAL DIVIDE

We now analyze the disability gap that exists within the broader concept of the digital divide, the disability gap that exists is more often than not overlooked however it is still significant to analyze it from a sociological perspective. Individuals with disabilities face inequities in access

to information technology as compared to those who do not. According to The Pew Research Center, 54 percent of households with a disabled person have home Internet access, compared to 81 percent of households with home Internet access that do not have a disabled person.[23] Further it is only in the case of the Disability gap that certain conditions arise where in a person due to disabilities may be unable to interact with computer screens and other forms of digital media this inherently creates a gap lack of access of technology that can be interpreted in a normal fashion by disabled people further broaden this gap.

 Further there is contentious debate over whether increased usage of information technology will improve equality by providing opportunities for people with disabilities, or whether it will merely exacerbate existing inequalities and lead to people with disabilities being left behind in society due to forecasting of their disabilities becoming normalized.[24] The effect of the digital divide on individuals with disabilities has been shown to be influenced by factors such as societal perceptions of disabilities, federal and state government policy, corporate policy, mainstream computing technology, and real-time online communication.

Another majorly disturbing trend that has come to the foray is that Discrimination of people with disabilities occurs online as well they are often seen at the receiving end of hate speech and abuse online. According to a study released by Leonard Cheshire, a health and wellbeing charity, online disability hate crimes rose by 33% in the UK between 2016–17 and 2017–18.[25] During an incident in 2019, when model Katie Price's son was the victim of online harassment due to his disability, accounts of online hate abuse directed at people with disabilities were posted. In response to the attacks, Katie Price launched a campaign to ensure that those responsible for online abuse of people with disabilities are kept accountable by Britain's MPs.[26] Online bullying of people with disabilities is a factor that can deter people from using the internet, preventing them from learning content that could help them change their lives this in turn fuels the disability gap within digital divide even more.

 Further what is interesting to note is that all though when it comes to other forms of digital divide all though, they exist they are recognized but when it comes to the concept of the disability digital divide this is often overlooked. Several studies have been conducted on web awareness, site interaction, navigation and orientation but have to a large extent or in certain

[23] "Americans living with disability and their technology profile". *Pew Research Center: Internet, Science & Tech*. Washington. (2011)

[24] Lazar, Jonathan; Stein, Michael Ashley. *Disability, Human Rights, and Information Technology*. University of Pennsylvania Press. (2017)

[25] "Online hate crime against disabled people rises by a third". *The Guardian*. (2019)

[26] "'He can't speak to defend himself, I can'". *BBC News*.

cases completely ignored the factor of disability that leads to digital divide.[27]

XIV. ANALYZING THE AGE BARRIER THAT EXISTS UNDER DIGITAL DIVIDE

As we progress our sociological analysis of the digital divide it is important to understand the Age barrier that forms a very critical sub part of the digital divide as a whole. The Internet all though felt by many to have existed for a very long time is in actuality a very recent concept and invention, the digital storm of the 21st century is only a short way from inception but has completely transformed our lives and it is safe to say that our lives have to a certain extent become intertwined with the digital however since due to the recentness of the internet and digital technology as a whole an Age gap was created between those born during the Internet Era and those born prior and outside of it. The internet can be a tricky place for those who are unaware of the workings of it. The lack of access to information and communication technology among older individuals (those aged 60 and up) is due to a number of factors (ICTs). Many adults are "digital refugees," meaning they have had to adjust to integrating digital technology into their lives after not having been exposed to it their whole lives.[28] According to a 2005 survey, only 26% of people aged 65 and up were using the Internet, compared to 67 percent of people aged 50 to 64 and 80 percent of people aged 30-49.[29] Upon further analysis we can identify a host of factors that are responsible for this 'Grey Divide' that exists within the digital space these factors include concerns over security, motivation and self-efficacy , decline of memory and special orientation and cost or lack of support to utilize the online medium.[30] As one's age deteriorates one begins to face a host of mental and physical challenges and problems it is thus no surprise that older people face a whole host of mental and physical conditions that can render them in a position unable to access the internet and digital services. Due to these health complications they may be unable to afford Internet access or lack the transportation necessary to use computers in public spaces, despite the fact that doing so would improve their health and reduce social isolation and depression. Homebound seniors who use the Internet to access health information, use telehealth services, shop and bank online, and keep in touch with friends and family via email or social media will profit from it however there is only a small proportion of seniors actually utilizing digital services to its fullest

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[27] Ford, N., Chen, S.Y.: Individual differences, hypermedia navigation, and learning: an empirical study. J. Educ. Multimed. Hypermedia 9, 281–311 (2000)

[28] Vidal, Elizabeth . "Digital Literacy Program: Reducing the Digital Gap of the Elderly: Experiences and Lessons Learned". *International Conference on Inclusive Technologies and Education (CONTIE)*. San Jose del Cabo, Mexico (2019)

[29] Czaja, Sara; Schulz, Richard. "Innovations in Technology and Aging Introduction". *Generations: Journal of the American Society on Aging*. **30** (2): 6–8. (2006)

[30] Friemel, Thomas N. "The digital divide has grown old: Determinants of a digital divide among seniors". *New Media & Society*. **18** (2): 313–331. (2016)

extent.[31] Internet access is more common among those in affluent socioeconomic positions and with a higher level of education than among older adults living in poverty. Lack of Internet connectivity makes it difficult to access "capital-enhancing programmes" including government aid, employment opportunities, or investments. Furthermore according to the findings of the Federal Communication Commission's 2009 National Consumer Broadband Service Capability Survey, older women are less likely than their male counterparts to use the Internet, especially for capital-enhancing activities[32] this indicates that a gender digital divide also exists for older woman apart from the already prevalent age barrier that they face. Finally as we conclude this sociological concept discussion would be incomplete without mentioning the reverse age barrier that also exists within the digital divide here the author is referring to the phenomenon when opposed to children and teenagers from well-off backgrounds, poor and deprived children and teenagers spend more time using digital devices for entertainment and less time engaging with people face-to-face which is a cause for concern.[33]

XV. THE LGBTQ GAP IN DIGITAL DIVIDE

Finally, as we conclude our sociological analysis it would be incomplete without discussing the sociological implications of the LGBTQ gap that exists within the concept of the Digital Divide. The LGBTQ community in recent times has prominently utilized digital media and online platforms in order to help spread awareness about their community and the issues they face however they still face a gap in access to online services owing to their LGBTQ status for instance within the United States of America a number of states, including those that have passed new legislation since 2010, have notably censored LGBTQ voices and content, posing significant risks to access to knowledge regarding sexual orientation and gender identity. YouTube's 2017 decision to label non-explicit videos with LGBTQ themes as 'restricted,' a designation intended to weed out 'potentially objectionable material,' demonstrates the influence of digital outlets in restricting access to such content.[34] This led to large scale uproar as it gives weightage to the selective oppression of a community through digital platforms and media. The LGBT gap is a major hindrance to the progress of the LGBT community as the Internet offers information that can help marginalized people, such as the LGBT community,

[31] Choi, Namkee G; DiNitto, Diana M. "The Digital Divide Among Low-Income Homebound Older Adults: Internet Use Patterns, eHealth Literacy, and Attitudes Toward Computer/Internet Use". *Journal of Medical Internet Research*. **15** (5): e93. (2013)

[32] Hargittai, Eszter; Dobransky, Kerry. "Old Dogs, New Clicks: Digital Inequality in Skills and Uses among Older Adults". *Canadian Journal of Communication*. **42** (2). (2017)

[33] Bowles, Nellie. "The Digital Gap Between Rich and Poor Kids Is Not What We Expected". *The New York Times (2018)*

[34] Hunt, Elle. "LGBT community anger over YouTube restrictions which make their videos invisible". *The Guardian*. (2017)

interact with others and participate in open and frank discussions about issues that concern their communities. It can also be used as a catalyst for change in the LGBT world, as well as a way to engage in social justice activism. LGBT Tech has placed a strong emphasis on launching newer innovations like 5G technology in order to bridge the digital gap that can prevent LGBT people from having access to secure and fast technology that can provide updates on healthcare, economic opportunities, and healthy communities.[35] If we are to get rid of the digital divide a significant effort in closing the LGBT gap will be critical in order to make our efforts a success.

XVI. CONCLUSION

To improve social and cultural capital as well as achieve mass economic gains in productivity, a person must be able to communicate. As a result, while access is a necessary (but not sufficient) prerequisite for closing the digital divide, it is not sufficient. Access to ICT faces major barriers as a result of financial constraints. An extensive economic study by Hilbert and Martin has revealed that the economic expenditure required on average to limit the digital divide from an economic viewpoint stands at 120$ per person per year.[36] Furthermore, even though people are capable of using the Internet, many are prevented from doing so due to barriers to entry, such as a lack of connectivity or an inability to comprehend the knowledge available on the Internet. Two big roadblocks to mass connectivity are a lack of sufficient infrastructure and a lack of expertise. Individuals' skills in terms of what they can do and do in terms of technology access are limited by these obstacles. Some people can communicate, but they lack the skills to use the information that ICTs and Internet technology offer. This results in an emphasis on capabilities and skills, as well as understanding of the need to move beyond mere access to successful ICT use.[37] An example of how the Digital Divide can be overcome is the United Nations Volunteers (UNV) programme that launched its Online Volunteering service in the year 2000, which uses ICT to facilitate and promote volunteering. It's an example of a volunteer effort that's making a difference in bridging the digital divide. Volunteering that is supported by technology has a direct growth benefit. If more people collaborate online with more development organizations and projects, the number of person-hours devoted to development collaboration will increase at little or no expense. The most noticeable impact of online volunteering on human development is this.

In order to overcome the digital divide from a sociological standpoint community intervention

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[35] Gutierrez, Carlos. "The potential of 5G to reduce the digital divide". *LGBT Tech*. (2020)

[36] Hilbert, Martin. "When is Cheap, Cheap Enough to Bridge the Digital Divide? Modeling Income Related Structural Challenges of Technology Diffusion in Latin America" *World Development*. **38** (5): 756–770. (2010)

[37] Karen Mossberger. Virtual Inequality: Beyond the Digital Divide. Georgetown University Press (2003)

is primary humans are social creatures and in order to help bridge the gap that exists in the usage and access to ICT and digital services society as an entity has to contribute to the cause, this means that individuals who are privileged enough to be above the digital gap should contribute to help those still struggling to get over the digital divide as long as individuals on a societal level contribute and effectively organize in order to help the lesser privileged can the digital divide be thought of being conquerable there have been several issues in this quest has have been mentioned hitherto however there has also been considerable development in the right direction to reduce the gap between the haves and have nots all is not lost and there is still light at the end of tunnel.

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