

Computer Literacy: The Role of the Public Library in Overcoming Digital Divides in a Rural
Community

By
Aidan Wallace

A thesis submitted in conformity with the requirements for the
degree of Bachelor of Arts, Honours with Subsidiary
Department of Anthropology
St. Francis Xavier University
April 23, 2021

Table of Contents

Abstract.....	ii
Acknowledgements.....	iii
Chapter 1: Introduction.....	1
Chapter 2: Literature Review.....	5
2.1 Social Roles.....	5
2.2 Service Access.....	6
2.3 Populations of Need.....	8
Chapter 3: Theoretical Framework.....	10
3.1 Bourdieu: Three Forms of Capital.....	10
3.2 Murdoch: Degrees of Marginality.....	12
3.3 Van Dijk and Hacker: Levels of Access.....	13
Chapter 4: Methodology.....	15
4.1 Document Review.....	16
4.2 Fieldwork.....	16
4.3 Survey.....	18
4.4 Interviews.....	18
4.5 Autoethnography.....	20
Chapter 5: Analysis.....	21
5.1 Material Access.....	23
5.2 Skills Access.....	31
5.3 Mental Access.....	37
5.4 Usage Access.....	44
5.5 Capital Divides.....	50
Chapter 6: Discussion and Conclusion.....	59
Works Cited.....	67
Appendices.....	69
Appendix I: Invitation to Participate and Consent Form.....	69
Appendix II: Survey and Interview Guide.....	71

Abstract

While many may believe that the “digital divide”, the gap in access to computers and internet has been bridged with the proliferation of smart phones and similar devices, this is far from the case in rural Nova Scotia. One institution that has acknowledged ongoing challenges is the public library. This thesis explores the effects of the People’s Place Antigonish Town and County Library’s public technology services on a rural community with high levels of inequality, where technology access is increasingly necessary while not correspondingly accessible. The thesis is a case study based on five in depth interviews with both library users and staff, data collected through surveys, and four years of my own autoethnographic experience. Theoretically this thesis engages with theories of digital and an analysis of the class and wealth inequalities that manifest in digital access. The case study highlights the public-service oriented ethos of the Library as the Library implements and supports programs to respond to demonstrated technology needs of rural Nova Scotians.

Acknowledgments

This project was only possible thanks to the Antigonish People's Place Library and my remarkable coworkers. Thank you all for taking the time to share your knowledge, passion, and experience with me. My thanks also go to the library patrons, who took the time to share with me their experiences and the importance of the library in their lives.

I am endlessly indebted to Dr. Susan Vincent for your care, experience, and patient guidance as I navigated this project. I am also grateful to Dr. Christina Holmes for your thoughtful comments and support as my second reader. You have both been invaluable mentors, and this project would not have been possible without you.

Whether in Antigonish, across the country, or beyond, I am bursting with gratitude for my family and friends for their unwavering support, optimism, intelligence, humour, and love that has gotten me here. Thank you.

Finally, my thanks to the StFX Department of Anthropology and StFX Research Ethics Board for approving and supporting this project.

Chapter 1: Introduction

Public libraries have been a fixture of civic life since their rise to popularity in the West in the 19th century, with their formation taking different paths as the society entered a new state in the wake of the industrial revolution. Libraries had their beginnings in North America as being luxuries of the wealthy, which evolved into philanthropically supported institutions motivated by the effort to share knowledge and expand public education in the 18th century (Shera, 1965), which would eventually expand into the library systems that exist today. In Canada, the library system as it exists at present emerged between the 1930s-1960s, with the emergence of both regional public library systems and the National Library of Canada, with the goal of providing services to rural Canadians to support education and develop an “evolution” in rural Canada (Wilson, 2008).

The actual roles of libraries in their communities are as vaguely defined as these notions set forth, with the meaning of supporting and servicing communities in a library context left largely undefined. While public libraries in these rural areas have become essential parts of their communities, what function they perform in these communities has, in the spirit of the original expansion of public libraries, “evolved”. I begin with questions centered upon the expansion of public libraries into the digital world: “How do public libraries address unequal access to digital resources (the digital divide) in rural communities with high levels of income inequality? Why do libraries undertake this work? What are the reactions of those who take advantage of these programs?” In this thesis I shall argue that public libraries such as the People’s Place Library in Antigonish provide digital services that are essential to users, that library staff do this despite inadequate funding because of their commitment to a public service ethos, and that they are effective in providing resources that help to overcome distinct types of digital divides.

To analyze this subject, this research project shall examine one specific section of the public library's services, that being technology services, using a political-economic framework to understand library technology services and their impact in a rural, underserved area. Empirically, I shall examine the People's Place Antigonish Town and County Library, in Antigonish, Nova Scotia (the Library).

The context of this research is that it will be done in Antigonish town, in Antigonish, Nova Scotia. Antigonish County has a total population of 19,301 as of 2016 (2016 Census of Canada ww12), with Antigonish Town having a population of 4,364 as of 2016 (2016 Census of Canada ww12), with 63% of the total population of Antigonish Town and County being between the ages of 15-64. The combined area of Antigonish Town and Antigonish County will be referred to in this research as the Antigonish area, where applicable. The majority of the residents of Antigonish are over the age of 45, with the average age of being 45.7 years of age. The majority of residents in both the Antigonish Town and County have a diploma, and over half have a post-secondary degree. The median income of the full-time worker in Antigonish town stood at \$48,653, with the median income in Antigonish County standing at \$49,194, lagging behind the national median income of Canada, at \$61,400 (Canadian Income Survey ww150).

While this ten-thousand-dollar difference is not insignificant, it fails to illustrate fully the income inequality within the Antigonish region. Within the county of Antigonish, 14.1% are registered as low-income status, of the population of 19,301. Within the town, 21.9% of residents are qualify as low-income status of the population of 4,364, far exceeding the national average prevalence of 14.2% of the population being low-income status, and exceeding the Nova Scotia average of 17.2%, the highest prevalence within Canada. The largest employers in Antigonish,

which also provide the highest income, are St. Francis Xavier University, and St. Martha's Hospital, creating a radically large income and wealth status gap within the Antigonish area.

The Antigonish People's Place Town and County Library is one of seven libraries in the Pictou-Antigonish Regional Library, which was founded in 1951 in New Glasgow, Nova Scotia. Antigonish Town and County joined the growing library board in 1964, with the library system researching its current form with the opening of the River John branch in 1986, with many moves and renovations occurring both before and up to the present. The most recent renovation was the Antigonish Town and County Library's move out of a space within the Antigonish Town Hall and to a new building in 2011, a 15,000 square ft. building, equipped with green technology, public internet, community spaces, and an inventory of over 36,000 items, the largest in the Pictou-Antigonish Regional Library system. The Antigonish branch accounts for 54.4% of visitors to the Pictou-Antigonish Regional Library, which serviced in the statistical year of 2015, 65,519 patrons (Regional Library Annual Report, 2015). The People's Place Library, a shortened version of its name by which it is popularly known by, is a large, modern library in an area with higher than average levels of poverty and restricted access to services.

Focusing on the Antigonish People's Place Library, I will investigate the library's technology services and their utilization and impact in the community. I shall examine how library technology services work to overcome the inequality of the digital divide, along three dimensions of inquiry: who is helped, through examining such identifiers as age, gender, and proxies of socioeconomic class via digital access, how they are helped, through examining the purpose of their use of the technology services, and how they were impacted by the loss of access to these services during the COVID-19 pandemic, to understand the essential elements of these technology services to the individual.

This research is a case study based on five in depth interviews with both library users and staff, data collected through surveys, and four years of my own autoethnographic experience on the People's Place Library. Theoretically, this thesis engages with theories of digital divides (Murdoch 2001, Van Dijk & Hacker 2003), and an analysis of the class and wealth inequalities that manifest in digital access (Bourdieu 1986). This research shows how the Library institutes and supports community responsive programs to serve the increasing technology needs of rural Nova Scotians. The case study shows how the Library works to support community in response to need, with the result being clear evidence of the growing digital divide having negative impacts on the rural community of Antigonish, and community resistance to overcome these barriers emerging out of the public-service oriented Library ethos.

I shall begin in the next chapter of this thesis with a review of the literature which exists on the subject of libraries and the services that they provide. Chapter 3 shall contain my theoretical framework, which is based on concepts concerning aspects of the digital divide, and on forms of capital. In chapter 4, I shall explain my methodology for this research. Chapter 5 will contain my analysis of the data I collected, and in closing, chapter 6 will consist of my discussion and conclusion.

Chapter 2: Literature Review

This project aims to understand the interaction between the public service ethos of a public library and the needs of a rural community in dealing with the digital divide. Hence, this literature review will provide an overview of scholarly work that has been done on public libraries. First, I shall discuss anthropological and sociological work on the social role of public libraries. Following this, I shall examine the public library's role as a service provider for communities that experience barriers of access. Finally, I will briefly discuss the impact that these services have, particularly on marginalized, low-income populations. This review serves to position my own research in the literature on the function and importance of public libraries and service provides and public spaces.

2.1 Social Roles

The anthropological literature on public libraries and their relationship with the communities they exist in is a sparsely developed field (Khoo et al, 2012), with the research "...fragmented and published in a range of venues" (Khoo et al, 2012, 86). Ethnography is, however, the most dominant form of library research methods, making use of five main research tools, in descending order of prevalence out of the set of 81 examined by Khoo and their co-authors: observation, interviews, fieldwork, focus groups, and culture probes (Khoo et al, 2012, 84-5). Studies that examine the role of the public library in the social sphere discuss a large range of topics, from the socio-political life of the library (Audunson et al, 2019, Buschman 2020), to the way in which a library services its community (de Armas, 2019, Summers & Buchanan 2018).

The socio-political function of the public library derives from fundamental principles and history, as outlined by Buschman in “Education, the Public Sphere, and Neoliberalism: Libraries’ Contexts” (2020). Buschman argues that the library’s function is defined by its relation to three main contextualizing forces, or places of interaction: education, the public sphere, and neoliberalism (Buschman 2020, 154). The educational context of libraries serves both as their founding motivations in history, and with the growth of education, both private and public, came the growth of libraries, along the same private and public lines (Buschman 2020, 154-5). Libraries were founded, first and foremost, to support and enable the advancement of education, first of the private, wealthy class before being expanded to the public.

The open, barrier free nature of the library is a significant factor for the modern functions of the library, and for how it has become a major provider of access to services to which access would be restricted or otherwise unavailable (Jaeger & Bertot 2011, Martin 2016, Peyton 2018, Summers & Buchanan 2018, Zach 2011). This comes in a myriad of forms and is significant to my research on the subject of the role and function of the library, especially in considering the significance of the library as a public sphere space, and a space defined by various forms of capital, in examining how library services engage with these concepts functionally.

2.2 Service Access

The public library has become one of the main service providers for many services that have been impacted by modern barriers of access, especially in the movement to online infrastructure (Jaeger & Bertot 2011, 92). Jaeger and Bertot examine a number of factors centered on the internet based “e-government” (Jaeger & Bertot 2011, 92-3). This caused

significant barriers to come into existence, as access to government information and access to government services was moved online, beginning in the 1990s and continuing to expand to the present (Jaeger & Bertot 2011, 92), especially since this growth was not coupled with an equal increase in widespread internet access (Jaeger & Bertot 2011, 93). With this growing divide between the increase in online government services and the static state of widespread internet access, public libraries, which had the most extensive public internet infrastructure, became the only point of access to these services, and indeed, government agencies began to use this reality to offload a large array of government services, and access to those services, onto the internet. Public libraries were unexpectedly put in the position of filling this need (Jaeger & Bertot 2011, 93). Other forms of access to government information, communication, and services were cut away from physical spaces and from funding budgets, leaving the public library a critical access point for state services for those who could not afford private access to the internet (Jaeger & Bertot 2011, 93, 104).

Likewise, the public library's provision of accessible, trustworthy information makes it an important source of information services for its community, be it in individual access to information, or in instances of collective need (Zach 2011, 404). Libraries are spaces which provide free access to reliable information for the service of their communities, with source credibility (Zach 2011, 405), that makes services and information trusted by their communities and, by extension, able to shape people's responses and understandings of events, particularly in instances of crisis (Zach 2011, 406-7). While noted for their underutilization during emergencies, the public library plays a major role in informing the public and providing trustworthy information that has an impact on their communities (Zach 2011, 410-1).

2.3 Populations of Need

The library provides essential services and space to distinct sections of their communities in different ways, with youth relying heavily on the public library both academically and socially (Peyton 2018). The library provides both access to educational services which are at the disposal of individuals, (Peyton 2018, 2), and this impact is felt most keenly by individuals, especially youths, from low-income households. Libraries likewise provide an essential service in the realm of digital equity, in a context in which not only important communications media, but also educational tools, are not available to those of low-income households (Martin 2016 34-5).

This is especially significant for groups, particularly those of low-income, and disproportionately racialized, backgrounds which are underserved or “left behind” by the education system (Peyton 2018, 3-4). This reality of disengagement expands not only to educational and wealth divides, but also to cultural ones (Summers & Buchanan 2018, 287). Cultural capital, and the social connections inherent to that concept, can be accessed by those who do not have the wealth status by fostering connections and cultural engagement through the public library, a service essential to the library’s functionality within a community (Summers & Buchanan 2018, 289-90). The cultural role of the public library creates accessibility and engagement with culture for those who utilize its services, and the principles of accessibility and publicness are essential to that role and define the public library’s cultural function (Summers & Buchanan 2018, 292-3). This analysis of how the public library engages with cultural capital is extremely relevant to my research and informs how the library engages with other forms of capital in similar ways.

My research builds on the existing, if limited, anthropological literature that examines the role of public libraries in their communities, and how public libraries have become the primary providers of necessary services. I will do this through a case study examination of the Antigonish Library, and the services it provides to a community with high levels of inequality and limited access to services for that portion of its population. The research will examine how digital divides affect the Antigonish community and the services which the Library provides in response. I am investigating both how digital divides manifest in a rural community with high inequality, the Library's model for providing necessary services, and the effectiveness of the services the Library provides for overcoming digital divides.

Chapter 3: Theoretical Framework

My research is framed using a theoretical perspective based on the work of Pierre Bourdieu (1986) and concepts derived from Graham Murdoch (2001) and Van Dijk & Hacker (2003). Bourdieu's work addresses the systems and forms of power and capital, while the latter scholars examine and construct the concept of the digital divide. Specifically, I will use the concepts of the digital divide to analyse public technology use and reliance within the Library, and on the levels and forms of barriers in technology access and use with Murdoch (2001) and Van Dijk & Hacker (2003). I am using Bourdieu's (1986) theory on the three forms of capital to render these divides in socioeconomic terms, overlaying digital divides on larger social and economic inequality divides.

3.1 Bourdieu: Three Forms of Capital

From Bourdieu, the concepts of the three forms of capital, social capital, economic capital, and cultural capital, will be central concepts to understanding the library space in the context of both economic and social disenfranchisement. Economic capital is the more typical understanding of material capital, that is, money, or in the institutionalized form as property rights (Bourdieu 1986, 243). Cultural capital is a more complex field, and is composed of three primary components which represent the cultural capital of an individual: institutionalized, embodied, and objectified (Bourdieu 1986, 243).

Institutionalized cultural capital relates directly to education, and specialized knowledge, with Bourdieu's specific application of this particular component of cultural capital as it related to academic achievement differences between different social classes and class fractions

(Bourdieu 1986, 243). While institutional cultural capital is reflected in such things as the investment, and ability to invest, in public education, it also analyzes the “...domestic transmission of cultural capital” (Bourdieu 1986, 244). It is, fundamentally, education, the domestic investment in that education, and the benefits granted by that education. The second component, embodied cultural capital, refers to the embodiment of cultural capital in personality, speech, and skills (Bourdieu 1986, 244). Bourdieu argues that material, external wealth is converted into an integral part of an individual, and can be understood as a form of capital due to the time and effort that must be invested to instill forms of embodiment (Bourdieu 1986, 244-5). The third component of cultural capital is objectified capital, which refers to material goods of cultural value (Bourdieu 1986, 246-7). Specifically, objectified cultural capital refers less to the economic value of the object, although that is the root of the cultural capital, and more to the cultural worth. This does depend, of course, on having the economic means to consume or make use of cultural objects such as writing, paintings, instruments or machines (Bourdieu 1986, 246-7).

From this discussion of capital, we move to a discussion of access and inequality. The digital divide, as reviewed by Murdoch (2001), is the gap in access and computer literacy of different groups of people, with a fundamental basis in class and social background. The digital divide has had varying definitions, and been assessed at varying levels of severity, from a non-existent social issue that has been eliminated through market solutions to a critical issue of public equity and access that disproportionately impacts lower socioeconomic classes (Murdoch 2001, 386-7). Murdoch’s view is that the digital divide does exist and does so in degrees of marginality (Murdoch 2001, 387).

3.2 Murdoch: Degrees of Marginality

These degrees of marginality Murdoch describes add nuance to blunt assessments of the digital divide as a “dichotomous, have/have-not distinction” (Murdoch 2001, 387), and instead assert the existence of “shades of information and telecommunications inequalities” (Murdoch 2001, 387). These shades of inequality deal specifically with two core functions, access, and ability, described in four rings, the center being those individuals that have “...always-on Net access at home (and at work) and enjoy access to advice and support that enables them to operate more effectively and to continually extend their range of uses” (Murdoch 2001, 387). These are individuals who not only own technology, and the required infrastructure to use it integrated into their lives, both at home and at work. Internet access is completely open to individuals in this category, and these individuals also have the skills and resources to use this technology competently.

The second ring identifies those “...who have access at home but are limited by ageing equipment and connections and lack of ready support” (Murdoch 2001, 387-8). Third, there are those whose “...only access is through terminals in public locations or at work, where their use is heavily constrained by the demands of other users and by workplace surveillance” (Murdoch 2001, 388). Finally, the fourth and outer ring is inhabited by “...those who have either never used the Internet or have used it only occasionally and then only outside the home” (Murdoch 2001, 388).

Murdoch’s (2001) degrees of marginality offer an analytical tool to describe and classify material access to technology, a description that works with the theory of material capital to create a nuanced description of the digital divide. This results in a more detailed description of

the material access (van Dijk & Hacker 2003, 315) that integrates material wealth analysis in terms beyond a strictly have – have not conceptualization.

3.3 Van Dijk & Hacker: Levels of Access

These four distinctions are important to this research because it allows for a complex understanding of the impacts of different levels of access have on usage and the individuals themselves who use library technology services out of convenience, or if that use is out of obligation. While Murdoch effectively reviews the levels of digital access, van Dijk and Hacker outline the barriers of access that people experience in their analysis of digital divides (van Dijk & Hacker 2003, 315-6). These four barriers of access are meant to encompass the different ways in which the digital divide may manifest broadly, to account for the subtleties of individual situations, and are as follows: mental access, material access, skills access, and usage access divides (van Dijk & Hacker 2003, 315-6).

Mental access is defined as the “Lack of elementary digital experience caused by lack of interest, computer anxiety, and unattractiveness of the new technology” (van Dijk & Hacker 2003, 315). This form of access barrier describes those who may have the means to use technology but refuse to. The second barrier, the material barrier, is the original, singular barrier originally defined as the digital divide, that is, “No possession of computers and network connections” (van Dijk & Hacker 2003, 315). Skills access barriers, the third type, is defined as the “Lack of digital skills caused by insufficient user friendliness and inadequate education or social support” (van Dijk & Hacker 2003, 316). Last, the use barrier is defined as the “Lack of significant usage opportunities” (van Dijk & Hacker 2003, 316).

The digital divide will form an important theoretical concept from which to work on how and why library technology services are interacted with by library users. I believe that an analysis of how the digital divide manifests itself in Antigonish Town and County, and how users rely upon and make use of library technology services, mixed with a socioeconomic understanding of technology and digital access and interaction grounded in Bourdieu's threefold capital theory will allow me to gain an accurate and complex picture of digital usership in the People's Place Library, with ethnography allowing for an analysis of what that access means to library users.

Central to this research will be an analysis of inequality in a rural Nova Scotian town using a Bourdieu inspired political economy perspective. The field of research into public libraries lacks an exclusive theory of its own, and tends towards generalized theories on economic and social inequality, most commonly informed by Marxist and Bourdieusian (1986) concepts of class, capital, and social inequality. These concepts will be essential to analyzing one area of this research, that of social inequality and the practical services of the library. I will make use of two digital divides descriptions in tandem, Murdoch (2001), in order to describe the material access gap that is described by the digital divide, and Van Dijk & Hacker (2003), to describe digital divides in the nuanced terms of access and usage ability.

Chapter 4: Methodology

My research examines public library technology and the people who make use of it, and therefore my research needed to explore information regarding Library services, the population of Antigonish, and how the two interact. I chose to complete this investigation using five sources of information: document review, fieldwork, semi-structured interviews, surveys, and autoethnographic experience. This approach allowed me to understand how the library functioned, how people used technology at the Library, and to users' relationship to technology services at the library.

I had access to the Library as an employee for a four year period, including the research period, since the summer of 2017. This relationship impacted the reach of my research, with both time span and connections. As a permanent employee, I gained a wealth of practical experience to call upon for autoethnographic analysis. My own experience covered Library functions from collection work, with the Library's collection, as well as technology work, in training, support assistance, and the management of a summer technology access programs for children, which informed my interest in this research.

In addition, the connections made during my employment assisted in getting access to research. Interview subjects were already familiar with me, as either a co-worker or as a Library worker, and this created greater opportunities for research. Co-workers and patrons were more comfortable with providing information, and the pre-existing experience that I possessed allowed for greater insight in staff discussions and patron experiences. My status as an employee also allowed for access to assistance from the Library workers in conducting this research.

4.1 Document Review

My first source of information was publicly available documents and information from the Nova Scotia government. These documents were used to help me understand the community of Antigonish, inequality, and population qualities. I analysed census information to gather information about the population of Antigonish, gathering information on wealth inequality, population density, and population age. This helps to contextualize Antigonish, and people's reliance on the Library for access to technology services due to the inequality present in Antigonish.

Documents from the Library provided information on how the Library has structured its policies on technology services and the services offered, and their importance to Library priorities. Documents were also provided by the Library on patron experiences of the Library, and on their technology use, which were collected by the Library as part of their reopening survey, a set of online surveys that were used to assess what services people used the Library for and what was most missed during the period of closure to the public. These documents were drawn upon to supplement my own data collection. I was given access to both the raw data and to the report on the data that the Library created. These documents produced by the Library are not publicly available.

4.2 Fieldwork

This research employed participant observation after the Library's reopening to the public on June 15th, 2020 after the all public libraries in the region had closed in March of that year due to COVID-19. This participant observation consisted of observation of the Library space across multiple weeks, wherein hourly notes recorded different categories of Library use,

based on the services provided by the Library. The use of Library provided public computers, private computers in study spaces, printing service usage, scanning service usage, technology assistance requests, and technology training session bookings, were recorded during observation of the library, to build a profile of how the Library is currently being used in the context of the COVID-19 pandemic. Not counted was the usage of personal cell phones into these assessments, as the ubiquity of these devices, as well as the necessity of social distancing, made getting any accurate assessments of handheld devices impossible.

This field work was undertaken in order to gain to access how the Library is being used currently in the context of the COVID-19 pandemic. The Library maintains records of its technology use, but due to the high volume of use and responsibility of library workers, use of public technology goes unrecorded, and use of private technology that is supported by Library infrastructure is not monitored directly. As this research is occurring in the context of a pandemic, certain Library services are limited or not available; the number of public access computer terminals was reduced for social distancing purposes, and the borrowing of Library laptops for study was suspended. This impacts the data that has been collected on Library use, which is below its usual level of activity, but also provides insight into users who are reliant on, or who elect to use, Library technology. Also impacted was the locational scope of the research, which centered on the Library. The Library also supports satellite digital access through Community Technology Access Sites, CTA sites, formerly the CAP sites. I was unable to visit these, but gathered information and accounts of those sites from staff members involved with them.

4.3 Survey

Surveys were employed in order to deal with the impacts of the COVID-19 pandemic and subsequent lockdowns and social distancing measures. The function of the surveys was to ask quantitative and qualitative questions and receive answers that would speak both to the level of technology access and skill of users, as well as to user perceptions and views on technology and their interaction with it. The survey method was employed as it allowed for responses to be filled out while maintaining social distancing, and were carried out in two methods: online and paper. The digital survey was created online and posted by the Library to its public Facebook page, where the Library advertises its activities and events. This allowed patrons to fill out surveys without having to come to the library, making it accessible to people who could not enter the library in person. The limitation of this was the inaccessibility of the survey to those who relied upon the Library for internet access, and so to deal with this, paper surveys were also printed and distributed from the Library by staff members in order to cover the widest possible user base. In total, 9 of my own online surveys were collected, and 9 hard copy surveys were collected. In addition, the Library provided access to the data collected from online surveys which had been conducted, which provided 222 responses, the results of which I was given access to.

4.4 Interviews

I made use of semi-structured interviews with Library staff and patrons to assess attitudes. These interviews were the primary research method used to engage with staff members, and focused on their experience working with Library technology services, and their

experience assisting patrons with the provision and use of technology. Audio recorded interviews were taken with staff members who had or were currently fulfilling technology related roles with the Library, including technology training, access coordination, and the creation and provision of technology related services. The key foci of these interviews was on the implementation and reception of Library technology services. I selected key informants based on their knowledge and experience with providing and managing Library technology services. Once I had identified individuals, both staff and patron, I directly approached them, explained my research, and verbally asked whether they would like to participate in an interview. Following this, I provided each participant with an “Invitation to Participate” (Appendix I). Interviews were scheduled based on availability of participants and all interviews occurred at the Library. Before each interview, I verbally explained again my research project and the “Invitation to Participate” and “Consent Form” (Appendix II) following which all participants signed these documents. All but one participant consented to the recording of the audio of the interview. I also took notes in my analytical journal.

Staff members were interviewed with respect to their experience of the services that Library offered, how these services worked, and their experiences in using and managing this technology. Patrons were interviewed about their own technology use and experience, both with personal technology and Library technology. Five interviews of half an hour each were completed to inform this research. Interviews were based on the questions taken from the surveys (Appendix III), that I used to direct conversations, with the addition of several special conversation questions for staff members. However, no interview covered all of the questions and all conversations moved beyond these questions, and tended to focus on the specific experience of both staff and patrons. These interviews were not transcribed in their entirety, and

pseudonyms were used for staff and patrons, and job titles not noted beyond an identification of staff or Library user. The original recordings of the interviews and the key identifying pseudonyms to participants are kept in a locked computer file that only I, the primary researcher, have access to. These practices to maintain confidentiality of participants are essential to ensuring this research was performed as ethically as possible, and that it meets the parameters outlined in my Research Ethics Board application.

4.5 Autoethnography

Finally, my own autoethnographic experience is included in this research for contextualization and anecdotally. My years of experience serving the Public at the Library, which included many technology based services, and providing the technology services that the Library offers to the public, allow me to speak to both the needs of the public, the application of technology services and infrastructure, and the effectiveness of the provision of these services, and how they are used by the public.

Chapter 5: Analysis

Ten years ago if you didn't have a phone in your pocket you could still largely function in your life. Now it's really hard for you to carry on your social, professional, academic life (Paula).

In Chapters 1 and 3 of this thesis, I outlined the framework through which I would analyze the information I gathered during my research. While reviewing the interviews and surveys I completed with staff and patrons and during my document review, I focused on answering the questions of "How does the public library serve as an institution to help overcome digital divides, and are these methods and programs effective and valuable to users?" It is a priority goal of the Library to overcome digital divides through Library services (Katherine), and so in taking the premise that the Library is working to overcome digital divides, its methods and effectiveness become questions of concern. In answering this question, I broke down the responses I received across the four forms of the digital divide, taken from Murdoch (2001) and Van Dijk & Hacker (2003). The four ringed structure of material digital divides, taken from Murdoch (2003), spans the different forms of material access. This shall replace the material access divide analysis laid out by Van Dijk & Hacker's (2003) four field approach of material, skills, mental, and usage access, given the limited nuance that Van Dijk & Hacker give to the forms of material access divides. For each of these four kinds of divides, one drawn from Murdoch and three from Van Dijk & Hacker, I analyzed the data gather from staff and patrons in the context of this four-fold divide model.

This chapter will outline my findings, grouped by four types of divide, and then further divided into discrete subgroups of two: what the library does in response to that divide, and how that service is used by the public and whether or not it is found to be effective. Section 5.1 will explore the services provided by the Library in order to overcome material access divides and

how this service is used by patrons, and whether it is effective at overcoming the divides that Murdoch (2001) outlines. Section 5.2 will consider if the Library's technology training program assists users in overcoming skills access barriers. This section will analyze first how the service operates, and second how the service is responded to by users. Section 5.3 will review data on the Library's technology infrastructure and integration, and whether this has an impact on assisting users in overcoming mental access barriers. This section shall draw most heavily on participant observation and autoethnographic experience. Section 5.4 shall explore data on the Library's CTA sites and whether these allow for users to overcome usage access divides through making sites with technology, help, and infrastructure accessible. Finally, section 5.5 shall explore the class and capital analysis of Bourdieu on the conclusions from the data analyzed in each proceeding section. I will note also the effectiveness of each form of divide distinct from each other, and in particular whether the Library is successful at overcoming these divides for users, and the effectiveness of the divides as analytical concepts. Section 5.1 then uses Murdoch's (2001) material access divides system, while sections 5.2, 5.3, and 5.4 use Van Dijk & Hacker's (2003) model.

5.1 Material Access

This section examines the ways in which the material access divide affects people in the Antigonish region, the Libraries services that exist to overcome this divide, and the experience of individuals who make use of it. This will be broken down across Murdoch's "degrees of marginality" (Murdoch 2001, 387). Drawing upon the accounts of both users and Library staff, as well as my own experience, I shall examine here what is the most visible of the digital divides, which serves as an introduction to the other forms of digital divides in sections 5.2 – 5.4 which are built upon the core of material access.

Material access, as outlined by Murdoch (2001, 387-8), comes in four degrees of marginality, which can be envisioned as concentric rings of digital access. The further one moves from the core, the more one is understood as being marginalized in terms of having more limited digital access (Murdoch 2001, 387). The first of these rings is the centermost one, in which there are those who have "always on net access" (Murdoch 2001, 387), and which are a population one is least likely to see making use of Library services. Throughout my interviews, I did not encounter individuals who spoke of the importance of material access divides in ways that implied this highest standard of technological access. It is here that emerges the class links that are implicit in discussion of digital divides, particularly the material divides: individuals who have the luxury of integrated technology access at home and at work do not typically need to rely upon publicly accessible technology.

Where the Library does serve the technological needs of those who have few material barriers is in other technologies beyond computers and mobile devices. The Library provides a variety of technological services to meet the requests that are most frequently made: printing and faxing services, as well as a variety of technology equipment that may be called upon, from

laptops, various technology accessories such as chargers, adapters, receivers, cables; all things that a Library user may happen to need. At the center of the Library technology accessibility is publicly available computers, which stand free for use to any visitor, and are fully hooked up to the internet and printing services, to be used at patron convenience. It is this material technology that makes up the bulk of what the Library provides to suit the needs of users.

The most prevalent of these, in my experience, has been services such as faxing, scanning, and photocopying. Dozens of individual printing and photocopying requests are fulfilled each day at the Library, as while the home computer has expanded in use, the home photocopier does not seem to be a piece of technology that is made use of, due to the sheer impracticality, I think, of having the large and expensive photocopier machine for private use. As this is one of the essential services of the Library, and one of the most popular, it is essential to note that this is one of the few services at the Library that require payment in order to assist in covering the cost of running the service. Similarly for the faxing service, payment is required in proportion to the cost it incurs on the Library to maintain the service. This is a fact that does not turn users away, however, and the common refrain from users is that the Library is the cheapest, most accessible provider of this service in the area.

Technology services at the Library are of high general use, regardless of the format. Of those who took part in both mine and the Library's digital surveys, 231 individuals in total, the vast majority reported using the technology services at the Library. Only 23.8% of respondents reported that they used none of the technology services at the Library, a number which was occasionally contradicted by indications of the use of services that were counted as technology by the survey, and so even this number can be assumed to be slightly exaggerated. This number was similarly reflected in the physical surveys that were distributed from the Library to users,

which reported that the vast majority of Library users engaged with technology at some level at the Library. From this high use of services, I now move the ways in which the other degrees of marginality affect the Antigoniash community.

The second degree of marginality describes those who are in possession of technology, but that technology is limited, typically it is older or and less up to date and is not readily replaceable by the user. In this degree of marginality, we find many Library users, who are in possession of some devices of varying quality and in a greater degree of need than those of the first ring. My survey data shows that the vast majority of individuals had at least a mobile phone, with lower expense computers such as laptops following after that in popularity. There are few individuals I have seen at the Library who were not in possession of a phone, and this was limited to a very small group of elderly patrons, as well as those experiencing exceptional circumstances, such as homelessness.

For these users, Library technology stands as an extremely useful back up to their own technology, as well as often being necessary to complete certain tasks. This is in no small part due to the variety of personal technology that people possess. Some, for instance, face problems with connecting a personal smart phone to the printer, whilst others may struggle in moving files from older flip-phones which may still serve as the user's only device, or for those who have come to move documents to printing from a thumb drive, or to then need to fax or scan the documents they print. The age of technology, the range of devices and the incompatibilities across type make engaging fully with digital possibilities challenging for some users.

Included in this effect as well is the accessibility of Library technology. Users may make use of Library technology at their convenience (within the Library's opening hours), and the availability of the different devices makes it easier for users to engage with. Many of these

usages of technology are one off events and can be driven by circumstance. I myself have relied on Library technology, and many users who use the Library's publicly accessible technology seek either quick access, printing, or to accomplish online what they are unable to do from a phone if they are without a computer, as much of the digital architecture of the internet is designed for computer use, not smartphone use.

In the third ring of marginality outward, there are those who have online access only through publicly available internet or through their workplace (Murdoch 2001, 387). The Library's services suit well the needs of this population, and likewise, there are many individual patrons who use Library technology as their primary access to internet. One such user, Julia, described to me how the Library has become an essential part of her daily life as her primary internet service provider:

I have used the computers (at the Library) and the internet ever since they came. And I use them...usually every day. I use them all the time.

In describing her use of technology to me, Julia talked about why she needed to make the Library her primary provider of internet services. It has become an essential thing, and for her, the only possible way of engaging digitally, due to her status. Julia is a retiree, and the limited pension that she draws upon does not allow her to own her own internet service, as she described when I enquired on her home internet access:

I have it if I pay for it, and it's just too expensive. I have a laptop at home, a very old, very heavy one. When I let people see it, they go "that's your laptop?" sometimes, if I think I'm going to be here a long time, I'll take it with me [to the Library], but I don't use the internet anywhere else.

The common sentiment I got from informants was often summed up in the idea of "where else is there?" when I asked why they came to the Library for technology access. Given the great

expense in internet fees that were described to me, many choose to either use Library technology or make use of their own technology using the support infrastructure of the Library.

Additionally, while there are many places that now have internet service in public, these locations are not accessible to public access dependant individuals. The issues of loitering, or of paying for use at a café, do not exist at the Library, and for users, it could scarcely be imagined otherwise:

I can't imagine that, not being able to come (to the Library) and use the computer. I think these things are very needed (Julia).

And accompanying each statement on the necessity of the publicly accessible computers at the Library is a story of how they have relied on Library computers, for a variety of services.

Indeed, there are countless instances of one-off users who are rely on the Library for a particular technological goal. It is in these two rings of marginality that I would place those individuals who rely on the Library for some of their most important needs. A consistent group make use of the Library for essential services that must be accessed digitally, most notably government forms. In my own experience, the immigrant population of Antigonish in particular comes to the Library for VISA renewals and other immigration services. In my conversations with other staff members, helping to serve this population required staff to learn how to use these services themselves, but with it came the revelation of the reliance that people had on Library technology to serve these basic needs (Paula). It has been the experience of numerous staff members, including myself, that there is a disparity in the ability to access essential government services, and stories of people who had been turned away, refused help, or directed towards one of the libraries in the system, are common (Paula; Allison) and these were stories that I myself became familiar with. This was also a fact reported to me by my informants especially with the

closure of some government offices that have correlated to a downgrading of services in the experience of users (Julia), and the digitization of services.

Where a service is necessary, for immigration, to access unemployment benefits, to make a vaccine appointment, or simply to do one's job, access to that service also becomes necessary. The movement of essential tools to digital formats affects people's lives directly, and there are countless cases of this in the experience of staff and in the testimony of users. From here we are led out to Murdoch's fourth and most extraneous ring, the margin of digital access in which are those who have never used the internet, or use it rarely, and only in public spaces (Murdoch 2001, 338). For these individuals I can speak little for, as they would not, by definition, be frequent Library users, but I believe that this description does speak to a population of elderly, rural individuals at this margin who have forgone technology due to difficulty and expense, and are subsequently marginalized. For these individuals of such limited access, where they do come to the Library due to a technological need, they are often inclined to allow, or require, Library staff to assist them in accomplishing most of their tasks. I shall speak more of this in sections 5.2 and 5.3, where mental and skills access is discussed, and of technologically marginalized rural populations beyond the Library's typical scope, I shall discuss in section 5.4 on usage access barriers.

Material access divides exist as the foundation for other divides of access and are the first divide that must be overcome before other divides can be bridged. The reasons for lack of access are complex, and the ways in which they impact people even more so, but a few core facts have emerged through my research. The first is that material divides are present, and a severe issue in the Antigonish region, with its high levels of inequality, showing a population that is across the spectrum of degrees of marginality. One can understand these boundaries as being somewhat

fluid: a new device may be used to replace an old one, or internet access may be provided for a time (Julia), but this does not solve the issue. The basis for this inequality rests in socioeconomic class, and the ability to not only get access, but to maintain it; devices age rapidly, the cost of digital tools and internet access increases, and all the while more of the world moves online.

This brings me to my second fact, that these divides have a severe impact on people. Where people are unable to engage with the online world, or the tools of technology, they are marginalized. This marginalization takes many forms even within the discrete category of material access, whether one is restricted by aging or particular technology, an inability to afford access, or restricted due to the constraint of distance in a rural community. I can recall a time in which an entire crew of construction workers had walked in off the job site, seeking a place in which they could all take the WHMIS (Workplace Hazardous Materials Information System) online test, with the Library being the only option, as it was the only location in which the desktop computers necessary to use the test, Further, the aged nature of the test, which like much online software was old poorly maintained, and not user friendly, left them needing assistance in using the program. Any staff member can recall many occasions where users have swept in in desperate straits, trying to apply for a visa extension, photocopies of government documents, or needing to fill out forms without the costly tools in order to do so. The pandemic has largely brought an end to children delivered by their parents to do school projects that required them to create PowerPoints, because the local school board provided laptops to every student. This does not, however, bridge other digital divides but instead serves to highlight how essential consistent material access over time has become for all age groups, for all areas of life, be they academic, professional, public, or social. This is addressed further in sections 5.2 to 5.4.

Here, we also see the material divides that exist within the online world, beyond those that exist in trying to access it. What these stories bring forth is the fact that the material divide is complex, and there is no singular solution to bridge the many barriers that make up this divide. The complexity of other wider categories of digital divides will be covered in later sections, and all will intersect with, on some level, this material access barrier. How the Library works to overcome this barrier then is foundational to its work in overcoming other digital divides. The provision of as many necessary technologies as possible forms the backbone of the Library's technology services and remains the most widely accessed by the public. This has been maintained even in the context of COVID-19 restrictions, where the number of publicly accessible computers was reduced from over two dozen to seven. I can predict public demand will cause more computers to be among the first things restored with the lifting of social distancing restrictions.

While it is true that the simple availability of technology at the Library engenders use, it is also true, as I have shown, that that use is also driven by a need to engage with a digitizing world. Where these services are not provided, people suffer in silence, unable to access the services to even express need, limiting their professional, academic, and social ability where they are unable to have access to both technology and the services required to make that technology functional, at costs already high due to the rurality of this region. As we have looked at the inequalities that build upon the material access divides, I shall now move to examine further divides that follow from material access inequalities, to explore the full scope of the digital divide.

5.2 Skills Access

Some of it is using a device for the first time, but it is also becoming more comfortable with devices and what you can do with them (interview with Allison).

Skills access divides refer to the lack of digital skills, and the changing state of technology. As defined by Van Dijk and Hacker, the “Lack of digital skills [is] caused by insufficient userfriendliness and inadequate education or social support (“skills access”)” (2003, 316). This section considers the services that the Library provides that are oriented to providing digital access and overcoming this digital divide, through two main venues: through on demand training and through special training sessions. To this end, I will examine Library services that are aimed at assisting learning to use the computer itself, as well as education to navigate and manage different software, programs, and websites. The basis for this section is my own experience providing the former and discussion with the Antigonish Library Technology Intern (Allison). Following this, I will conclude by discussing the impacts that this training has had on users and their responses to it.

Technology training at the Library takes many different forms, from the immediate and specific to the longer, skill building process. The Library offers an abundance of opportunities for user access, beginning with the front desk. Library patrons will frequently approach the front desk for assistance with technology. A patron usually begins with a question about how to use or access a particular technological device or function. Whenever possible, library personnel provide immediate help to such demands. In my experience, there are three areas in which requests for help will generally be made: users (1) most often request assistance with the technology the Library provides, but (2) there are also frequent questions about how to use their

own digital devices and (3) online platforms and software. These three most common demands for support indicate skill barriers among the Library users.

The first of these three is the most common forms of skills access, and is required by users frequently when making use of Library provided technology. Many of these users have at least some familiarity with technology, and may own one computer at home (Closure Impact Survey [Responses]), but most who request help indicate they have limited knowledge of technology outside of what they are already familiar with. Problems arise for patrons because the operating system at the Library is not what they are used to, whether due to unfamiliarity with the operating system they must use, or because of different generations of the software. Technology assistance given in this way takes its most common form as questions relating to an unfamiliarity with how these particular computers work, where to click to get where they want to go, or how to operate the photocopier to fulfill printing needs. Printers in particular were a service loss during the COVID-19 pandemic closure that was emphasized by users (Closure Impact Survey [Responses], Library Technology Survey), indicating that many users did not have this service at home. This form of assistance can be provided most quickly, often with a simple direction as to where to click, in what order, to resolve the issue. Staying with the user, to assist them repeatedly in the process, is often effective in teaching the user, at least for the extent of that visit, how to use a particular device.

The second type of demand relates to patrons who require assistance with their own devices. These are usually mobile, but occasionally a patron will request assistance with laptop computers. Finally, patrons may request assistance with the types of services that they can utilize a computer for. While a user may be unfamiliar with the technology the Library provides, as opposed to the technology with which they are more familiar outside of the Library, they are

likely to know how to use Library technology when it is at a recognizable “place.” For example, patrons have requested assistance in “getting to” certain digital platforms, such as Facebook, which they can use effectively, once they have been shown how to make use of the Library technology. For users that struggle with this, the latter two technology needs, using personal devices and gaining ability in using programs and online websites, are generally dealt with by specialized appointments with the Technology Trainer.

In my interview with her, Technology Trainer Allison explained her role and the services she provided as well as the variety of work that is encompassed by her position:

A lot of my job is running one-on-one tech training appointments, so patrons can come in with their personal devices like cellphones, laptops, iPads and other kinds of tablets, as well as cameras and GPS, and I just do one-on-one training with them to help them get over whatever technological issues they’re having (Allison).

This makes up the primary services that the Technology Trainer provides, and much of their schedule is dominated by these requests for particular assistance. It is the common practice of the front desk that, when a technology assistance request exceeds what the Library worker feels that they could reasonably accomplish in a timely fashion, or have the skill to do themselves, they make an appointment with the Technology Trainer. As of the reopening to the public during the COVID-19 Pandemic, and the restarting of training sessions, 136 appointments had been booked, averaging 22 one-hour appointments a month.

Sessions may focus on the usage of a particular technology, such as how to do a particular task, but frequently extend beyond that, to instances where a user is entirely new to a device and does not know how to use it, or what it can be used for. However, any technology issue or request of Library workers which they judge to be outside their current capacity, in either skill or available time, may be referred to the Technology Trainer. Examples include being

unable to get logged into their email and social media accounts, creating these accounts for the first time, as of the beginning of the COVID-19 pandemic training on Zoom and other video call programs, as well as a rise in social media use (interview with Allison).

Some of the services with the most impact, however, are repeated appointments in order to improve a user's accessibility to the device or to required services. It was described to me how, in one instance, an elderly patron was making repeated appointments for assistance in order to learn how to use an iPad, but also to create accessible functions, for them to overcome their visual impairments (Allison). Accessibility is also a major service rendered in other terms; assistance with private information technology, such as banking, is restricted from technology training appointments. This is due to the fact that customer service through government and banking institutions is "sometimes not up to par, and are not willing to walk people through how to use (their services)" (Allison). As a result, the Technology Trainer creates guides for the patron to follow after researching the workings of a banking app or government service (Allison).

Another example of this is résumé creation, as Allison states:

I've helped a few people with résumés, and I actually have a couple of basic résumé templates right now. I have one for (individuals who) haven't graduated high school, for (individuals who are) currently in university, and I have one for (individuals who) are high school graduate and for university graduates... you can't use the same résumé template for everyone, especially if it's someone who's just getting back up on their feet and doesn't have a whole lot of work experience (Allison).

Accessibility services such as these, where one-on-one technology training is provided in order to offer more effective education, or the preparation of materials to accommodate common needs, were created as a product of the requests that were made of the Library's technology training services. It is not possible, in the current world, to handwrite a résumé, or easily learn to make use of technology without already having some technological skill. A perusal of the

Library's stacks reveals books on the subject to assist the new user, each year with a new addition, and each addition introducing new and changing jargon. Where this assistance has the most impact for patrons is in the technology training that the Library provides, whether on the Library equipment, the user's own device or with the software.

Here I speak to the first, immediate help requests, in my own experience. Over time, I have watched as patrons grew in their knowledge of a particular service that they made use of, such that they developed the skill for using this technology, and rarely required assistance. I have had this experience with one user, Frank, who required repeated assistance with printing services, at one point being entirely incapable of using printing services, or of understanding direction in reference to what was required. Over time, with consistent, patient support, this patron was able to overcome these issues, and utilize printing services themselves without assistance.

Conversely, providing immediate assistance does not necessarily mean that training and learning have occurred, but nevertheless a significant service is rendered. One of the most common immediate assistance needs is access to government forms, visa renewals with the Canadian Federal Government being most common. Accessing these documents is a complicated process requiring particular knowledge of the system that was a particular learning curve for even experienced staff as it was for the user, who more often than not, we would not see return. While the skill barrier was not overcome through education, the needs of users are met through the immediate assistance from the skills the Library provides, and maintains, among its staff; recently Library staff were provided with a list of basic technology skills which were frequently requested, and were asked to indicate any task the worker was not comfortable with, to receive training to better help the public.

Similarly with the technology training, the popularity of the service, as well as the users who return regularly, are proof that this is helpful and helps to bridge the divides that they experience. These skill divides exist along lines of both socioeconomic class, and age. Individuals who have never had to make résumés are not typically youth (under 20), and have less experience with using technology. Seniors, who make up the bulk of technology assistance requests, experience the skill divide more broadly, ranging from those with less economic security, to those of a comparatively higher socioeconomic class (Christina; Francis). I will return to this discussion will in section 5.5, on the subject of a class analysis, where I shall examine how individuals with differing wealth in material capital may still experience divides related to other forms of capital. Section 5.3 will next explore Library infrastructure, in its close association with immediate assistance, to analyse the Library's engagement with the mental access barrier.

5.3 Mental Access

Mental access barriers are at the same time one of the more nuanced forms of barriers, while also being the least examined form in which technology barriers can manifest and are largely neglected in research (Van Dijk & Hacker 2003, 316). There is, consequently, very little data to call upon for contextualization of this form of access barrier, which is defined as “Lack of elementary digital experience caused by lack of interest, computer anxiety, and unattractiveness of the new technology (“mental access”)” (Van Dijk & Hacker 2003, 315). This access barrier finds its origins then in the lack of experience with digital technologies, which has an impact on one’s ability to make use of that technology when presented with it, or, when using technology is necessitated. This makes mental access akin in many ways to skills access (Van Dijk & Hacker 2003, 316), however there are some distinct, if particular, differences.

Mental access is best understood as the state of mind and attitude towards technology, a barrier which impacts the user not just in technical skills ability, but in preventing one from gaining skills in technology. It is the barrier that exists in the mind of the user which resists attempts to develop that skill set, and can actively degrade elementary technology ability, which keeps individuals from developing past the practical application barriers seen in the analysis of the skills access divide. Mental access barriers prove the largest hurdle in overcoming skills access, and while it may be ignored in comparison to the other divides, it is an essential point of understanding in order for improvements to be implemented in the systems of teaching skills access, and for dependant technology use.

The mental access barrier is best understood through long term interactions with persons who struggle with this barrier, proving it difficult to study in a way distinct from skills access, but for which this research is well suited to speak to. It has been my experience that the mental

access barrier not only prevents the gaining of skills which would help to overcome it, but can also actively degrade foundational technology skills as they are being developed by the user. The first point is best illustrated through accounts of one off interactions with patrons at the Library, for both those using public technology. One off visits best reveal the first of these two examples, as one of the most common technology assistance questions involves people asking how to do a task or process on a computer. In response to explanation and guidance, there are generally two reactions which I can speak to: the first is engagement, wherein the user takes in the guidance shown and attempts to implement it to the best of their abilities. This is most common with those who already have at least elementary technological skills, who prove the most responsive to simple instructions, but also with those who may have very little technology skills, and very little to no experience in the task that they are attesting to use the computer for. The latter may require extremely basic instruction, such as asking them to see certain areas of the screen, or move the mouse in a certain direction rather than naming icons and functions, but they are nonetheless receptive.

The second reaction is to close off, or to shut down, refusing completely to engage with guidance or instruction. This response is common both to those who have basic technology ability, and to those with no technological experience whatsoever, although in my experience, those with negligible or non-existent technological experience tend to show the shutting down response. For these individuals, there is an outright refusal to either engage with the technology, or to use a known piece of technology for anything beyond an extremely basic function. Basic function familiarity may include knowing how to use one simple program for one simple purpose, or being able to use a mobile phone to make calls, but being incapable of using the device's functions beyond that, such as accessing voicemail.

These individuals' refusal to engage and be receptive to technology seems, on its surface, nonsensical: they limit themselves, especially when they are attempting to complete some necessary computer based task or goal which they have come to the Library to accomplish, from being able to accomplish their goal. Further, they would seem to ensure that they retain their dependency on others to accomplish technology tasks. It is not uncommon in these cases, where the Library staff worker attempts to take the basic explanation approach, that the user begins to lash out emotionally, intentionally taking random, incorrect actions on the computer until the staff worker is made to take control of the computer and perform the task themselves, at which point the user will typically acquiesce and provide necessary information for the task to be completed.

These responses, however, reflect a user who is restricted by a mental access barrier to ensure that their computer needs are mediated through another person, with the goal of making their personal usage of technology as limited as possible. They experience genuine emotional and mental anxiety by trying to engage with technology. Complex technology, or anything seen as "digital", is something that causes the individual dealing with a mental access divide extreme distress, inspiring frustration and manifesting most frequently as anger or a refusal to disengage, which seem to me to be motivated by emotional reactions of fear and shame. Individuals dealing with a mental access are employing effective strategies to reduce technology usage, often engaging with staff of the Library on the pleas that they are "incapable" and that it will be "so much faster" if the Library worker simply does it themselves. However, it is time consuming for the Library worker, for whom this process would be faster if patrons learned to do these tasks themselves, as they are also dealing with the technology needs of many people, rather just a particular individual. It is also time consuming for the patron, who is restricted by how much a

staff member can help them in the limited time available. This limits the user's own abilities and liberty with technology, keeping them dependant on Library staff.

These strategies of limiting one's own technology may involve return visits to relearn previously acquired skills. Patrons who return over long periods of time, and who struggle with overcoming mental access barriers will, in my experience, need the same lessons on the same subject repeatedly. This occurs especially when the patron has not had to use the technology or perform a specific task for an extended period. They then revert to the frustrations and perceptions of helplessness, and needing assistance as though they have never had the ability. I have seen this process occur frequently, and while a patron who has suffered a degradation of their abilities may be able to figure out how to do a process on their own, it is an immensely taxing, highly emotional process.

The reason for this behavior, and for the impacts it has on the user, is due to the brutal, self reinforcing cycle of the mental access barrier. Inability to use technology fosters feelings of stupidity and incompetency when technology use is required of the individual. Their inexperience (restrictions to their skills access abilities) makes it such that using technology is difficult and shameful due to both the complexity of the device, and the public perception that this is something that most people more or less know how to use. This, in turn, causes the experience to be negatively impactful on an emotional level, which deepens feelings which cause the user to avoid technology.

In the face of small successes, the user's attitude may improve, but the negative emotional association with technology is lasting, and over time the small successes are forgotten in the face of these negative associations and a lack of understanding. This may be best illustrated with a metaphor of exercise, where an individual who does not exercise will lose

fitness, which makes exercise more difficult and painful, which frustrates the individual with exercise to the point where they may not do it. At a gym (or in this case the Library, where the technology abilities of others are on public display) one may experience shame in being unable to “perform” as well as others, leading to a refusal to engage with the practice at all.

However, as seen in previous analysis, the growing necessity of computer use often forces individuals to engage with a now dominant sphere of social interaction, or to access necessary tools. Under these pressures the individual who does not have a family member to turn to (or in cases where family is easily frustrated themselves and unable to help [Allison]), must enter the public arena of technology for access and assistance. The Library constitutes this public arena for many.

How, then, does the Library’s provision of technology access services deal with the mental access divide, the remote personal divide which perpetuates the much more visible skills access divides? Through the methods described above, the Library worker provides on demand assistance to users who find their ability limited by this divide. These issues are often best suited towards the ability of dedicated technology trainers, such as Allison, who deals with teaching larger scale, complex ability. In my experience, however, I found that those individuals who suffer from mental access divides can be resistant to accepting dedicated technology assistance to improve their own ability, and often respond as though they are simply being denied help. Fortunately, the majority of individuals are happy to make these appointments in order to receive dedicated person assistance.

This leaves the Library worker playing the dual role of counselor and trainer, an emotional and technology ability task that can be taxing, and while it may be effective to assist in the moment, the labour takes both a mental and, to a degree, emotional toll. While this is a cost

to the worker, what it purchases for the public is, over time, a path to overcome mental access divides. I have not, in my time working at the Library, seen anyone transition completely from the unresponsive mental access divide expression to total comfort and competency, but on an issue-by-issue basis, I have seen the radical transformation of slow growth in patrons, which is deeply gratifying. In my interviews, Allison also speaks of trainees who have experienced the loss of ability, and have returned to training in order to get back on top of the rapidly changing landscape of technology use (Allison).

For those individuals who come with a particular issue, who are extremely resistant, and for whom the visits to the Library for assistance are either rare or consistent without improvement, there is less that the Library's current capacities can do to help. What I have described above, with the Library worker playing both counselor and trainer, is the practice to which the alternative is the unfortunate resource of "cutting someone off", that is to say, being forced by the user's refusal to engage to pull back from assisting the patron, particularly in circumstances where the user begins to lash out emotionally.

This is only done in cases where the issue is beyond Library assistance, which is rare, but also occurs in the context of the level of perceived importance of the task which the user is attempting to complete. In extremely important issues, such as the filing of government forms or other necessary processes, the Library worker will if at all possible do what they can to help, even if this results in the patron disengaging. The worker will recommend that the user participate in a training session. The other, more unfortunate end is to simply state that "I am sorry, but I cannot help you with this anymore than I have" or "if you need help with any of the (more basic tasks the Library typically assists with) then I can help you, but I cannot do (the particular or entire task) for you". Both staff and patrons I spoke with strongly believed that

assistance with digital technology was essential and should not be limited, but on occasion there is no alternative but for a Library worker to step back.

In my assessment, Library workers fulfill their obligation of assisting the public to the best of their ability and with the resources available to them. This service is based upon, and requires, the empathy and compassion of both the Library's public service orientation, and the staff workers (Paula). These demands go well beyond what I think the typical perception of a tech assistant, or a typical public library worker, does as their job. The task of the Library worker, and the necessary compassion required to fulfill a personally demanding public service ethos, is a topic of discussion amongst Library staff. They participate in seminars in public service and engaging empathetically with the public in order to fulfill the tasks necessary to service the public (Paula). A dimension of that work is technology, and because the public comes to the Library to overcome technology needs, and as needs are impacted by barriers, the Library is the place in which users take their access barrier to be resolved.

Mental access barriers are among the most challenging to resolve. Nevertheless, the Library and Library workers address these to the best of the workers' ability. This provides an effective, if limited, bridge for mental access divides; while workers can resolve immediate problems, to break the mental barrier requires long term, consistent work, and effort on the part of the patron. Without that commitment, this divide will doubtlessly continue to be amongst the most difficult barriers to overcome.

5.4 Usage Access

There are a lot of people that just simply don't have internet at home, because of the cost, or because it's not reliable, or because its very limited, so that is definitely what we provide (Katherine).

Digital access, as I have examined so far, is bound by limitations of affordability and the experience of the user once they have access to technology. As discussed briefly in section 5.1, access barriers are also temporal and spatial, and a discussion of this usage access divide and Library services shall be the final area to analyze to complete my examination of digital access divides. This section considers the usage gap through infrastructure and accessibility, and I will explore how the digital infrastructure of the Library completes this discussion of Library services. I will then expand the scope of this discussion to the NS Community Technology Sites in the Pictou-Antigonish Regional Library system, of which the Antigonish Library is one of many. Finally, I will discuss the limitations of Library services and conclude with a discussion of impacts of Library programs. This analysis will be framed in the final of Van Dijk & Hacker's digital divide categories, usage divides (Van Dijk & Hacker 2003, 315-6).

Usage barriers are understood as the lack of significant usage opportunities and are tied closely to how one is able to access digital resources, both structurally and strategically (Van Dijk & Hacker 2003, 32). Under the latter, strategic usage, refers to how one uses technology in accord with their ability ((Van Dijk & Hacker 2003, 321), and this aspect of technology use has been covered through discussion from sections 5.2 and 5.3. The former, structural, is what will be discussed here, where usage opportunity is also considered under the umbrella of accessibility in the access sense, along Murdoch's (2001, 387) outermost degree of marginality. The question of this section is how the Library creates usage opportunities, and the limits of the services in place.

The Library is one of a province-wide program of technology accessibility sites, under the former Community Access Program, which is now titled as a Community Technology Access sites, under the @NS program. This program was separate from Library when it first began, although the core of the program has remained similar despite some changes (interview with Katherine). My key informant in this area was Katherine, who serves as the Community Access to Technology manager, and in describing her role, she offered a description of what CTA services are:

What I do is provide support to technology in different communities, in different centers, different locations, and I provide them with support such as technical support, human resources, equipment, programming, things like that (Katherine).

The previous position that Katherine was employed in under the original program during the early 2000s included all of this but was primarily oriented towards taking technology to outlying communities (Katherine). This particular position would eventually become the manager of all of the sites in the Pictou-Antigonish region.

The Library is one of these sites, as are the other libraries in the Pictou-Antigonish Regional Library system, and it possesses the greatest digital and technological infrastructure of any of the CTA sites in the region. This infrastructure is designed to be as accessible as possible, with over two dozen computers available to the public, both terminals and laptops for personal use at the Library, and a variety of additional technology services such as both printing and 3D printing, faxing, scanning, technology equipment and accessories for use in the Library, as well as the software tools that are available for free from the Library.

The other major component of this is robust internet access: wireless internet serves as one of the most used services at the Library for mobile phone use. I found that Library computers and personal laptop devices for work were used at an almost equal level: my data indicate that

just under 7 (6.6) users were at any given time using Library computers, and an equal number using laptop devices. I counted new users only on an hourly basis, and so my original prediction, that Library devices would have a higher turn over rate, was incorrect. These numbers do not include personal phone use, which I found myself unable to record due to both the sheer number of phones, as well as the inability to tell which phones were, at any time, capable of used to access Library WiFi. Despite high levels of use, the Library's technology infrastructure has never been overwhelmed by high levels of use to the point of being unable to provide services to users. Further, only rarely are users turned away from computer use unless exceptional circumstances made it necessary to do so. In this instance, I refer to the imposed limits on length of computer usage that were introduced in the wake of COVID-19 restrictions. In my experience of the several months during which they were in effect, these limits rarely if ever needed to be enforced.

The Library, as one of many Community Technology Centers in the region, offers the most robust digital services available. Technology is always available during the Library's hours of operation, which have been 9am to 9pm Monday to Friday, 9am to 5pm on Saturday, and 1pm to 5pm on Sunday, though Library hours have been flexible, and subject to alteration, during the COVID-19 pandemic. This does impose limits on accessibility, but the Library does offer one service that is available 24/7, that being wireless internet services. The wireless internet services of the Library building have a range that exceeds the building itself, and can be accessed from the parking lot and surrounding patio areas. It was not uncommon to see individuals using this service while the Library was closed to the public during the early period of the COVID-19 pandemic; users could frequently be found after the Library is closed loitering in the patio area, and in parked their cars in the Library parking lot, making use of Library WiFi.

The highest level of access is the goal of the Pictou-Antigonish Regional Library. The Library acts as perhaps the model example of a technology site, with the other libraries in the regional system making up 7 of the 13 Community Technology Access sites. The remaining 6 are the “standalone sites”, and are: St. Joseph’s Lakeside Community Centre, Mini Trail Community Centre (Lakevale), Havre Boucher Community Centre, the Antigonish Heritage Museum, Arisaig Lobster Interpretive Centre, and the Pictou Island Community Centre, each a location that Katherine services to provide technology and programs, similarly to what is available at the Library, to areas that would otherwise not have access to these services.

The Library also demands the most use of technology, having more technology use than any other technology access site (Katherine). Only one other library in the regional system comes close to the People’s Place Library in demand for technology service and that is the New Glasgow library (Katherine). Even then, it does not match the Library’s demand, which is interesting given that New Glasgow has a larger population. Much of what Katherine does is the supervising of the summer and fall students that are hired to work in these sites. These are the youth who provide the technology training at the Library when they are available. These youth provide community training to their home communities, for services both necessary, as I have discussed in previous sections, but also for enrichment for all ages, as Katherine describes:

Mostly, (CTA programs are) community training, or to teach (individual) people. We provided for communities group settings, for training, but we don’t usually use group settings unless it’s children, because then we do robotics, coding, things like that. That way kids can learn how to code when they’re just two minutes from their house rather than twenty.

Accessibility is one of the primary goals of the Library in running these sites, both within the libraries and within standalone sites, as overcoming divides of usage opportunity is a primary goal of the Library as a CTA site, and of the wider Pictou-Antigonish Regional Library system.

The usage divide is something recognized by the Library as a major issue, and the motivating reason for these sites:

(These sites are necessary) to get stable, decent, internet, most places have the ability – not all – do have the ability to get internet, but it's very limited in some cases. Even just to print a paper for school, or learn to do something new, like if you're a 50 year old person who just got an iPad from their child, you might not have ever had one before. And that's what they do, they take it to these sites. There are a lot of people that just simply don't have internet at home, because of the cost, or because its not reliable, or because it's very limited, so that is definitely what we provide. (Katherine)

My discussion with Katherine showed that the Library is committed to providing a service that people need, but they cannot afford or access. Technology access is still a massive issue for a great number of people, not only where technology cannot be afforded, but also because of poor technology infrastructure in extremely rural areas. Opportunities of usage are essential for the public now more than ever, as technology has become essential for engaging in large swaths of social life, performing necessary work whether academic or professional, and to access government services. My analysis of the usage access divide at the Library serves as an example of the rest of the Community Technology Centers in the region, of which the Library is one that receives the greatest amount of use. Having the largest number of users dependant on the Library is clear evidence of its effectiveness at delivering usage opportunities to the surrounding areas. There are limits to these opportunities; the Library is not able to provide full services at all times, or to overcome other barriers such as limits of distance for those further away from CTA sites, or those whose schedules do not allow time to go to the Library, but within these limits, the Library delivers effectively managed resources to service its region, and exists as part of a system to service the wider regions, to the best of its capacity.

This closes my analysis of digital divides, as I move in section 5.5 to discuss an analysis of capital. I have found throughout this analysis of four forms of digital divides the same as was

found by Murdoch over 20 years ago, that being that digital divides are complex, multifaceted, and that they still prove a very real barrier for a large number of people (Murdoch 2001, 388). In my discussion with Katherine, she made a statement on the growth of the digital divide, that fit well with Van Dijk & Hacker (2003, 315-6), wherein they predicted the growth of the certain divides into the future:

There was a term that used to be thrown around, called the digital divide, and it still exists to this day, and it's only getting worse (Katherine).

In referring to the worsening of the divide, Katherine spoke not just of the lack of material access as something that was expanding, but also in terms of the consequences of the divide growing worse, and expanding areas of ability, accessibility, and access, which I will discuss in the final section of my analysis.

5.5 Capital Divides

This analysis has dealt with four forms of digital divides, each describing some access barrier to technology and its use. The basis of each divide I have left unanalyzed up to this point, as each finds its grounding in larger social inequalities, which I will analyze through Bourdieu's theory of the different forms of capital (Bourdieu 1986). I shall begin with a brief overview of capitals and their application in social analysis. Following this, I shall examine how each description of capital can be related to the four divides I have analyzed. First will be examined material capital and divides of material and usage access. Second, cultural capital and mental and skills access divides. Finally, social capital will be used to understand the population inequalities that keep these digital divides in place. I will conclude with a discussion on the Library's services viewed through the lens of capital.

As discussed in the chapter on theory, Bourdieu (1986) offers a break down of capital into three forms. Bourdieu's three forms of capital, social capital, economic capital, and cultural capital, will be central concepts to understanding the library space in the context of both economic and social disenfranchisement. Economic capital is the more typical understanding of material capital, that is, money, or in the institutionalized form as property rights (Bourdieu 1986, 243). Social capital describes the social networks of individuals for the purposes of advancing their interests, understood as the capital that one has through their social network (Bourdieu 1986, 241). Cultural capital is a more complex field, and is composed of three primary components which represent the cultural capital of an individual: institutionalized, embodied, and objectified (Bourdieu 1986, 243). Institutional capital refers primarily, as I have explained, to education, embodied cultural capital to the instillation of capital into speech and personality, and objectified cultural capital refers to material goods of cultural value.

Inequality has been the central feature of describing digital divides, and so an analysis of inequality, which I have undertaken under this understanding of capital, is necessary to generate a complete picture of the digital divides. I begin this discussion with material capital as it relates to material and usage divides. Material capital, much the same with material divides, is perhaps the most easily understood inequality, as it is the closest to what is typically thought by inequality. It is the material capital inequality that is seen in the population of users who rely upon the Library and standalone Community Technology Centers in order to have access to usable technology.

My interviews found a consistent theme of the expense of technology, and maintaining digital access, as one of the primary barriers to technology access. When we discussed the ending of the original CAP program, on the basis of the federal government's position that there was already universal access to technology, Katherine emphasized multiple times through our interview that

Even to this day, there's a lot of people with unreliable internet service or who simply can't afford it. A cell phone bill is not cheap, and neither is the internet (Katherine).

Katherine's assessment of people who rely on the CTA locations to get access to stable, usable internet was precisely similar to what I was told by Julia, who is someone who relies on the CTA access, via the Library, for technology access (Julia). Technology is not cheap, and the incidental costs of technology render its inaccessibility even greater. Not only must a person, to have full time access to technology, need to purchase highly expensive equipment, but they must also afford the bills that come with maintaining that technology, with internet bills reaching extremes in more rural locations, for access that is substandard compared to cheaper bills in more urban ones. Even in the town of Antigonish with its better connectivity, the cost is inaccessible to

many. Further, technology must also be replaced, as it ages rapidly, and even if a piece of equipment still works, it must function using software or programs (that must also be paid for) which can quickly become useless in connection with the internet, as was Julia's experience with her old laptop (Julia).

Ownership of technology is also reflected in the data which I collected, of which I shall give a brief review here. Rates of technology use reported in surveys aligned with what was observed in both field work and my own experience. In reviewing the combined data of both surveys, respondents were all above the age of 25, and 87% of respondents were above the age of 40. The vast majority, 88.9%, reported owning a mobile phone, while only 44.4% reported owning a computer. My fieldwork showed a greater reliance on Library technology as compared to how much technology the individual owned. existing on two axes: those with a larger variety of personal technology tended to report a lower use of Library technology, although this population tended to report still using Library technology to some degree. Those who reported owning little or no technology were split, in my assessment, between those who used Library technology infrequently or not at all, and those who lacked personal technology and made heavy use of Library technology. This shows a relationship between digital ownership along both an economic background, but also its impacts on what is described in the mental access divide, where individuals refuse to engage with technology to the best of their ability. My data show clearly the relationship between material access divides and material capital inequality, which leads me now to a discussion on background.

That technology ownership and its associated abilities and competencies are tied to class is a key assumption of this analysis. I found evidence for this trend across both my own experiences and the testimony of my informants. In the course of Library work, I have come to

have an awareness of the backgrounds and circumstances of the users whom I serve regularly, which in turn brings an awareness of the general dispositions, and the statuses I have come to associate with them, over my years of engagement with Library users. Further, as described by other Library workers, the expense of technology is one of the driving factors for people to rely on Library and Library supported locations for digital access. Likewise, many users are in the same circumstances as Julia described in section 5.1, where the expensiveness of technology, and internet access, is what prevents her from being able to own personal technology.

In moving to a discussion of background and the divides outside the strict purview of material wealth, I now come to a discussion of cultural capital. This will form my analysis of the digital divides of mental access barriers and skills access barriers. Here, I understand that socioeconomic class is understood through relationships with the three forms of capital that Bourdieu describes, and that these forms of capital are interconnected. Cultural capital comes in its three forms of institutionalized, embodied, and objectified, and I find that the cultural divide in the digital divides expands into all three of these forms.

The mental and skills access divides are barriers that, as I have discussed, are closely connected, as they deal with the competency and engagement of the user, in much the same way that material and usage access divides are concerned with how access to computers is achieved and in what context they are engaged with. An understanding of embodied cultural capital can work in assessing the mental digital divide, as it deals with the embodied characteristics of having access to material capital. Access to computers changes the way in which a person engages with them, altering their understanding of how certain things are to work and changing how a person treats technology, and to one's skills in a given field.

For those who do not have this, the experience of using technology is very different, and in the Library's assisting of these people, the barrier they struggle with is a result of their lack of cultural capital. This is perhaps shown even more clearly through objectified capital, where objects that reflect cultural capital are described. I understand this as in terms similar to that of having material access barriers in the third degree or marginality, that is to say, ageing equipment that causes not only a lack of digital freedom, but is quite literally seen as making the *person* out of date, as when Julia described to me how people would react, and how she herself thought of, her old laptop, and on people's general reluctance to share access to these devices or services, which are seen as deeply personal (Julia).

Embodied cultural capital is perhaps the largest and most obvious capital divide, as it deals with a divide in education and access to education. We have seen, in my analysis of skills access divides, the massive gap that exists between the technologically capable population and those with limited or no technological skills. Education, as Bourdieu describes it, comes from two central areas, the public, in the case of school, and the domestic, at home learned skills, where education that is institutionalized carries with it a greater cultural capital value. It is only the former, however, that provides institutionalized capital. While skills may be embodied, they are not be formally recognized as a skill unless it is attained through an institution. While technology skills may be learned at any age, those who are younger have more likelihood of having at least some basic modern technology training through their formal education. This creates a clear age gap as the skills that are recognized in institutional capital shift over time, with those who are younger have greater technology skills and exposure than those who are older.

I shall focus only on the embodiment of the actual skills in question. Here is where we see the core of the cultural capital gap in digital divides: experience and education that is imparted to the individual. Education in both the public and domestic spheres is the primary way in which people build the digital skills and mindsets to engage with technology, and this is the key capital gap between those who have these skills. The Library, which provides high quality technology training but without providing, or necessitating, formal qualifications, makes access to these services and the credibility that comes with the skills gained more widely accessible. This does not support the development of institutionalized cultural capital, as it does not provide formal qualifications; instead, the Library engages with institutionalized cultural capital by breaking down the barriers of necessary qualifications for technology use, by not requiring this capital, and by providing some of the knowledge involved.

Those who lack these skills, from the lack of cultural capital, struggle with the access barriers of the mental and skills divide. Having access to technology in public schools and learning to use technology as a necessary part of one's education and having access to technology in the home or socially, being taught to use technology or gaining digital experience through social interaction is what provides individuals with the cultural capital where technology is concerned. As opportunities to learn and gain technology skills and have access to technology assistance are also luxuries of wealth, cultural capital remains bound to material capital inequality.

In the case of Library users, digital inequality is related to two characteristics: level of economic capital and age. More elderly individuals struggle with more of these access divides than do youth, and those of a lower socioeconomic class struggle with these divides more than those of higher economic status. These two axes, wealth and age, operate along the capital gaps I

have described. The cultural capital gap acts on the axis of age: over recent years, schools have introduced technology learning to students at a young age, who have also possessed technology for a larger portion of their lives. Thus, current youth receive an institutionalized training that the older generation has not had, and so we see a gap both in the technological competency by age. This sets the basis for a skills and mental barrier gap between youth and the older population. At the same time, where this could be compensated for through older individuals paying for education in technology, this is not an option for the elderly poor: many that use the Library for necessary services draw upon their pension, or simply do not have access to the resources to learn how to train on computers. This is even more difficulty for elderly poor who live in rural areas distant from the Library (Allison).

Access to economic capital is also relevant to younger users, as there are youth who do not have digital competency, struggling with mental and skills access, due to socioeconomic inequality. These individuals may be those who have not completed high school, or whose education was poor due to a lack of funds that limited institutionalized education in schools, and by extension, at home. While this population of individuals is not high, there are people who find themselves at the Library for assistance in these circumstances (Allison) which has caused the Library to prepare certain services accordingly. While cultural capital inequalities (with respect to technology) lie along a spectrum according to age, with the older population more disadvantaged, economic or material capital inequalities counterbalance this trend, and impact both older users who are already limited in cultural capital of skills, and the youth who are of lower socioeconomic background.

With the regional inequality considered, youth who may be expected, as is the general assumption, to have at least more competency than the older generation, may in fact be in a very

similar position relative to digital divides as their senior counterparts. Youth who are from an area of predominately low socioeconomic status will lack the institutional experience to build the cultural capital necessary to use technology, and as a population lack the economic capital in order to possess that technology for themselves, a position similar to those seniors who also had no institutional education, whether public or domestic, and do not now have the funds to access either.

These two groups are also limited by their social capital, broadly speaking, the capital of their social networks. This is where an older population is more disadvantaged, as there are youth with limited digital access who, through their social networks, are still able to learn how to use technology. This is a position I myself am familiar with, having been among those people with limited technology access due to poor internet connectivity in rural areas of Antigonish. While youth may rely on social connections to further a capacity to use and access technology, seniors, who as a lack the two aforementioned capitals with respect to technology, may have fewer technologically competent people in their immediate networks. Those who have local children may be able to get help, but this depends on their children being digitally skilled and having the time and patience to assist them. The situation may lead to feelings of inadequacy and frustration for both. Alternatively, the children may do it for them, rather than the elderly gaining the skills themselves (Christina). Likewise, youth who use this strategy are still limited heavily in usage access opportunities.

This leaves the Library, a Community Technology Center that services the rural community of Antigonish, a place with high levels of income inequality, a fact which echoes across all forms of capital. What the Library offers in bridging each of the digital divides I have analyzed, also addresses inequalities in the different forms of capital. The Library, as Katherine

explained, understands its technology work as overcoming a growing digital divide that has developed in unexpected ways, not across just material access, which is still prevalent, but also in ways that are both communicative and cultural:

There was a term that used to be thrown around, called the digital divide, and it still exists to this day, and it's only getting worse. (The digital divide) is going in weird different directions. There's youth that are losing a lot of the simple things that we took for granted at the beginning of internet...and there's people on the other end who don't have any experience, or don't want to have anything to do with technology (Katherine).

I end this final section of analysis with this discussion of capital, as it assesses the root of the digital divide, which has been in the background of this discussion of digital divides. Wealth inequality sits at the core of the issues of digital divides, and it is a wealth inequality in all its forms, across the three categories of capital, economic, cultural, and social. Digital divides therefore are the result of wealth inequalities across the three forms of capital which I have shown here to be present in technology access; inequality is the foundation upon which digital divides come into existence. It is this inequality which the Library engages with when working to overcome digital divides, and it is the work of the Library to bridge these gaps.

Chapter 6: Discussion and Conclusion

The subject of digital divides is not a new one, nor are libraries new to the fight of breaking down barriers. My research has shed light on how the Library is reacting to these issues, what actions they have taken, and how effective they have been for their patrons at bridging digital divides. This chapter will reiterate my findings as well as consider how my research fits into some of the previous literature that has been written on the topic. I will conclude with some final thoughts regarding the future of the Library and its digital services in rural Nova Scotia, and on the role which libraries have come, and will continue, to have in communities.

I had several questions at the outset of this research: “How do public libraries address unequal access to digital resources (the digital divide) in rural communities with high levels of income inequality? Why do libraries undertake this work? What are the reactions of those who take advantage of these programs?” I chose to break this down across two areas in my research, starting with the ways in which the digital divide manifested, the types of digital divides that exist in four forms, as material, mental, usage, and skills (Murdoch 2001; Van Dijk & Hacker 2003), and the socioeconomic factors that create digital divides through inequalities in material, social, and cultural capital (Bourdieu, 1986). This allowed me to begin by collecting data on the Library’s digital services and the patrons who use those services, and then assess how digital divides were bridged. I argued that digital divides are a real and severe issue in rural Nova Scotia, that digital divides are a manifestation of capital inequality, and that the Library is effective at overcoming digital divides through the technology services it provides, motivated by its public service ethos.

In my analysis of the digital divide, I followed Van Dijk & Hacker's (2003) model which outlines four forms that divides may take: material, usage, skills, and mental access divides. Through my analysis, I assessed how each of these divides work and how they impact people broadly. In my review of data, I explored how each of these divides manifested as barriers to people in my own experience and in the experiences of other's working at the Library, and how the Library and its staff made efforts to provide services specifically to overcome these barriers. I found that all of these barriers were real issues, validating the four-form system of Van Dijk & Hacker (2003) and I found that each barrier is overcome in a different way by the Library.

I began by investigating the services which the Library provides to overcome the material access divide. The Library provides an array of devices in order to assist with these accessibility issues, giving people convenient access to the computers which they did not have personally or needed for some immediate purpose, as well as accessories, from charging equipment to microphones, to software programs, to heavily used public services like printing, photocopying, and scanning. The provision of equipment was by far the most widely used class of technology services.

In the context of Murdoch (2001), the Library, as a public place, cannot provide the core ring of total digital integration to users, but is able to create accessibility in the second and third rings of marginality, allowing for a greater number of people to access services than they would ordinarily be able to. I found that this was one of the largest issues facing people in terms of digital access, as the majority of both survey respondents indicated using this form of digital service to some capacity.

The second divide I analysed was the skills access divide. This divide described those who, due to issues of user friendliness, inexperience, and limited digital ability, were unable to

use technology even when it was made available. The Library and its staff engaged with this divide in two ways, with immediate, on demand technology assistance from workers to resolve issues or assist with basic tasks, and with the technology training program. The latter of these is the dedicated service of scheduled technology and technology use training, where users book free appointment with the Library's technology trainer to provide assistance and training in any given technology issue that may be requested.

Technology training could often be in depth and would often exceed just the training on the mechanics of a device, with the goals that a user wishes to accomplish being taken as the priority, and the skills needed built out from there. One account, which began to open my analysis to wider socioeconomic background factors, was for the creation of résumés, a process which requires digital literacy. This service has seen popular use, as it fills in a divide left by absent government assistance. This was closely connected to issues of material access, with those who had more access also having a greater comfort with digital skills. This also illustrated the interconnectedness of digital divides, which do not exist isolated from each other, but instead are interwoven.

This was made clear in the third section, on mental access divides, which is the divide that manifests as computer anxiety, or a refusal to engage with technology. The refusal element is key here, as it is a definition that exceeded the simple inability to use technology. This barrier was engaged with by the Library using the supports that I have already discussed, with dedicated technology trainers, on demand assistance, and easily accessible technology. This digital divide, however, requires the emotional labour of staff workers, and consistent effort to overcome.

The reason for this was, as I described, how this divide could lead to the erosion of learned skills because of an emotional perception of helplessness by a user. I remarked on the

dual role a Library must play in this regard, especially dedicated technology trainers, as they act as both knowledge provider and counselor. This empathy-based approach, I have found, is the only effective way in assisting those who deal with mental access barriers. The Library, with its public service-oriented ethos, is especially equipped to provide the empathetic learning environment that is needed to overcome this divide, and I found the Library effective, especially in personal training sessions, at overcoming this divide.

The final divide discussed by Van Dijk & Hacker (2003) is the usage access divide, and I found this divide to be one of the largest barriers for the rural areas of Nova Scotia. This barrier described the lack of significant usage opportunities and to a secondary degree usage differences. Here I focused on the former. This divide raised the issue of how accessible the Library was in practical terms, as the major Library in a comparatively urban area that serves a much wider, entirely rural population. Likewise, the Library is an institution of limited funding, and is limited to day-time and evening hours of operation; the technology of the Library cannot be removed from Library premises, and, of course, Wi-Fi cannot be checked out to take home at the front desk.

The Library nevertheless engages with this final digital divide, and in this its engagement is twofold. First, the Library's digital infrastructure is as accessible as possible, through the services I have already described, which are available during hours of operation. Further, there is the internet access services, in the form of Wi-Fi, that is in fact available on the building premises, including outside the building, for those that have their own technology to access at all hours. While this form of service has undeniable limits, when compared with a standard of digital access one may find in Murdoch's (2001) fully integrated sphere with at home personal technology, it is nonetheless a highly accessible service.

From this, there followed my consideration of the Library as a central node in a wider network of digital access points. The Library, as a CTA site, is part of a broader infrastructure of locations which the Library also provides services to, with the goal of creating digital access points in rural areas where internet is too expensive for many to access. These sites also provide technology services and assistance. CTA locations are spread throughout the Pictou-Antigonish regional area, in all library locations, as well as additional locations meant to service areas more distant from a library. This program is maintained by the Library in order to overcome the usage access divide, which remains a severe issue in rural areas.

The final section of my analysis was on the subject of a capital analysis of digital divides, and how inequalities shape the populations which are affected by digital access barriers. This was broken down across the three forms which capital takes, in material, social, and cultural forms. Capital inequalities, as the system by which I understood the general concept of wealth inequality, were the root of the digital divide, with each form of the digital divide relating more, or less, to each form of capital. Material access divides were more linked to the material capital divide, which formed the foundation from which the other divides, and inequalities, stem. Skill and mental access divides showed close connections to inequalities in social and cultural capital, in embodied abilities and skills and the ability to leverage social connections to assistance. Usage access, likewise, was based on inequalities in all three capitals: in the expense of digital connection, and physical distance from access and assistance in community networks.

The Library, I found, acted as a bridge across these inequalities which restrict people from digital access, and was motivated on its public service ethos to provide and improve the circumstances surrounding people's ability to access technology, digital services, training and assistance. Thus, the Library acted effectively to overcome the barriers, to the best of its capacity

as an underfunded public institution, to make a significant impact and provide services which were useful and saw a large quantity of use. My research showed support for the sentiment echoed at the beginning of this work; that public libraries were founded and guided by the goal of providing access to resources to rural Canadians.

It is this founding goal which the Library is guided by still. Paula described to me how the Library saw large amounts of usage for public technology, I asked her if this was the reason why the Library had elected to maintain these digital services and take on support of the CTA sites after the ending of the federally funded CAP program:

Yes, absolutely, and they really depended upon us. I don't think the public really saw CAP (as a separate entity), they just know it's the Library. That connection had already been made. Our core services reports were a big part of it too. This core service report really drilled in what (is the Library) best at delivery and what do people need (the Library) the most for and what will best serve the community. And so, digital access and digital literacy came up as one of the four core services. That informed the decision to absorb CAP and continue it, and to invest in these services (Paula).

Providing community access to the internet is one of the four core policy mandates of the Library, and this stems from a commitment to fulfilling the needs of communities. The evolution I referenced in the opening of this thesis is now understood in terms beyond simply developing rural areas, but in improving the lives and providing for the needs of the communities that the Library supports. This outlines the Library's public service ethos, at the core of its policy motivations, and answer the question of why it is the Library that has undertaken this work.

In the vein of this, I now turn to how my research compares to the works on public libraries from my literature review. In my literature review, I referenced the relatively limited anthropological discourse on libraries as an institution (Khoo et al. 2012). I had the goal of helping to fill the gap that exists between anthropological analysis when compared to the wealth of sociological, library science based works. This was my goal because anthropological theory

can add valuable insight into the functions of libraries and their impacts, a fact which I have shown throughout this research.

I found that my research was supportive of the conclusions that libraries supported populations in need, especially those of low-income households (Peyton, 2018). This notion was further supported by an analysis of libraries as primary service providers. Literature noted that public libraries were essential providers of basic services and that those services were often indispensable, in that there was no other method of access for the population that relied upon them, especially low-income people, youths, and seniors (Jaeger & Bertot 2011; Zach 2011).

Literature describes public libraries as being essential fixtures of their communities, where public libraries are an essential part of both public and private life, necessary as a social space and a space of education, but also as a space in which services could be accessed that were not privately available (Audunson et al, 2019; Buschman 2020; de Armas, 2019; Summers & Buchanan 2018). My analysis, then, fits well with the existing literature, and begins the work of emphasizing the importance both of technology, including technology services and education, as being among the essential service which public libraries provide.

Moving beyond my literature review, I will comment on my research and where future research may be done from my results. I return again to my research question and argument, where I began with an investigation of the impact of the public library and its effectiveness at overcoming digital divides, and my argument that my data shows that the Library is an essential service provider which supports necessary digital and technological access and is effective at overcoming digital divides, despite being an underfunded institution. My research goal was to answer these questions, and to analyze my experience working in the People's Place Pictou-Antigonish Regional Library, providing these services. In my time there, I have seen that the

access offered by the Library is invaluable, and the collection of the experiences and testimonies of both Library workers and users has offered insight into the importance of these services.

My research also serves to offer insight into the importance of public libraries which act as institutions that redistribute wealth and bridge inequalities. Future research must be done to fully understand the social role and function of public libraries, and how they as institutions function within the public sphere, as public spaces of community which serve the purpose of education, equal access, and the growth and support of the communities they service. The Antigonish library has proved an invaluable location for this case study, and anthropological insight into the impacts of public libraries, in order to support the aforementioned goals of service, should serve to inspire discussion on how libraries themselves may evolve, to support a rapidly changing information landscape.

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INVITATION TO PARTICIPATE

Date: _____

Dear _____,

My name is Aidan Wallace. I am a student an Honours Anthropology student at St. Francis Xavier. My supervising professor is Dr. Susan Vincent.

I am inviting you to participate in an Honours research thesis project as part of a course assignment for Anthropology Honours program. The goal of this research project is to gain an understanding of how library users use and rely on the library's digital and technology services. Participation in this research will take approximately one hour of your time. It will involve conducting an audio-recorded interview with you or hand recorded notes, by your preference. The materials gathered will be used towards the completion of my Honours Thesis.

I will protect your privacy and your identity will be kept confidential. Materials collected will be stored safely and securely in my possession, on both my computer and an external drive. My supervisor, Dr. Susan Vincent, will also have access to the gathered materials when grading the assignment. I do not anticipate potential harm for you if you participate in this research, however I would be pleased to hear any of your concerns and to accommodate or terminate my research to address your best interests.

Your participation is voluntary and you are free to withdraw at any time by indicating so to me in person or in writing. I reserve the right to use any information I have gathered up to that point, but will accommodate your concerns to the extent possible. Should you withdraw, I will destroy all of the gathered material and the assignment once the course is completed. Your decision to participate or not will remain confidential.

If you would like more information about the nature of this research and your role as a participant, please feel free to ask. Any concerns you may have about the research (such as the way you have been treated or your rights as a participant), and which cannot be resolved by me, may be discussed with the Honours Thesis Supervisor: Dr. Susan Vincent, Department of Anthropology, St. Francis Xavier University, by contacting 902-867-5281 or svincent@stfx.ca

Yours sincerely,

CONSENT FORM

I acknowledge receiving a copy of the Invitation to Participate from Aidan Wallace for their Honours Thesis research project. I have had an opportunity to read or to listen to the information provided in it and have had any questions about my participation answered. I know that if I sign this form, I do not give up any legal rights and that the student researcher is not released from their professional responsibilities.

I grant Aidan Wallace permission to carry out their research, understanding that my identity will be kept confidential if I desire, and that I have the right to withdraw from the study as indicated in the Invitation to Participate.

Because some information is better used if the source is known, as the participant I give permission for the researcher to use my name in the communication of this research.

Yes: ____ No: ____ I wish to be identified as _____ (give preferred name or pseudonym).

Participant's Signature:

Signature of participant: _____ Date: _____

Address: _____

Telephone number: _____ E-mail address: _____

Questions -for library users:

Library Community Technology Proposal Questions

- Age Brackets: Under 15, 15-19, 20-24, 25-29,30-34,35-39,40-44,45-49,50-54,55-59,60-64,65-69,70-74, 75+

- Do you own any of these items? / check all that apply: Computer, Laptop, Tablet, Smartphone, Printer, Scanner, other smart technology (describe)?

- Do you have internet access at home?

- Do you use the library technology, such as computers, scanners, printers?

- How often do you use library community technology?

- Do you currently or have you used the technology training services offered by the library?

- Select all the library technology services that apply to you

Get help or training from staff to use devices and computers.

Access the Internet on a public computer

Access wi-fi for your own device.

Use the Makerspace equipment (3D printers, Silhouette, robotics, etc.)

Use the fax machine.

Use printers and scanners.

- What do you typically use library technology services for?

Accessing Government services

Access to social media

General Community information

Education or research assistance

Banking or online business activity

Other: (description)

- Do you rely on the technology services provided by the library? Were you impacted by the loss of access to library technology due to the library's COVID-19 closure, and if so in what way?

Questions of library staff and for reflection in auto-ethnography:

- Tell me about how you help people access digital services at the library.

- What is your impression of the types of people you help, in terms of age, gender, wealth status? [I am not asking about specific individuals, but general characteristics, and anonymized stories.]

- What is your impression of the types of assistance they request: with social media, research, government services, etc.
- Do you remember when the library began offering this infrastructure and services? What things struck you in particular?
- What is your view of the library's purpose in offering these services and infrastructure? What goals do you have in this part of your work?
- What can you tell me about how the shutdown and subsequent re-opening measures related to COVID-19 affected this part of the library's function? How has your job changed? Have you heard from library users about their perspectives?