

Addressing The Digital Divide – Ensuring Access to Internet for All

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Virtual Summer Internship – Digital Divide: Access to Internet for All**Abstract**

This research paper focuses on the Digital Divide in the United States of America. It is broken into three major factors: age, community, and income. Within each section, there is information about how each of those factors impacts the Digital Divide. Data was gathered from sites such as the Pew Research Center, National Telecommunications and Information Administration, and Connect Home. Four solutions that can be effective in bridging the Digital Divide have been proposed and discussed in the paper. Although there are limitations to implementing these solutions, with sufficient time and effort, the Digital Divide can be overcome.

Introduction

The research has been conducted to find a solution to the issue of the Digital Divide in the United States of America. According to the Digital Divide Council, “The digital divide is the gap that exists between individuals who have access to modern information and communication technology and those who lack access.” (Carmen Steele, 2019). The Digital Divide is caused by many characteristics such as economic and geographic factors. These factors are Income, Community, Education, Gender, Age, and Race. (Pew Research Center, 2019). The main focuses of this research were the divisions created by income, by community, and by age. The income component of the research focuses on the affordability of the Internet of low-to-moderate income communities compared to those of higher income. The community component of the Digital Divide is the differences between rural and urban societies and how their environment affects their access to the Internet. Lastly, the age component focuses on the difference in the usage of the Internet and technologies based on the age of the user. The scope of this research extends to

include how to overcome the Digital Divide created by these three factors. The objective is to discover solutions to bridge the divides created by economic, geographic, and generational factors in the digital world.

Significance

The purpose of this research was to explore how the factors of community, income, and age impact the digital divide and propose a solution to fixing these inequalities that certain groups of people undergo. The significance in bridging the gap in the digital world would be that it could lead to economic growth, better job opportunities, wage increase, alongside better access to the internet for all and leveling the “playing field”. The internet contains an abundance of information, and the world of technology is becoming increasingly important and valuable in modern society.

Methodology

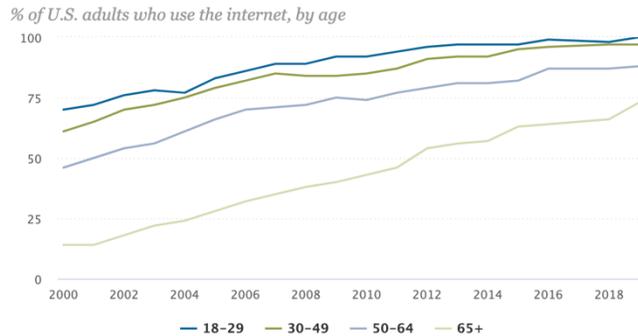
Since the Digital Divide is a broad topic and occurs due to many factors, the research focuses on three main subtopics divided by factors of the Digital Divide. Those factors are income, age, and community. Each team member had chosen one subtopic and conducted extensive research by browsing through websites, reading articles and blogs, and contacting professionals who have knowledge in the field of digital literacy and technological advancements.

The Impact of Age

When it comes to modern technology and devices, someone's age can impact their choices on using the internet and devices that support it. As people grow older it can become more challenging to learn a new skill.

The use of the internet across age groups varies as they all use it for different purposes. As shown in Exhibit 1, data from a survey was collected based on U.S. adults that use the internet.

Exhibit 1: Survey on Who Uses the Internet



Source: Surveys conducted 2000-2019. Data for each year based on a pooled analysis of all surveys conducted during that year.

There has been a significant percentage increase over the last twenty years for each age group. It is clear that as time progresses, people are more inclined to use the internet as it becomes a near necessity in society. As of 2018, over 60 million Americans don't have the skills to properly use the internet for all the resources and

services that it offers. Even if they have the devices for internet use, they lack the confidence to comfortably search the web (Connect Home, 2018). People lack the confidence because they may click into a website that causes a virus on their device. It's issues like these, among many, where we see the senior community draw back from internet usage. In an article by Andrea Caumont from Pew Research Center, she described "44% of those over age 65 do not go online, versus 17% of those 50-64, 8% of those 30-49 and only 2% of those 18-29" (Caumont, 2020). Other than not being confident, some individuals over the age of 65 don't feel the need to have the internet or use the internet to its full capacity. Another fact to consider is that the smartphone, computers and highspeed internet are fairly new. Since the older generations were introduced to new technology later in life, the need or desire for internet isn't as strong. Adults in the age group from 30-50 have a better understanding of how to use the internet. Jobs are starting to become more digital requiring employees to master the skills of using computer services like

Microsoft Word and Excel. For those who understand the internet, things we find simple may be more difficult to understand if you've never used it before.

Coming from the other side, the younger generation is where the internet is very present. Refereeing back to Exhibit 1, in 2019 almost 100% of people between the age 18 to 29 use the internet through their devices. The younger generations are better adapted to technology and internet usage because it starts at school. Public schools are beginning to go digital and have assignments and classes accessible to digital devices like tablets and handheld computers. Especially in current times, with COVID-19 students we're ordered to stay home and continue studying remotely. Besides having cellphones and laptops, some students still struggled with suitable access to the internet. The ability to use the internet isn't always the problem. Students who live in low to moderate income homes might not have the highspeed internet as other homes with a higher income. In an article from Pew Research Center, Monica Anderson and Andrew Perrin surveyed school-age children and whether or not digital divide affects their homework life. They stated "Overall, 17% of teens say they are often or sometimes unable to complete homework assignments because they do not have reliable access to a computer or internet connection" (Anderson & Perrin, 2020). If students are having trouble at home with connectivity, they're more likely to fall behind their classmates and receive lower grades for "incomplete" assignments. It can dampen their academic confidence and lean towards never doing homework. If suitable internet was accessible to everyone, especially for households with children in school, they wouldn't have to think twice about they should attempt the homework.

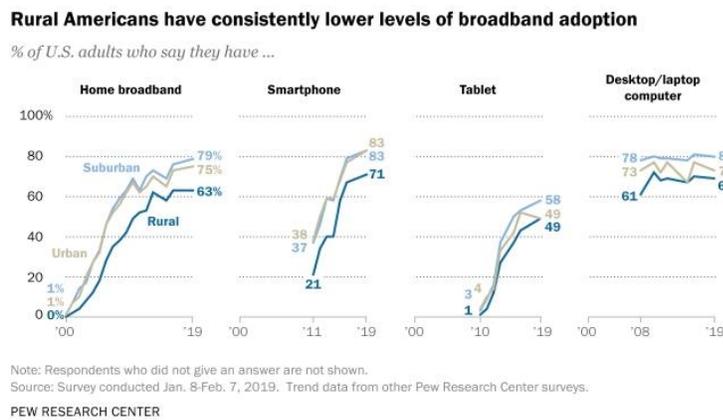
Through the eyes of the internet, age can define how much someone uses it. This shouldn't be a limit to anyone especially those who feel like they've aged out of the era. Providing tools and resources for those who are seeking to become first internet users should

have the opportunity and take advantage of those resources. This will allow the inclusion of all age groups and build the confidence newcomers so that they know they're not the only ones. Students who need better internet to succeed in school should receive it. They shouldn't be at a disadvantage because of their income, something they have no control over, as they are young learning individuals. A way to provide the needs for all is to start within their communities.

The Impact of Community

The Digital Divide caused by geographical location is known as the divide between Rural and Urban communities. According to Andrew Perrin from Pew Research Center, although the gap between urban, suburban, and rural communities is narrowing, adults in rural areas are still less likely to own technologies such as smartphones, tablets, and computers compared to adults living in urban or suburban society. In Exhibit 2, the data from a survey conducted in 2019 has

Exhibit 2: Survey on Broadband Access



been provided. The survey shows the percentage of adults who have home broadband, smartphone, tablet, and desktop/ laptop computer based on the 3 geographical communities: Rural, Suburban, and Urban. For home broadband, only 63% of Rural

adults have been informed to have it compared to 75% of Urban adults and 79% of Suburban adults. Regarding ownership of smartphones, 71% of Rural adults have it whereas 83% of both Urban and Suburban adults have it. For people who have tablets, there is 49% of Rural adults, 49% of Urban adults, and 58% of Suburban adults. Lastly, for desktop/laptop computers, 69% of Rural adults have it compared to 73% of Urban adults and 80% of Suburban adults. The main

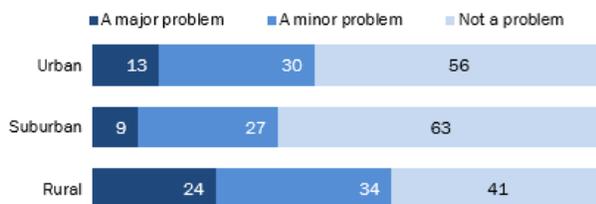
cause of low percentages for Rural adults compared to Urban and Suburban adults is due to the lack of infrastructure in rural areas that are needed for high-speed internet; but even if an area has the infrastructure, the Internet they receive tends to be slower compared to non-rural communities. (Andrew Perrin, 2019).

Additionally, in an article by Monica Anderson from Pew Research Center, a survey had been conducted to discover how much of the population in each community saw high-speed internet as a major problem. According to the data in Exhibit 3, 24% of adults living in rural

Exhibit 3: Survey on Internet Access

Roughly one-in-four rural residents say access to high-speed internet is a major problem in their area

% of U.S. adults, by community type, who say access to high-speed internet is ___ in their local community



Note: Respondents who did not answer are not shown.
Source: Survey conducted Feb. 26-March 11, 2018.

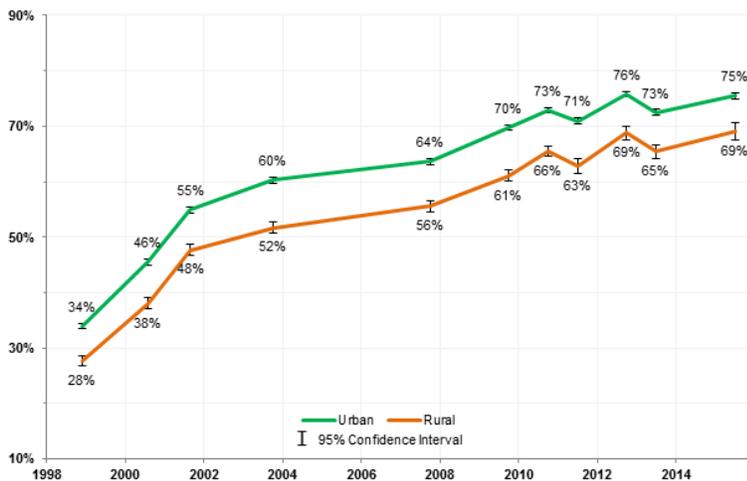
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areas believe that access to high-speed internet is a major problem, while only 13% in urban areas and 9% in Suburban areas think that about their communities. Similarly, 34% of Rural dwellers believe it to be a minor problem compared to 30% of the Urban population and 27% of the Suburban population. The data shows how 59% of Rural adults consider access to high-speed internet a problem in their community, whereas only 44% of Urban adults and 37% of Suburban adults agree with that statement about their community. The main cause of this difference in Urban-Suburban and Rural communities' access to the internet is the infrastructure of their local communities. Although income and education seem to be factors that can have an impact on the access of the internet to people, there are only small differences in the percentages of people with higher-income and people with low-to-moderate income in Rural communities. In the article, Anderson states, "20% of rural adults whose household income is less than \$30,000 a year say access to high-speed internet is a major problem, but so do 23% of

rural residents living in households earning \$75,000 or more annually.” She also adds about the education of the rural community by expressing that “These sentiments are also similar between rural adults who have a bachelor’s or advanced degree and those with lower levels of educational attainment.” Thus, the main drawback for Rural communities to have access to the internet is the lack of infrastructure in their local area. (Monica Anderson, 2018).

Furthermore, the National Telecommunications and Information Administration has provided a timeline data of Internet use between Rural and Urban communities. In an article by Edward Carison and Justin Goss on the NTIA website, it is explored how the digital divide between Rural and Urban has persisted. In Exhibit 4, a trendline graph shows how much Internet

Exhibit 4: NTIA: Internet Use of Americans



Source 1: National Telecommunications and Information Administration

use has changed from 1998-2015.

The trend starts in 1998 with 28% of Americans in rural communities and 34% of Americans in Urban communities using the Internet. Since then, the percentages of Internet users in both Rural and Urban

communities have inclined, and by 2015, 75% of Urban Americans and 69% of Rural Americans were using the Internet. Although the numbers have increased for both Urban and Rural communities, there has been a consistent 6-9 percent gap between the two communities. The article also emphasizes how the lack of technology ownership or access to digital literacy lessons in rural communities impacts the digital divide.

On the contrary, the Washington Post states that “The digital divide, however, is not exclusively or even most significantly a rural problem.” (Levin & Downes, 2019). Throughout their article, which is titled “Cities, not rural areas, are the real Internet deserts,” they explore how Rural communities have access to the resources to have Internet but that they choose not to because they believe they have no need for the Internet or they are simply “not interested.” Although the authors provide data and references to the NTIA and Pew Research Center about surveys and studies they have done on Internet usage, they do not provide any supporting evidence that city-dwellers specifically have issues accessing the Internet. Most cities and urban environments have resources to have access to the Internet while Rural areas do not. In a blog series on Blinq Networks, the blog provides 5 concerns of Internet users in rural areas and includes personal stories of people posted on Twitter. The 5 concerns are: Availability, Reliability, Security, Speed, and Price. The first concern for Rural Internet access is how far the connections are distributed. One common thing in rural areas is “digital deserts,” which is “For large stretches of land, users do not have any viable options for connecting to the internet.” (Blinq Networks, 2020). Unlike Urban areas and cities where the Internet is available in all places, rural communities do not have many options for suitable high-speed Internet in all areas. Internet reliability is also another concern of rural users because the Internet connection is not stable in such areas because of their lack of resources and infrastructure. Internet service outages happen very often in rural areas and often cause many inconveniences and for users in such areas. Additionally, security is another concern of rural users. The blog states, “Worries about ISPs spying on users online activity and collecting and selling customers private information intensify the distrust of rural communities of service providers.” That section is concluded by stating how these remote communities need to be reassured that their information is private,

protected, and encrypted online. The final two factors are the speed of the Internet and the prices. They are interconnected because the price of the Internet depends on its speed. One rural internet user has expressed how their/his/her parents pay the same price as them/him/her for low-speed internet in the rural area while they/he/she has higher speed internet in the city for that same price. The blog also refers to Exhibit 2, the survey from Pew Research Center on how many percentages of each community, from Urban, Suburban, and Rural, think that high-speed internet is a major problem in their community and explain how there is only so much you can do with low-speed internet.

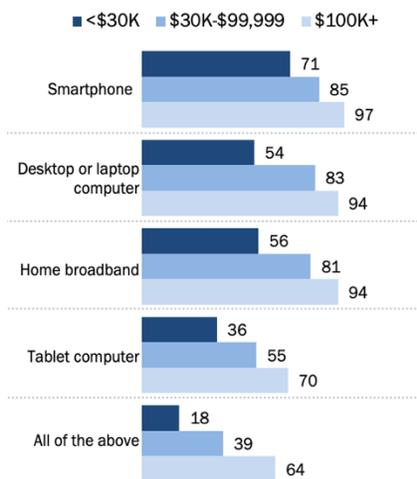
The Impact of Income

Money plays a huge role in society when it comes to everyday life. It determines the expenses we make, how we carry out ourselves, and in some cases even the quality of our education. Individuals, households and communities under the average yearly salary sometimes

Exhibit 5: Technology Adoption Bar Graph

Lower-income Americans have lower levels of technology adoption

% of U.S. adults who say they have the following ...



Note: Respondents who did not give an answer are not shown.
Source: Survey conducted Jan. 8-Feb. 7, 2019.

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struggle trying to make ends meet, and for some that means prioritizing what they need and looking the other way when it comes to a luxury item such as the internet. The U.S.

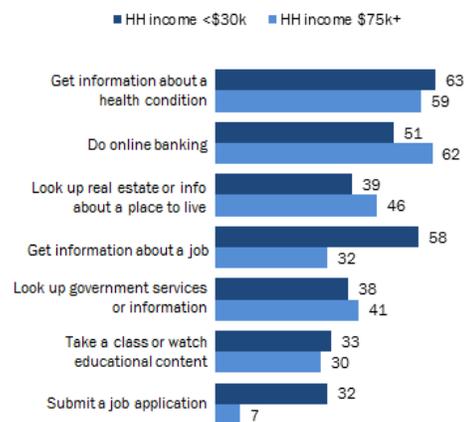
Bureau of Labor Statistics found that almost 80 percent of jobs required some kind of technology skills (Hecker, I. & Loprest, P., 2019), so when it comes to these families on the wrong side of the digital divide it starts to become very hard to come out of their situation. As you can see in Exhibit 5, lower-income Americans have made gains in tech adoption, but far less off compared to those who make more. The graph shows us how only 56% of U.S. adults have home broadband

at home. With the lack of internet access at home more adults begin to rely on their cellphones to carry out activities that would require the internet. "As of early 2019, 26% of adults living in households earning less than \$30,000 a year are “smartphone-dependent” internet users – meaning they own a smartphone but do not have broadband internet at home." (Anderson, M., & Kumar, M., 2019). What this shows is that because of the lack of broadband at home people are becoming resourceful and using what they have at hand to their advantage. As seen in Exhibit 6, a vast majority of lower-income individuals are using their smartphones for tasks that would require larger screens, for example, lower-income individuals were largely more susceptible to looking for and applying to jobs on their smartphones compared to people who average over \$75k annually (Aaron Smith, 2019).

Exhibit 6: Internet Task Bar Graph

Lower-income Smartphone Owners Much More Likely to Use Their Phone for Job Seeking

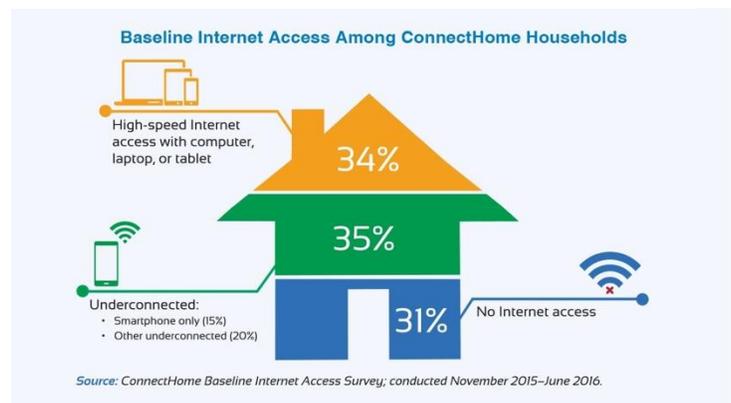
% of smartphone owners in each income category who have used their phone in the last year to...



Pew Research Center American Trends Panel survey, October 3-27 2014. PEW RESEARCH CENTER

On the contrary, some would argue that some internet providers have implemented low income service plans for those who can't afford their regular prices, but the services they are being provided are far less capable than the regular ones. These plans often offer slower internet connections but are some of the most affordable available as can be seen in Exhibit 7. According to

Exhibit 7: Survey on Internet Access on Households



BroadbandNow the internet packages that are being offered by major internet providers are “AT&T Access: 10 Mbps for around \$10.00 a month, Internet Essentials From Comcast: 15 Mbps plan at just \$9.95 per month Xfinity: \$9.95 per month Spectrum Internet Assist: 30 Mbps connection at \$14.99 per month (WiFi costs \$5.00 extra with this plan) and Cox Connect2Compete: \$9.95 a month (available to families that have a child in kindergarten or grades 1-12) (Cooper, T., 2020). Being realistic the average amount of 15 Mbps within all these companies would be super hard to just stream a YouTube video let alone be the primary source of a family of three trying to all use the same internet. Some have it even worse and can't even afford the low-income internet or live in an area where internet is not offered. They have to go through extreme measures to get the things they need done completed. "While attending community college, the problem worsened. I had to balance a full-time course load, a part-time job, and a part-time internship. My only spare time was at night, and the local library was closed by the time I could get there. The next closest public building in my neighborhood with free Wi-Fi access was the hospital. When I had no other choice, I spent late night hours working on assignments in the waiting area of the emergency room." (Yesenia Jimenez, 2019). This is an example of someone who grew up with the no internet and the struggles she had to undergo, and to her this is a very real problem. “High-speed internet is no longer a luxury but a necessity. With a majority of the U.S. population connected to the internet, it’s very easy to forget about the people who don’t have internet access.” (Yesenia Jimenez, 2019).

Solutions for Digital Divide

Digital Divide is a serious issue in modern society that needs to be overcome. Having equal access to the Internet and suitable technological devices to use the Internet is crucial in our everyday lives. Throughout this research, the team members have considered many solutions that

can be implemented to bridge the Digital Divide. There are four solutions that have been finalized and thought to be effective in resolving the issue of the Digital Divide. These solutions vary by the three subtopics that have been the focus of this research. It was done in that form because the Digital Divide takes in the account of many different factors, so only one solution for all the characteristics would have many limitations. The first solution focuses on bridging the Digital Divide caused by income. The solution is to add a property tax for the Internet by labeling it as a utility. If the internet becomes a utility, when homeowners look into real estate, the property will already have internet under utilities alongside their electric and water bills. This would be beneficial because the residents would not have to contact Internet providers and pay separately because they would already be provided with suitable Internet based on the community they would live in. The second solution also focuses on the income aspect of Digital Divide. The solution is to install a municipal wireless network to provide Internet access to a local community such as a city or a county. The installation of these networks across the city would allow for easy access to the citizens who can't afford the internet and also help those who want to save money. The third solution focuses on bridging the Digital Divide caused by the difference of infrastructure in different communities. The solution is to have local-government-funded cyber cafes that are distributed where there is not adequate Internet connection, especially in Rural areas. It would also be beneficial because while many rural residents might believe they do not have the need for Internet or technological devices, they can still have access through those cyber cafes. The last, but most definitely not the least, solution is to have in-person Digital Literacy classes. This solution is based on the factor of age in Digital Divide but is not just limited to that aspect. Digital Literacy is very important because without knowledge of how to use the resources available online, navigating the Internet can seem very intimidating. Providing

hands-on learning experience to those who are unfamiliar with the world of technology, especially those of older generation and those without decent connection such as in rural communities, can be a huge step in connecting the Digital Divide.

Implementation Plan

The implementation plans for these solutions are the most important because those plans determine how effective these solutions will be to bridge the Digital Divide. The implementation for the property tax is by labeling it as a utility. If the internet becomes a utility, when homeowners look into real estate, the property will already have internet bills under utilities alongside their electric and water bills. Having Internet access as a utility would mean that every home would have access and are able to connect if they have suitable technological devices for it. For the municipal wireless networks, there have been trial runs by multiple cities such as St. Cloud, Florida and expanding the project to a wider area coils help pinpoint the grey areas in the solution. Nevertheless, within the short time St. Cloud had conducted this solution and had some amazing statistics that went along with it, “They've logged 1.8m hours and seen over 500K sessions, transferring 10 terabytes of data, with an average session time of 3.55 hours. He's putting the money saved by residents at \$3.7m per year based on an average fee previously paid of about \$36 per month.” (Fleishman, 2006). Having this kind of city-wide access ensures that all residents of the city have access to the Internet at all times and anywhere. As for the Rural areas' access to the Internet, the Cyber Cafes would give them access to different technological devices such as desktops, laptops, tablets, and have adequate Internet connection so that every device can be used at once if need be. The Cafes would be government funded locally based on community needs and could be distributed by the population density of an area or at frequent intervals. So, while most rural residents might not use the Internet, they have those resources available to learn

how to navigate the Internet and be part of the digital world. Lastly, to help with Digital Literacy, in-person courses would be offered. The courses would be advertised through newspapers, flyers, and commercials. If an individual lacks Internet access in their home, the course instructor can provide a hotspot, or they can schedule to go to a specific location where they can have Internet access. Additionally, these courses can be provided in the Cyber Cafes because many residents in those areas might not know how to use the Internet, so it will be helpful to them to have assistance to finish their work and also learn more about the Internet.

Research Limitations

Although there are many ways to conquer the Digital Divide, there will always be challenges along the way. During the research, there have been areas where it would have been a great opportunity to survey people face-to-face. Due to Covid-19, it was nearly unrealistic to conduct a proper in-person survey. Additionally, there were ideas of creating an online survey but that would've defeated the purpose behind the researched issue. If an online survey for the topic was done, it would only reach those who have the access and not include those who don't have any access to the internet. Instead, experts and mentors of this topic were reached out to shed light onto the situation and ways to look at it in a different approach.

When diving into each subtopic under the digital divide, roadblocks were met when looking for information and solutions. When the idea of digital literacy classes was mentioned, the action of attending those classes was a problem. Most classes started online, and you'd have to have the device and know how to use your computer. With cyber cafes it can be difficult to get people to go. They may not want to make the drive or feel as if they don't need it. Making the cafes more appealing would be ideal. Providing services that may make daily activities much easier like online banking. Creating appeal to these cafes for individuals will be a difficult

challenge. Another challenge within the community is providing enough devices for the cafes. If you only have one cafe with 20 devices, from tablets to computers, in a town of 2,000 people there won't be enough. Creating multiple cafe's every few miles can create a better digital presence. To have a suitable internet, it can become costly. There are lower plans for internet access by providers except that the broadband is weak. Individuals with low income who are paying for the lowest cost internet service are limited. They may not be able to stream videos or open links on the web browser. By giving access to a better internet and low prices can benefit people in so many ways. They will have an equal chance at opportunities that the internet can offer.

Conclusion

Internet connection and the devices that support it is an essential in modern life that should be available to everyone, no matter their age, race, gender, education, income, and the community they live in. The Digital Divide is an issue since the start of the technological period. Bridging the Digital Divide and having universal Internet access is the true objective that society should strive for. While the inequalities created by age, community, and income have been the main focus and have been explored throughout this research paper, there are many other factors that also contribute in creating the Digital Divide. All of the characteristics that lead to the Digital Divide are also interconnected and impacted by each other. The community aspect of the issue is related to both the age and the income part because each community has a common factor that leads residents to live in those communities. Similarly, the income of one individual is related to their education and can be impacted by their race or gender. So, while the factors of the divide can be scrutinized separately, they would always overlap because of how broad the issue

of Digital Divide is. Through different solutions, the ones discussed in this paper and others outside of it, the Digital Divide can be bridged if given the time and effort.

References

- Anderson, M. (2018, September 10). *About a quarter of rural Americans say access to high-speed internet is a major problem*. Pew Research Center.
<https://www.pewresearch.org/fact-tank/2018/09/10/about-a-quarter-of-rural-americans-say-access-to-high-speed-internet-is-a-major-problem/>
- Anderson, M., & Kumar, M. (2019, May 7). *Digital divide persists even as lower-income Americans make gains in tech adoption*. <https://www.pewresearch.org/fact-tank/2019/05/07/digital-divide-persists-even-as-lower-income-americans-make-gains-in-tech-adoption/>
- Anderson, M., & Perrin, A. (2020, May 30). *Nearly one-in-five teens can't always finish their homework because of the digital divide*. Pew Research Center.
<https://www.pewresearch.org/fact-tank/2018/10/26/nearly-one-in-five-teens-cant-always-finish-their-homework-because-of-the-digital-divide/>
- BLiNQ Networks. (2020, June 18). *What do Rural Internet Users Need?* BLiNQ Networks.
<https://blinqnetworks.com/wireless-matters/what-do-rural-internet-users-need/>
- Carlson, E., & Goss, J. (2016, August 10). *The State of the Urban/Rural Digital Divide*. National Telecommunications and Information Administration.
<https://www.ntia.doc.gov/blog/2016/state-urbanrural-digital-divide>
- Caumont, A. (2020, May 30). *Who's not online? 5 factors tied to the digital divide*.
<https://www.pewresearch.org/fact-tank/2013/11/08/whos-not-online-5-factors-tied-to-the-digital-divide/>
- Connect Home. (2018). *THE DIGITAL DIVIDE*. U.S. Department of Housing and Urban Development Secretary Ben Carson. <https://connecthome.hud.gov/about/digital-divide>
- Cooper, T. (2020, May 19). *Internet Options for Low and Fixed Income households*.
<https://broadbandnow.com/guides/low-income-internet>
- Digital Inequality and Low-Income Households: HUD USER. (2016). Retrieved from
<https://www.huduser.gov/portal/periodicals/em/fall16/highlight2.html>
- Fleishman, G. (2006, September 11). *St. Cloud Says 77% of Households Registered for Free Wi-Fi*. Wi-Fi Networking News.
https://wifinetnews.com/archives/2006/09/st_cloud_says_77_of_households_registered_for_free_wi-fi.html
- Hecker, I. & Loprest, P. (2019, August). *Foundational Digital Skills for Career Progress*.
https://www.urban.org/sites/default/files/publication/100843/foundational_digital_skills_for_career_progress_2.pdf

- Jimenez, Y. (2019, September 30). *A Digital Divide Builds a Steeper Wall of Inequality*. <https://www.clasp.org/blog/digital-divide-builds-steeper-wall-inequality>
- Le, V. (2019, September 5). *Closing the Digital Divide for Low-Income Communities*. <https://greenlining.org/blog-category/2019/closing-the-digital-divide-for-low-income-communities/>
- Levin, B., & Downes, L. (2019, September 13). *Cities, not rural areas, are the real Internet deserts*. The Washington Post. <https://www.washingtonpost.com/technology/2019/09/13/cities-not-rural-areas-are-real-internet-deserts/>
- Liz, S. (2019) *The Technology Gap between the Rich and Poor*. Digital Responsibility. <http://www.digitalresponsibility.org/digital-divide-the-technology-gap-between-rich-and-poor>
- Perrin, A. (2019, May 31). *Digital gap between rural and nonrural America persists*. Pew Research Center. <https://www.pewresearch.org/fact-tank/2019/05/31/digital-gap-between-rural-and-nonrural-america-persists/>
- Pew Research Center. (2019, June 12). *Internet/Broadband Fact Sheet*. Pew Research Center. <https://www.pewresearch.org/internet/fact-sheet/internet-broadband/>
- Steele, C. (2019, February 22). What is the Digital Divide? Retrieved July 20, 2020, from <http://www.digitaldividecouncil.com/what-is-the-digital-divide/>