Exploring the Outcomes of Digital Inclusion for Vulnerable Populations in Canada during the COVID-19 Pandemic

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Abstract

The Internet is an essential service for participation in society. Yet, digital divide challenges, specifically access to Information and Communication Technologies (ICTs), limit digital inclusion among vulnerable Canadians. While previous research focuses on identifying, understanding, and responding to the digital divide, evaluating the social impact for the "have nots" who gain access to ICT is often overlooked. I explored the social implications of inclusion to the information society through an ICT program for vulnerable individuals during the COVID-19 pandemic through a qualitative approach. Using semi-structured interviews, I purposefully sampled representatives of not-for-profit organizations whose clients participated in an Internet and Devices access program. This was done after I experienced difficulties recruiting participants in these programs due to COVID-19 social distancing requirements. In addition, I used inductive content analysis of interviews to answer the following research question: What do participants in a digital inclusion program for vulnerable populations in Canada during the COVID-19 pandemic experience as outcomes of gaining access to information and communication technologies (ICTs)? My findings suggest that according to my interview participants, their clients experienced positive effects related to economic, social, and cultural factors that enhanced quality of life and adverse outcomes resulting from digital literacy issues. I hope that this study will contribute to the emerging body of digital inclusion policy research designed to support the adoption of ICTs in relation to social policy goals.

Table of Contents

Chapter 1: Introduction

Overview

The Internet is essential for participation in society. Every day we become increasingly reliant on digital Information and Communication Technologies (ICTs) in our lives. Nevertheless, digital divide challenges limit digital inclusion in society, in particular among vulnerable populations such as low-income Canadians. Being a "digital native" (Warf, 2018) and someone who has been fortunate enough to have access to ICTs, I never considered the impact for others who haven't had this opportunity. As access opportunities increase and technology costs decrease, I assumed most people in Canada had access to and were using digital technologies. According to the Canadian Radio-television and Telecommunications Commission (2019), 89% of Canadians have an Internet subscription while 90% have a mobile phone. Based on this data, it would appear that the majority of Canadians have the ability to access the Internet.

I was introduced to the concept of the digital divide during the MACT program. Through the literature, it was clear that a divide still exists, especially for marginalized, or vulnerable, Canadians. To date, there has been progress made in addressing the divide, and opportunities for access continue to increase through educational, employment, and public institutions. When access opportunities began to diminish during the pandemic, I began to take notice of the impacts for those who did not have access to ICTs at home. Although digital inequalities existed long before the pandemic, these inequalities have been highlighted and worsened given our amplified dependence on ICTs. Having access to ICTs is essential to navigate the pandemic and maintain daily activities such as education, work, entertainment, and socializing. Those who experience digital divide challenges, especially access to ICTs, have been digitally and socially isolated as a

result. This situation has resulted in more attention paid to digital divides and digital inclusion. The COVID-19 pandemic has not only exposed the challenges related to digital inclusion but also provided opportunities to try and improve it. Private and public sector organizations are providing various supports aimed to increase levels of digital inclusion. For example, in April 2020, I saw a post on social media by the United Way of Cape Breton (UWCB) offering free Internet subscriptions and devices to low-income individuals and families who required access for employment or education purposes. While I currently reside in Alberta, I grew up in Cape Breton and still consider it my home. I like to keep a pulse on what is going on in the community and that is how I learned about this initiative. After seeing this post on Facebook, I connected with the United Way of Cape Breton through email to request a meeting to discuss this program and to identify their interest in partnering on this study.

The kinds of digital inclusion policies and practices that we are seeing emerge during the pandemic – such as the initiative led by the UWCB in partnership with the Canadian Mental Health Association of Nova Scotia (CMHANS) - provide us with an opportunity to ask people how these digital inclusion efforts have worked, or not, and how they are adopting and using technologies that were previously unavailable to them. While there has been interest in working to ensure vulnerable Canadians are connected during the pandemic, what do they think about these solutions? Do they meet their needs? What suggestions do they have in ensuring that digital inclusion policies and programs result in effective use? As well, once connected, how do these individuals use ICTs in their day-to-day lives? Has increased access to digital ICTs resulted in changes to their lives, and if so, how?

As discussed in my literature review, researchers have examined these questions in relation to digital divides and digital inclusion. While access alone does not define the experience of using ICTs or the outcomes based on that use, previous research focuses on identifying, understanding, and responding to the different layers or facets of the digital divide. These include factors such as affordability, availability, adoption, and so on. However, my literature review demonstrates that evaluating the outcomes for the "have nots" who gain access to ICTs through digital inclusion programs is often overlooked in research. In this context, my research design aims to explore some of the outcomes of digital inclusion by conducting interviews with participants in an ICT program for vulnerable individuals during the COVID-19 pandemic.

Research Question and Methodology

Using a qualitative research approach, I explore the outcomes of a digital inclusion initiative for vulnerable individuals in Cape Breton that was launched during the COVID-19 pandemic. My main research question is:

What do participants in a digital inclusion program for vulnerable populations in Canada during the COVID-19 pandemic experience as outcomes of gaining access to information and communication technologies (ICTs)?

I explore this question through a series of qualitative interviews with representatives of the organizations that supported or accessed the Internet and Devices program provided in Cape Breton. I made the decision to interview these individuals after I experienced challenges in

recruiting participants in this program due to COVID-19 restrictions and barriers. The research

methodology is explained in further detail in Chapter 3.

Study limitations

The findings from this study are limited to the insights from a small number of participants

representing vulnerable populations in Canada from a particular Canadian community (Cape

Breton Regional Municipality), at a particular point in time (2020-2021) while looking at a

specific solution to a digital divide issue (granting access to ICT, specifically focusing on the

Internet and Devices) under unique circumstances (COVID-19). Therefore, it is not

generalizable. Due to challenges finding people to interview who participated in the Internet and

Devices program, findings are also limited to the views of administrators who oversaw the

program. Due to this issue, the recruitment process was time-consuming. The interpretations are

limited based on my personal experience and knowledge that influences observations and

conclusions. While results can not be qualified, the insights generated by this qualitative study

allow for a better understanding of the outcomes of gaining access to information and

communication technologies based on a broad understanding of the individuals who participated

in this internet access program.

Study layout

This study begins with a survey of existing academic literature on the digital divide and digital

inclusion, including strategies designed to bridge the digital divide. In the Literature Review

chapter, I uncover gaps within the research specifically focusing on outcomes of ICTs, and

identify a framework for exploring these outcomes I apply to my research. In the Methods

chapter, I discuss my research design, which is based on a case study of the Internet and Devices

Program provided by the United Way of Cape Breton (UWCB) and Canadian Mental Health

Association of Nova Scotia (CMHANS). I explain the importance of the relationships with the

intermediary organizations I have partnered with to conduct this research, and some of the

challenges I encountered in my efforts to recruit participants in this study. I also identify the data

collection methods used for this study (qualitative interviews) and the ethics application process.

Finally, I discuss my approach to data analysis (inductive qualitative analysis). In the Findings

and Discussion chapters, I highlight the two key themes uncovered in my research: barriers to

digital inclusion and outcomes of gaining access. I also provide further context by discussing a

number of subthemes. I summarize and revisit the key findings, limitations, and theoretical

insights of this study in the final, Conclusion chapter.

Chapter 2: Literature Review

Overview

This literature review outlines research on the digital divide, specifically highlighting how existing and exacerbated digital inequalities impact vulnerable Canadians and limit digital inclusion. I include a review of recent literature with an intent to understand how the COVID-19 pandemic has affected, and in some cases increased, digital inequalities. The literature review is organized under the following headings: Search strategy and eligibility criteria, Search parameters, and Discussion.

For the search strategy and eligibility criteria, I outline the terms and databases I selected to conduct my search for literature as well as the method of how I went about searching. Search parameters used to aid in the search include the year of publication, publisher, methodology of the article, grey literature, and organizing and categorizing the data. In the discussion section, due to the complexity of the literature, I start by outlining key terms and their definitions. I also explore how the circumstances of COVID have influenced the digital divide. Next, I examine Canada's Connection Strategy and how the pandemic has affected related policy. I then review the levels of the digital divide to identify barriers to digital inclusion. Finally, I identify a theoretical framework using van Dijk's digital divide access model, as well as outcomes of Internet use identified by van Deursen, to explore the experiences of vulnerable individuals who participated in the Internet and Devices program.

Search strategy and eligibility criteria

I developed a list of key terms to support my search for literature. The terms I used to conduct my search included digital divide, digital divide and "low income", digital inclusion, digital

inclusion, and Canada, digital inequality, digital literacy, Information and Communication

Technologies, and community informatics. Once these key terms were chosen, I used the

University of Alberta's Library Scopus and Academic Search Complete databases as well as

Google Scholar to conduct my search. While I did conduct searches using individual terms, I

also applied Boolean logic to search using a combination of terms and phrases.

Search Parameters

When selecting and reviewing literature for my research topic, I used the following parameters to

aid in my search:

Year of Publication

To understand the digital divide research, I felt it was essential to include a range of literature

completed within the last twenty years. I wanted to develop a thorough understanding of how the

literature has changed to provide historical and theoretical context.

Publisher

To ensure the quality of the material, I looked at the type of publication for the article. I felt it

was important to ensure that most of the literature reviewed was from reputable academic

journals. In addition to the publisher, I also looked at how often the source had been cited and the

reputation of the author(s). If the literature was widely cited and written by a noted scholar, I felt

this added credibility to the literature.

Methodology of the article

When conducting my search, I looked for literature that uses a similar approach to what I plan to employ. Specifically, this involved literature that used a qualitative approach. Comparison helped me justify my approach and evaluate the success of my research design while highlighting issues. I also selected articles with varying approaches to understand the topic from a different viewpoint and identify biases that may exist.

Grey literature

I did not limit my search to academic journal articles. I included grey literature to contribute to the understanding of my research problem from a Canadian standpoint. Grey literature selected includes government documents, news articles, and university briefs. While the literature is quite extensive on the digital divide and digital inclusion, I tried to focus my search on developed countries similar to Canada. Grey literature provided information that I was not able to locate from an academic standpoint.

Organizing and categorizing the data

To organize and categorize the articles, I developed and used a classification system in Microsoft Excel to separate the articles based on themes. Within designated tabs, I recorded the citation, criteria for choosing the article, extracts from the article, and a column for my notes regarding the reason for the selection. As a backup, I also used RefWorks to organize and annotate articles based on themes.

Discussion

Definitions and context: digital divides, digital inclusion, and the COVID context

The theoretical framework to support this study is based on research on the digital divide and digital inclusion. The literature is broad and complex, much like the issue, with varying definitions for key terminology found throughout. Therefore, it is important to outline key terms and their definitions for this study based on my review of the literature.

Information and communication technologies (ICTs) have become an integral component of our everyday lives and have become intertwined with society (Warschauer, 2002; Goedhart et al., 2019). According to Selwyn (2004), ICTs "encompass the rapid convergence of technologies such as computers, telecommunications, and broadcasting technologies, as well as stressing the communicative and networking capacity of modern-day information technologies" (p.346). For this study, the term ICTs will be used to describe the access type and devices supplied through the Internet and Devices Program, mainly referring to broadband Internet access and the devices, such as computers and tablets, that are required to use the Internet. Other forms of ICTs that were owned and used by participants will be identified in the findings section.

What was apparent while reviewing the literature is that marginalized groups are often excluded from the Information Society, resulting in significant knowledge gaps between groups in society (Parsons & Hicks, 2008). This phenomenon is also known as the digital divide, a complex social and economic issue related to ICTs (Gurstein, 2012; Warschauer, 2002). Initially, the digital divide was proposed to be a binary concept that focused on access, which examines the differences between those with access to ICTs versus those who do not have access to ICTs (van Dijk, 2017). However, as discussed in detail below, this work has expanded over time as

researchers have identified that there are varying definitions of what constitutes a digital divide. The next section provides further context on the levels of the digital divide.

Digital inclusion can be conceptualized as the opposite of the digital divide (Park et al., 2019; Panzarella, 2020; Reisdorf & Rhinesmith, 2020). Put plainly, digital inclusion is the ability of individuals to access and use ICTs. Digital inclusion can only be realized when all individuals have access to reliable Internet and devices and the skills to encourage participation and collaboration in the Information Society (Reisdorf & Rhinesmith, 2020). While access is a crucial component of digital inclusion, skills and effective use are required to ensure beneficial outcomes of use (Salman & Rahim, 2012). Middleton (2020) suggests that Internet access, or the first level digital divide, is only one requirement for digital inclusion. Digital literacy, the ability to effectively use ICTs to realize benefits, is the second requirement to enable digital inclusion (Middleton, 2016; Hadziristic, 2017; Goedhart et al., 2019). Digital literacy can be described as the sum of access, skills, and engagement with ICTs (Helsper & van Deursen, 2015).

It can also be argued that digital inclusion is required for social inclusion due to the onset of the COVID-19 pandemic (Reisdorf & Rhinesmith, 2020). During my review of the literature, it was apparent that pre-pandemic ICT access and use was necessary to partake and succeed in increasingly digital and connected network societies (Warf, 2018; Sewlyn, 2004). As highlighted by digital divide research, inequalities in society cause an unequal distribution of resources magnifying digital inequalities (van Deursen & van Dijk, 2019). At this point in time, access and ICT use are necessary to maintain our fundamental social structures (Beaunoyer et al., 2020; Warf, 2018). Digital inequalities were considered a reflection of and contributor to greater social inequalities (Haight et al., 2014; Quark, 2008; Warf, 2008, Wolfson et al., 2017). The Internet

has become such an essential part of our everyday life that it can no longer be considered a luxury. However, people were able to function in society without it.

This perception appeared to change in March of 2020 when the World Health Organization (WHO) declared COVID-19 a worldwide pandemic. As a result of this declaration, Canadians sheltered in place, and our lives essentially moved online, with our reliance on the Internet reaching an all-time high. These are unprecedented times due to the impacts of the virus on society and the presence of technology (Beaunoyer et al., 2020). Being able to access and use the Internet is necessary to participate in society as the COVID-19 pandemic has forced us to digitally transform our lives and practices (Beaunoyer et al., 2020; Iivari et al., 2020; Warf, 2018).

While in isolation, the Internet has enabled many of us to remain connected and has become our lifeline to access information and services from governments and entities such as the WHO (Beaunoyer et al. 2020, Middleton 2016). This trend continues as many aspects of our lives remain altered and heavily reliant on the Internet due to social distancing guidelines and pandemic restrictions that have been implemented. As highlighted in the literature, having access to the Internet is increasingly considered an essential service in modern-day society. Some researchers argue that the pandemic has exacerbated digital inequalities that in turn impact social inequalities (e.g. Reisdorf & Rhinesmith, 2020). This has highlighted a need for a strategy to speed up the expansion of the Canadian broadband networks to narrow the digital divide for marginalized Canadians (Koch, 2020; McNally et al., 2018). More pressing is the need for policy to address the affordability of broadband access in Canada.

Connecting Canadians: Canada's Connection Strategy

Canada is a country that generally benefits from a high Internet connection rate. As of 2018, approximately 91% of Canadians use the Internet, and over 94% of Canadians outside of rural and remote areas have home internet access (Statistics Canada, 2019). In 2016, a broad review of basic telecommunications services in Canada was conducted. After extensive consultations involving various public/consumer interest groups as well as Internet Service Providers, the Canadian Radio-Television and Telecommunications Commission determined that broadband access is a basic and essential service and is required for meaningful participation in society (Affordable Access Coalition, 2016; Government of Canada, 2016 ; Rajabiun, 2020). However, access to Internet services is not enough. As of 2020, research demonstrates that one in 10 Canadian families still do not have a home internet connection or are fortunate enough to own devices required to use the Internet (Emmanuel, 2020). Digital divide challenges of affordability and availability, which impact access to ICTs, limit digital inclusion among vulnerable populations such as low-income Canadians. In short, people who are digitally disadvantaged do not have the same opportunities as those who are digitally included (Robinson et al., 2020).

Creating plans and policies to address the digital divide is not a new concept in Canada. In fact, Canada's Connectivity Strategy aims to ensure all Canadians have high-speed internet access including rural and remote communities. This strategy centers its solution on partnering with telecommunication organizations and investing in infrastructure to support connectivity. In the 2019 budget, the Government of Canada committed $1.75 billion to support various connectivity initiatives, one of which is the Universal Broadband Fund to connect unserved and underserved rural and remote communities (Government of Canada, 2019).

As a result of the pandemic, public awareness of the digital divide has been amplified. In Canada, there have been promises made by the federal government to connect 98 percent of Canadians to high-speed Internet by 2026, yet many critics argue this timeline is not suitable (Canadian Broadcasting Corporation [CBC], 2020). Most of these plans rely on service providers applying for funding to expand their broadband services. These plans neglect to address a major barrier of access for vulnerable Canadians: affordability (Francis, 2020). While infrastructure is a major barrier in rural and remote communities especially, there is a need to couple this strategy with policy that addresses affordability of broadband services across the country. To be digitally included and to be able to participate in society at this time, Canadians require immediate and affordable access to the Internet as a core component of digital inclusion (Middleton, 2016; Robinson et al., 2020).

As highlighted by Beaunoyer et al. (2020), the pandemic has emphasized the impact of digital inequalities for the socially disadvantaged. Lai & Widmar (2020) argue that our increasing reliance on ICTs has gone underappreciated, given how the pandemic has reshaped this reliance in our everyday lives. Vulnerable individuals are further disadvantaged if they are digitally excluded as they do not benefit from the same opportunities for those online (Warren, 2007; Selwyn, 2004) and may find themselves socially excluded or in an increasingly vulnerable position due to the pandemic.

For instance, the economic impact of the pandemic has caused an increase in unemployment. Those with limited resources may not be able to afford and maintain an Internet connection, which impacts their ability to find new employment. While the Internet affords us many benefits through access to information, essential services, and other supports, those

without access to ICTs find themselves digitally and socially isolated and unable to fully

participate in society at this time (Beaunoyer et al., 2020; Reisdorf & Rhinesmith, 2020). The

economically disadvantaged who are digitally excluded are increasingly vulnerable to the risk of

the virus and the socio-economic consequences that have resulted due to the pandemic

(Beaunoyer et al., 2020; Warf, 2018). Their risk of exposure increases because of their digital

inequalities as those without access cannot shelter in place, emphasizing the significance of

digital inclusion as one of the main factors of well-being given our current reliance on ICTs

(Beaunoyer et al., 2020). As such, the COVID-19 pandemic not only plays a part in increasing

digital inequalities, but it also further increases offline socio-economic inequalities such as

poverty (Association of Community Organizations for Reform Now Canada [ACORN], 2016;

Beaunoyer et al., 2020).

Levels of the digital divide

In order to make sense of the impacts of COVID-19 on digital inclusion, I draw on

research about digital divides and digital inclusion. Digital inequalities can result from

differences in ICT access to differences in digital literacy (Beauynor et al., 2020; Haight et al.,

2014; Powell et al., 2010; Ruimy, 2018). As noted above, initially the digital divide was

proposed as a binary concept that focused on access also known as the first-level digital divide. It

is speculated that those with access challenges, such as vulnerable Canadians, do not fully

understand the opportunities the Internet offers, from saving time and money to convenience and

ability to acquire information (Warf, 2018). Scholars began theorizing ways to bridge the digital

divide, and most of their recommendations focused on addressing the access issue (Sewlyn,

2004).

Affordability is a key factor impacting this first-level digital divide. For vulnerable Canadians, affordability is the primary barrier that limits their ability to adopt and maintain access to the Internet (ACORN, 2016; Hadziristic, 2017; Haight, 2014; Gurstein, 2012; Goedhart et al., 2019; Powell et al., 2010; Rhinesmith et al., 2019, van Deursen & van Dijk, 2019). The ability to access ICTs is a major barrier to digital inclusion for marginalized groups as it prevents "an unequal flow of communication between people and social structures" (Parsons & Hicks, 2008). This unequal flow of information leads to a knowledge gap and reinforces inequalities (Warren, 2007). That is, ICTs continue to promote social classes and maintains or increases the divisions that exist between them (Clayton & MacDonald, 2013).

However, research has suggested that those excluded due to financial and personal reasons will find other ways to gain access (Powell et al., 2010). It is also important to note that not all access is equal, and the type of ICT access can impact digital inclusion. Those who have access to high-speed Internet connections have a different experience and use the Internet more than those who rely on other connection types (Davison & Cotten, 2003). For Canadians, access issues persist regarding affordability, quality service, or lack of access altogether, with the last factor dependent on location (Hudson, 2020; Park et al., 2019; Powell et al., 2010). Regarding location, cost influences a vulnerable individual's decision not to adopt at home. Those who cannot afford a home connection increasingly rely on social infrastructure to access (Rhinesmith et al., 2019) or mobile technologies. While mobile digital communications may offer a way for disadvantaged groups to increase their level of inclusion (Sylvester et al., 2017; Townsend et al., 2020), differences in devices and location of access determine how ICTs is used and influence the outcomes of this use (Park et al., 2019; Rhinesmith, 2012). While there may be various

options to gain access for vulnerable Canadians outside the home, these options have become

limited during the pandemic.

While the access divide still exists, it is not the only barrier limiting digital inclusion.

Before the pandemic, those that were affected by this divide were often overlooked by

researchers and governments as the discourse shifted (Sylvester et al., 2017). As Internet access

became more commonplace, digital divide research began exploring other issues such as skills

and usage that make up the second-level digital divide (Parsons & Hicks, 2008). This divide

examines the differences between individuals based on their skill set to effectively use the ICTs

(Hargittai 2002 as per Scheerder et al., 2017; Gurstein 2003). Education is often one of the most

important factors when studying the digital divide as it is linked to digital literacy, and it also

adheres to income (Scheerder et al., 2019). While vulnerable people may have lower education

levels, research has suggested they will use the Internet to consume and socialize instead of

economic benefit (van Dijk, 2017). Those that remain digitally excluded cannot compete,

creating a cycle of disadvantage as technology and society are intertwined (Parson & Hicks,

2008; Warren 2007). Due to our increased reliance on ICTs caused by the pandemic, I theorize

that vulnerable Canadians have the motivation to effectively use ICT to achieve beneficial

outcomes based on use.

There is also a third-level divide that refers to Internet outcomes. This third-level digital

divide considers impacts of first and second-level divides on other aspects of society including

economic, social, cultural effects (Scheerder et al., 2017), and political categories (Selwyn 2004).

In this instance, the digital divide concept goes beyond access, skill, and use to include people's

relationships with ICTs and their ability to gain benefits from it (Selwyn, 2004; Iivari et al.,

2020, van Deursen & Helsper, 2015). Research focusing on the third-level digital divide suggests

that those with greater offline resources will derive more significant real-life benefit from ICT

use (van Duersen & Hesper, 2015). To date, digital divide research has focused on identifying,

understanding, and responding to the digital divide through digital solutions. However,

evaluating the outcomes of ICT initiatives in other areas of society has often been overlooked.

When we solve the access divide, we assume that those excluded are now included once

connected. However, it has been argued that the digital divide cannot be solved by merely

providing access to ICTs (Clark et al., 2004)

Research tends to focus on highlighting the inequalities of access and use when it comes

to vulnerable individuals. Gurstein (2003) highlighted that while access is significant, it needs to

be coupled with the skills, knowledge, and motivation to use ICTs effectively. Otherwise,

focusing solely on the access issue will continue to provide opportunities to consume rather than

participate. In this sense, the access concept can be expanded to mean "the whole process of

appropriation of a particular technology" (van Dijk, 2017, p.2). Therefore we can re-

conceptualize the digital divide as a complex concept related to "uneven patterns of access"

(Warf, 2018, p.1; Park et al., 2019) and the ability to effectively use it that exists between various

groups in society (Parsons & Hicks 2008). Given the impact of the pandemic, I argue that once

the access divide has been solved, vulnerable individuals have the skills, knowledge, and

motivation to use ICTs to participate effectively to realize beneficial outcomes. Participation in

ICT use can lead to more significant social, economic, cultural, and political outcomes

(Broadbent & Papadopoulous, 2013).

Determinants of digital inclusion, influenced by the first-, second-, and third-level digital divides, are sociodemographic and socio-economic indicators related to income, education, and age (Scheerder et al., 2017). A digitally inclusive society cannot be realized until every Canadian has affordable access to high-quality internet services and the digital skills to effectively use ICTs to meaningfully participate in society. As Hadziristic (2017) points out, only using or consuming ICTs does not mean that individuals have the required digital skills necessary to realize beneficial outcomes of use. Those individuals who do not possess digital skills are often faced with fewer work opportunities and economic advancement (Hadzirstic, 2017). Engaging with ICTs is an ongoing learning process as the digital environment evolves. Most Canadians are digital natives, born and raised in the digital age and immersed in digital activities as part of their everyday life (Warf, 2018). Therefore, it can be hypothesized that those who experience digital inequalities are able to adapt and navigate the changing digital environment (Hadziristic, 2017) due to the pandemic's emergent nature. As digital natives, it is assumed they can use ICTs; however, we need to determine if they have the skills to use ICT in an effective way (Gurstein, 2003). Given the necessity to use ICTs during the pandemic, and having grown up with ICTs, I suggest that vulnerable Canadians have the necessary skills or can develop the skills when the access issue has been solved.

Theoretical Framework

In this study I adopt van Dijk's digital divide access model, as well as outcomes of Internet use identified by van Deursen, to learn about the experiences and needs of vulnerable Canadians related to digital inclusion during the COVID-19 pandemic. According to van Dijk (2017), the sequential phases of access include gaining physical access to ICTs, having the

motivation to use ICTs, having the skills required to use ICTs, and finally, usage. While those

without access in a time of pandemic are practically unable to participate in social and economic

opportunities that exist, having access to the Internet and accessing what is on the Internet is not

the same thing (van Dijk, 2005). Access is a necessary component of digital inclusion; however,

we must question who is accessing ICTs as well as the reasons and purposes for accessing them

(Gurstein, 2003, Par.29). ICTs, when used effectively, can lead to digital inclusion and help

vulnerable Canadians change their economic, social, political, and cultural conditions (Gurstein,

2003). However, as discussed earlier, although access is a crucial component of digital inclusion,

it does not necessarily lead to effective ICT use (Warren, 2007; Livingstone & Helsper, 2007). In

this study, I explore how people who are participating in a digital inclusion program think about

'effective use', which means the ability to integrate ICTs into the accomplishment of identified

goals (Gurstein, 2003).

My research design will adopt the four phases of access proposed by van Dijk (2017). I

use these four phases as indicators of digital inclusion to help determine if ICTs are being used

effectively to obtain outcomes related to the social, cultural, political, and economic

opportunities identified by my study participants. Factors that influence motivation include

"perceived usefulness, ease of use, and subjective norms" (van Dijk, 2017, p.5). An assumption

guiding my study is that people's motivation to gain access and use ICT increases as our reliance

on technology grows, and ICTs become more ingrained in our daily lives (van Dijk, 2017).

During the pandemic, when ICT dependence is at an all-time high, we might assume that

motivation for all Canadians, including vulnerable Canadians, may also be high. Van Dursen &

Hesper (2015) also suggest that social isolation improves an individual's chance of engaging

effectively with ICT, which is another factor linked to ICT use during the pandemic. Based on

these insights in the literature, **I will explore these issues related to motivations in my interviews.**

Secondly, once access is obtained and is coupled with the motivation to use that access, individuals require the skills, or need to be digitally literate, to use ICTs. Digital literacy, as defined by Beauynor et al. (2020), is "the degree to which individuals have the capacity, knowledge, motivation, and competence to access, process, engage and understand the information needed to obtain benefits from the use of digital technologies" (p.1). As highlighted in the literature, there is no singular definition or standard skills that comprise digital literacy. It is often conceptualized as an individual's ability to adapt to and navigate ICTs (Hadzirstic, 2017). As proposed by van Dijk (2017), an individual should possess the required skills to access and use ICTs and also the skills to retrieve information, communication, and create content. The assumption is that being digital natives and having grown up accessing and using ICTs, vulnerable Canadians should have these skills. Regarding usage, while the time and frequency of use can be used to measure usage, what matters is what people are doing on the Internet. This is the final goal of appropriating technology (van Dijk, 2017). It is important to measure usage to understand how those who gain access "take advantage of the opportunities afforded by the Internet" (Haight et al., 2014, p.504). **Therefore, I will also explore these issues related to digital literacy and ICT skills in my interviews.**

Thirdly, digital divide literature has evolved from a binary concept to become more complex focusing on access, motivation, skills, and use as potential barriers, or indicators, to digital inclusion. While it is important to understand what limits or enables digital inclusion, what is lacking in the literature is research focusing on outcomes of ICT use. Scheerder et al.

(2019) use domestication theory to highlight that the Internet will be used by an individual based on their pre-existing conditions such as daily routines and values. Using ICTs will only have an impact based on lifestyle and goals (Anderson & Tracey, 2001). Therefore, it is assumed based on the urgent need to access and use ICTs during the pandemic to sustain one's lifestyle, vulnerable Canadians will be able to effectively use ICTs to realize beneficial outcomes. Social outcomes are primarily concerned with social resources such as acquiring social connections and obtaining material resources (Van Deursen et al., 2014). For this research, social outcomes will also encompass engagement with institutions to acquire public information and services (van Deursen et al., 2014). Economic outcomes include labour and commerce activities on the Internet (van Deursen et al., 2014). Knowledge, skills, education, art, and entertainment make up cultural outcomes (van Deursen et al., 2014). Political outcomes are related to political participation (van Deursen et al., 2014). This method will help to understand, from the perspective of vulnerable Canadians, the nature of the barriers to digital inclusion and outcomes produced from gaining access (Broadbent & Papadopoulous, 2013). **Therefore, I will also explore these issues related to outcomes of use in my interviews.**

Solutions to digital divide problems

In response to the pandemic, various organizations, from commercial internet service providers to government agencies, to non-profit organizations, have been stepping up to provide ICT access to vulnerable Canadians. One example shared in Chapter 3 is a program provided through the United Way of Cape Breton and the Canadian Mental Health Association of Nova Scotia. At the onset of the pandemic, these organizations acquired funding from the federal government to provide vulnerable individuals and families with three months of Internet access

and the required devices to use the Internet. The short-term funding further highlights the affordability issue for broadband access since this initiative cannot be sustained over time (Peddle, 2012).

Community Informatics literature suggests that digital inclusion initiatives should be co-created with marginalized communities to effectively address their issues (Gurstein, 2012; Robinson et al., 2020). In this case, these organizations could not co-create this initiative with vulnerable individuals in their region; however, as a result of the pandemic, some of these communities are exploring creating their own telecommunications network to get the required access for their area. In the meantime, these two organizations addressed a great need, access to the internet. Research suggests that while access is a crucial component of digital inclusion, alone, it does not enable digital inclusion or define the experience of using ICTs and the outcomes of that use (Livingstone & Helsper, 2007; Park et al., 2019; Warren, 2007). While other barriers need to be considered to understand outcomes of use, I argue that the access issue is the most significant barrier to digital inclusion for vulnerable Canadians during the pandemic.

To close the gap, governments in Canada have intervened and made supply-side efforts to ensure access to broadband Internet for all Canadians (Pearson, 2017; McMahon, n.d.). The demand for the Internet has increased due to the pandemic, and supply-side issues persist and hinder inclusions in the digital society for marginalized groups in Canada (Lai & Widmar, 2020). The UWCB's initiative is a supply-side effort that addresses the affordability challenge. It is based on a shared belief that access to broadband Internet is not a luxury but an essential requirement for economic, social, and cultural activities (Pearson, 2017). While Internet providers have adopted policy changes in response to the pandemic, the ability to access and

afford at home remains a challenge, primarily due to the financial strain that has increased with

the onset of COVID-19 (Lai & Widmar, 2020). To date, government policy tends to support

consumerism; that is, consumption of Internet services offered by commercial providers. Instead

of regulating the telecommunications organizations with a monopoly-like hold on Internet

service in Canada, policy changes have provided them with funding opportunities to build

increased infrastructure, expanding their control (Quark, 2008). While this means better Internet

service for Canadians, researchers point out that the cost to establish and maintain Internet access

continues to be high (Peddle, 2012). Thus the affordability issue has increased during the

pandemic when financial strain is at an all-time high.

Key findings and conclusion

In order to determine who does or does not benefit from Internet use, this exploratory

research will use a qualitative approach to identify the outcomes of internet use for vulnerable

Canadians who have gained access to ICTs during the COVID-19 pandemic. Based on this

review of the literature, digital divide research indicates that qualitative research is often

overlooked in this field (Shade, 2002; Scheerder et al., 2019; van Deursen et al., 2014). The goal

of the research is to uncover the perspectives of vulnerable Canadians who participate in the

UWCB digital inclusion initiative and understand the outcomes of gaining access to the Internet

during COVID-19 from their perspectives (Scheerder, 2017; van Deursen et al., 2014).

Research tends to highlight class, income, and education as factors that limit digital

inclusion for vulnerable individuals. While previous research has uncovered how barriers related

to the first, second-, and third-level digital divides limit digital inclusion, evaluating the

outcomes of using ICTs is overlooked and often assumed. With the onset of the pandemic,

having access to ICTs has become essential for many aspects of life. Those who experience the first-level digital divide are at a disadvantage when participating in society and are excluded from equal opportunities to education, employment, and government services access (ACORN, 2016; van Dijk, 2017; van Deursen & van Dijk, 2019). Physical access leads to inequalities in material access, such as access to information available on the Internet. As such, the access divide remains a problem, especially for vulnerable individuals who are already disadvantaged.

Therefore, I argue that the access issue is the most significant barrier to digital inclusion for vulnerable Canadians during the pandemic. Since the majority of Canadians have grown up in the Information Society, I assume that vulnerable Canadians already have the motivation and skills to participate in an effective way to realize beneficial outcomes of ICT use as a result of the pandemic. However, in order to better understand the outcomes of gaining access to ICTs for vulnerable Canadians, I will explore if other digital divides, such as motivation, skills, and usage, continue to act as barriers to digital inclusion once access is gained. Using a qualitative approach, I will adopt the four phases of access proposed by van Dijk as indicators of digital inclusion, and use these indicators to prepare my interview questions. My questions attempt to determine if ICT is being used effectively to obtain outcomes related to social, cultural, political, and economic opportunities. While there has been headway made to ensure vulnerable Canadians are connected, we also need to understand *what these individuals do* with their access to ICTs. Therefore, my research design focuses on exploring the outcomes that vulnerable individuals experience after participating in a digital inclusion program during the COVID-19 pandemic.

Chapter 3: Research design and methods

Introducing the case study: Internet and Devices Program, Cape Breton Regional

Municipality, Nova Scotia

Across Canada, United Way is working locally to build great communities for everyone (United

Way Centraide Canada, 2021). In May of 2020, The "Emergency Community Support Fund"

was established by the Government of Canada to help charities and non-profit organizations

serve and support vulnerable Canadians during the COVID-19 pandemic (United Way of Cape

Breton, 2021). To distribute funding, streams were administered by United Way Centraide

Canada, Community Foundations of Canada, and the Canadian Red Cross in Canadian

communities. Over half a million dollars was allocated to the United Way of Cape Breton

(UWCB) to help fund organizations in their region that provide direct services to vulnerable

populations who are impacted by COVID-19 (United Way of Cape Breton, 2021). The UWCB

worked in collaboration with other not-for-profits and support organizations to fund 25 programs

(United Way of Cape Breton, 2021), one of these being the Internet and Devices program that

they partnered with the Canadian Mental Health Association of Nova Scotia (CMHANS) to

facilitate. With the initial lockdown, access to ICTs was identified as a required resource for

vulnerable people in their region. Those without access required it for information and

navigation, mental health wellness, and social inclusion and learning (United Way of Cape

Breton, 2021). As a result in April 2020, even before funding was received, the UWCB and the

CMHANS began working to facilitate connecting vulnerable families and individuals to internet

services as a response to the pandemic. In total, through the Internet and Devices program, these

organizations were able to help 155 individuals and households; 117 households were connected

to high-speed Internet for 9 months and 38 unique individuals were provided with tablet devices they were able to keep (United Way of Cape Breton, 2021).

This initiative provided me with an opportunity to learn how participants in this digital inclusion program experienced outcomes of internet access. In order to undertake this research, I established a relationship with the two organizations in 2020. This involved first reaching out by email to ask them for more information on the program and to request a meeting to discuss patterning on a study. I then set up video conference meetings with UWCB and CMHANS, during which they shared information on how they came to establish this initiative and identified issues and outcomes of the program. In this section, I introduce my case study and the context of my research by drawing on background information from these planning discussions, as well as online research about the digital inclusion program, the two organizations, and associated social media.

During these planning discussions, staff from the two organizations, who work closely with vulnerable populations in the community, told me when the initial lockdown measures were established and learning moved online, their focus was connecting children who needed Internet access for online learning activities. Due to privacy issues, the organizations were unable to get the information they needed from the school board to connect families who needed Internet service. Although the funding had been confirmed but not received, they started initial recruitment, and as a way to work around this issue, the UWCB made a Facebook post offering this free service to vulnerable families and individuals in the Cape Breton Regional Municipality (CBRM). This post was how I first discovered the program. It has since been deleted from their Facebook account due to the overwhelming number of requests they received from those in need of access to ICTs. While the organizations recognized there was an immediate need for ICTs

access in their community, they didn't expect the initial response they received; in under a week, they received over 200 expressions of interest. At first, some administrative issues slowed down implementation at the onset of the program. One issue was the availability of broadband connections in remote and rural areas in the region. Put simply, some households who wanted to participate in the program could not access internet connections. In particular, an Indigenous community in the CBRM, Eskasoni, was quite digitally isolated prior to this initiative. This Indigenous community still lacks the proper infrastructure to support their connection needs. Due to the funding allocated for this program, supporting infrastructure expansion was not a focus of their program. While nothing could immediately be done to solve these infrastructure issues, UWCB and CMHANS worked with Seaside Communications to change procedures where necessary. For instance, for individuals who had outstanding bills with Seaside Communication the UWCB put the service in their organization's name. This example highlights the affordability issue and the struggle to maintain Internet connectivity due to high costs for vulnerable Canadians.

Another challenge the organizations faced at this stage was determining eligibility for the program. The definition of "low-income individuals" was defined by the UWCB based on the low income cut off (LICO) for the province of Nova Scotia. The LICO for participants was a household income ranging from $18,520 for a single person to $35,017 for a couple with two children or more (Stadelmann-Elder, 2021). However, due to privacy issues and the inability to verify this information during the pandemic, the organizations were unable to test if the participants met this definition and therefore took their word for it. It is important to note that this situation has resulted in problems in other internet subsidy programs. For example, in the U.S. the Lifeline program, a low-income subsidy for landline, cellular and broadband

connections, has been abused and the subject of fraud for years (Snider, 2019). As a result of

years of mismanagement, the Government Accountability Office investigated the program and

were unable to confirm the eligibility of about 1.2 million subscribers, more than one-third of

those participating (Snider, 2019).

Based on the funding received as part of the Emergency Community Support Fund, at

first the partners determined they could fund 3 months of free Internet access, dependent on date

of connectivity, along with tablets for those that required devices. This service offering was

determined by how they were allocating program funding. As the pandemic progressed, and

restrictions remained in place, funding priorities shifted and the program funding was increased.

As a result, UWCB and MHANS extended the program beyond three months to nine months.

This was done to ensure participants could have continued access to the Internet. In total, 117

households participated in the program, 60 of which were located in Indigenous communities.

The organizations stated that in these communities, the need for internet access was greater than

what they were able to provide through the funding they had available. As a result, they were not

able to provide support for everyone who requested it.

This context sets the stage for my research about what outcomes this program held for

participants. Although a lot of work has been done to reduce digital inequality, there is little

information available to measure the outcomes of these kinds of digital inclusion programs. This

exploratory study initially planned to examine the outcomes of a digital inclusion program

launched during COVID-19 for vulnerable, or at-risk, groups in Canada, such as low-income

individuals. By assessing the social outcomes of this program, I hoped this research might help

contribute to the success of these programs by highlighting the perspective of the individuals

involved. Unfortunately, as described in more detail below, as the study progressed and due to

COVID-19 restrictions, I was unable to recruit participants of the Internet and Devices program.

Instead, I conducted in-depth interviews with staff from the two organizations that administered

the program and one organization whose clients accessed the program. Although I was unable to

connect with program recipients directly, by interviewing these staff members I learned their

perspectives of what is working, what benefits the recipients derive from these programs, and

what ideas they have to help improve future digital inclusion programs.

Research design and methods overview

Through this case study, taking a qualitative research approach, I explore the outcomes of

this digital inclusion initiative that was launched during the COVID-19 pandemic in Cape Breton

from the perspective of the organizations involved. As noted above and discussed in detail

below, originally, I had planned to conduct one-on-one semi-structured interviews with

individuals who received ICTs support during the pandemic as part of this initiative funded by

the UWCB and CMHANS. However, as described below, due to a number of barriers

encountered during the recruitment process, I shifted my focus from participants of the program

and interviewed representatives from the organizations involved to gain a broad understanding of

the outcomes of the program for the participants.

Influenced by phenomenology, I wanted to interview participants in the digital inclusion

program to ask about their lived experience of gaining access to ICTs during the initial lockdown

period, in order to identify and understand the outcomes of this initiative on their lives (Mayan,

2001). To gain a thorough understanding of the digital divide experienced by vulnerable

Canadians, the digital inclusion initiative, and the potential outcomes for program participants, I

also planned to gather information from two employees from UWCB and CMHANS who have

supported the program. Due to their involvement in implementing and facilitating this initiative, these two individuals provided expert information about the topic and a broad perspective based on their interactions with the program participants (Mayan, 2001).

In order to undertake this qualitative research, I first formed a relationship with the UWCB and CMHANS (Mayan, 2001). I met with representatives from the organizations in July of 2020 to explain the purpose of my study and ask their advice. Since I did not have direct connections with program participants, in order to undertake this research I required their assistance as intermediary organizations between myself (researcher) and the program participants (research participants). At first, these two organizations agreed to serve as an intermediary I was working with to recruit interview participants. I reconnected with these organizations in early 2021 after completing my literature review. During this second meeting, I highlighted in more detail what I required, and asked the UWCB for advice on the appropriate research design. I then applied for ethics approval based on the outcomes of these discussions.

While waiting for ethics approval I met with UWCB and CMHANS again in April to provide another update. During this meeting, the organizations suggested several additional changes to my study design, including changes to the language and the addition of an honorarium to compensate individuals for their time. Based on feedback received from these organizations, while the study initially focused on low-income individuals who participated in the program, we decided to use the term "vulnerable" in place of "low-income" when talking about participants as an ethical consideration for their mental well-being. UWCB also suggested offering an incentive of a gift card totalled at $20 per participant. This amount was determined in partnership with UWCB and was based on the hourly rate they pay participants to share their lived experiences in other contexts. For the purpose of this study, I offered a gift card as

compensation for their time to those that participated in the interviews. I did not use this as an incentive to attract participants to the study. I filed an amendment with the University of Alberta's ethics office that reflected these changes.

I used a recruitment letter to invite individuals to participate in the study. This recruitment strategy was developed in collaboration with UWCB and CMHANS and was based on their experience working with these individuals and families. Once my ethics application was approved, they began connecting with individual participants on my behalf, to explain the purpose of the study and to share the invitation letter to participate. After their initial connection, the intermediary organizations then asked people who expressed interest to connect with me for further information. Based on this recruitment strategy, my original plan was to purposefully sample 6 to 8 participants of this initiative – a sample size selected to help me understand the participants' perspectives in-depth (Mayan, 2001).

Unfortunately, during the first round of the recruitment process, I received no interest from participants. To supplement the recruitment process, the UWCB reached out to another intermediary organization that had utilized the program for their clients, the Adult Learning Association of Cape Breton (ALACB). The UWCB introduced me to the Executive Director of this organization, who could help me recruit participants. Due to the inclusion of this third intermediary organization, I filed another amendment to my ethics approval for the recruitment process. Throughout the recruitment process, I also provided updates to the UWCB and CMHANS. At this time Canada was experiencing the third wave of COVID-19 and the rise of cases due to variant strains.

Once the amendment was approved by the University of Alberta's ethics office, I connected with the ALACB to explain the study and provide recruitment material. They were confident they would be able to find participants for my study. However, after three weeks we were not able to secure anyone to interview that had participated in the program. The organizations explained that their clients were greatly impacted by additional COVID-19 restrictions that had been put in place as a result. Prior to the widespread availability of COVID-19 vaccinations, in May 2021, Nova Scotia was experiencing a rise in cases as a result of the third wave of the virus. To protect residents, the province implemented a number of public health measures including limits on gathering and business and services closures (Government of Nova Scotia, 2021).

At this point, my supervisor and I made the decision to shift my recruitment strategy to focus on representatives of these organizations. Since their clients had participated in the program, staff from these intermediary organizations could provide information about the experiences and outcomes of the program for their clients. While this is a limitation of my study, due to the ongoing challenges of COVID-19 and the timeline to complete my graduate studies, this was deemed to be a necessary solution to the recruitment challenges noted above. I filed another ethics amendment to reflect this change of interview participants, and once this amendment was granted, I began formally recruiting my study participants.

Data collection technique and procedures

I worked with the three organizations to recruit employees who had knowledge of their clients' experience with the program. The primary inclusion criteria for interviewing the participants was that they had direct experience with clients of the Internet and Devices program.

Although the data collected through these interviews did not come directly from participants in the Internet and Devices program, these representatives were able to provide a broad perspective based on their knowledge of their clients and feedback they had received from them. Participation was voluntary, and participants had the right to refuse to participate and were able to decline answering any questions they did not feel comfortable answering. Participants were also given the option to withdraw at any time prior to or during the interview. If they decided they wished to withdraw after their interview, they had two weeks to inform me in writing for the data already provided to be removed. Each interview participant was issued a $20 gift card to thank them for their time and participation.

I was able to secure interviews with three individuals who represented these organizations and had a direct link to the program and its clients. Once participants were identified, I connected with them to set a time and date for the interview and determine their preferred interview communication channel. Since I am in Alberta and they are located in Nova Scotia, I conducted interviews over video. Prior to the interview, I explained the purpose of the project, how the interview would be used, and how the interview recording and transcript will be stored and made available for future use. I also used a consent form to ensure informed consent was obtained. A copy was made available for participants. Once the consent form was reviewed, I began each interview with an overview of the purpose of the project and got verbal consent that was documented through the recording. The information and consent form, explained confidentiality including anonymity for participants, information about future participation and an option to withdraw by the date specified.

I began the interviews by stating my name, the date and location, and asked permission from the participant to record our interview conversation (Calliou, 2015, p.32). I also reviewed

the purpose of the study, how the interview would be used, and asked the participant to verbally

consent. This was important to protect the identity of the participant. All interviews have been

treated as confidential, and to ensure confidentiality, any information identifying the participants

was removed after transcription. However, their contact information was kept if they specified

they wished to receive a copy of the study once complete.

Since I worked in collaboration with the CMHANS and the UWCB to identify and recruit

participants these two organizations will have an indication of who participated in the overall

study. However, the organizations were not given direct access to the interview data, and instead

will only have access to the findings as part of the overall study. In order to protect participants,

all identifiers were removed from the findings and participants were assigned a number (e.g.

"Interview 1"). The list matching numbers to data was kept separate from the data. I destroyed

the list linking the identifiers to the individuals after the interviews were transcribed and the data

had been incorporated in my capstone research report.

During the interview, I collected data using semi-structured interviews following an

interview guide that I developed to answer my main research question:

What do participants in a digital inclusion program for vulnerable Canadians during the

COVID-19 pandemic experience as the outcomes of gaining access to information and

communication technologies (ICTs)?

I chose semi-structured interviews because they create a conversational approach which is

important for gaining trust and building a rapport with the participants (Adams, 2015). The

interview guide consisted of four main questions which included several subsets of questions.

Using an interview guide created a systematic approach to my data collection, and helped with

time management as the interviews lasted between 30 minutes to an hour (Jamshed, 2014).

Depending on what information was uncovered during the interview, I added or omitted

questions to ensure I could follow up on details, and to allow the participant to share their

knowledge. I wanted to be respectful of participants' time but also keep them engaged to capture

the richest data possible. All interviews were recorded for later transcription. I used Zoom to

conduct and record interviews. Recording interviews helped me capture the data effectively and

stay focused on the interview content and participants (Jamshed, 2014). Directly following the

interview, the recordings were transcribed using Zoom's AI transcribing service available

through the University of Alberta. Within a few days following the interview, I also checked the

transcriptions against the original audio file. Clear recordings and cleaned transcripts produced

quality data (Mayan, 2001).

For the purpose of data collection and coding process, both Microsoft Word and

Microsoft Excel were used. The interviews were transcribed in whole on the day of the interview

from digital files into Microsoft Word documents using zoom transcription. The digital

recordings were stored until final analysis was complete. These documents were encrypted for

security purposes. In order to encrypt the data I followed the University of Alberta's Encryption

Procedure.

Data analysis technique and procedures

To analyze the data, I used the inductive coding technique. This general inductive approach

provides an easily used and systematic set of procedures for analyzing qualitative data that can

produce reliable and valid findings (Thomas, 2006). Qualitative research methods allow for

exploration of beliefs, values, and motives that explain why behaviour occurs. The primary aim

of qualitative research is to gain a better understanding of phenomenon through the experiences of those who have directly experienced the phenomenon, recognizing the value of participants' unique viewpoints that can only be fully understood within the context of their experience and worldview (Castleberry & Nolen, 2018, 807-808). This approach was the best fit to answer my research question to understand what participants experience the outcomes of gaining access to the Internet and devices required to use the Internet. The value of this approach is that it provides a richer, deeper understanding of the meanings that people place on actions, events and relationships (Castleberry & Nolen, 2018, 808). Since internet access is something many Canadian tend to take for granted, the benefits of having access are often oversimplified.

Once the interviews were transcribed, I read through the data to get a sense of what it looked like before starting the next step of disassembling my data, which involved uploading the data to the qualitative data analysis tool I used and assigning codes. This helped me gain better familiarity with the data (Thomas, 2006). I then listened back to the recording and compared the transcriptions against the audio file. I made corrections where necessary to ensure the accuracy of the transcription. This process provided closeness to the data and helped orient the other steps of the data analysis process. To begin coding I used Taguette, a free and open source qualitative data analysis tool (Rampin & Rampin, 2021). I uploaded the data, which consisted of the 3 interview transcripts. Once the data was loaded in Taguette, after reading through the data again, I began assigning the first set of codes by identifying similarities and differences in the data (Castleberry & Nolen, 2018). Each interview transcript was coded separately. Using an inductive process allowed meaning to emerge from the data (Castleberry & Nolen, 2018, 809).

After reviewing the codes for patterns, I identified themes. This is known as thematic analysis (Castleberry & Nolen, 2018, p.808). To identify themes, I first developed a codebook with code definitions (See Figure 1).

Figure 1: Codebook

Code	Code definition	Occurrence	Theme
Availability	the ability to access the Internet based on location	5	Barrier of digital inclusion
Affordability	the high cost with securing and maintaining Internet access	3	Barrier of digital inclusion
Digital literacy	having the skills and knowledge to effectively use devices and access the Internet	9	Barrier of digital inclusion
Skills	the skills to use the Internet and devices	4	Barrier of digital inclusion
Misinformation	false or inaccurate information that can lead to harmful outcomes	2	Barrier of digital inclusion
Economic	searching for jobs, use for employment, buying or selling goods	6	Outcome of gaining access

	seeking information and resources, social interaction, sense of community		Outcome of gaining
Social		17	access
Cultural	education, recreation, entertainment	15	Outcome of gaining access
Quality of life	able to participate and enjoy life	12	Outcome of gaining access

Although I was only able to conduct three interviews, I still wanted to establish intra-coder reliability (Castleberry & Nolen, 2018). To do this, I coded the data and then revisited the data a few days later to re-code the same data again. This ensured a consistent manner of coding the data.

Through my analysis of these data, I identified two main themes: barriers to digital inclusion and outcomes of access. Using qualitative analysis, I was able to gain an understanding of the experiences of those who participated in the Internet and Devices program through representatives of the organizations who work closely with them. The codes identified provide further context and nuance to the outcomes of gaining access and the barriers to digital inclusion. Together, these themes and codes will answer my research question. Overall, semi-structured interviews allowed for natural conversation to unfold. I was able to adjust questions where necessary or omit questions if the participant had already answered what I intended to ask. The interviews were very relaxed which helped me develop trust with each participant. While the literature did influence coding during my inductive analysis, the themes that emerged clearly answer my research question. In the next chapter, I discuss these findings in more detail.

Chapter 4: Findings

Through the analysis process, I identified two major themes. These themes, outcomes of gaining access to ICTs and barriers to digital inclusion, are then broken down into subsections to further analyze the findings. Outcomes of gaining access include economic, social, cultural benefits that enhance quality of life. Barriers to digital inclusion identified in my interviews include affordability, availability, and digital literacy, which can be further subdivided into misinformation and digital skills. As I discuss in detail below, these findings reflect existing research on the digital divide.

Outcomes of Gaining Access

Through this research, I wanted to explore how vulnerable Canadians experienced the outcomes of gaining access to ICTs during the COVID-19 pandemic. According to existing research people who experience digital divides are disadvantaged from a socio-economic standpoint (Scheerder et al., 2017). As well, researchers have found that not being able to obtain and maintain internet access further impacts social progress (van Deursen & van Dijk, 2019). The findings uncover a number of outcomes that highlight the experience of vulnerable populations gaining access to ICTs. I induce that participation in ICTs lead to more significant social, economic, cultural outcomes (Broadbent & Papadopoulous, 2013) and enhanced overall quality of life.

Economic

When it came to economic outcomes, participants mentioned that their clientele wanted interview access to search for employment. Those that participated in the Internet and Devices

program used ICTs to access employment tools such as training, job banks, and resources for applying and interviewing. Participants also mentioned some of their clients used the internet to purchase goods online; however, not all of them had access to a credit card which limited their ability to procure goods and services online. Locating employment opportunities was not an outcome that was able to be achieved for all participants in the Internet and Devices program, due to the varying levels of skills and digital literacy. This will be expanded on when discussing the barriers to digital inclusion. These individuals were economically disadvantaged prior to the pandemic. Gaining access to ICTs offered them the opportunity and possibility of decreasing their socio-economic inequality at a time when socio-economic consequences were increasing as a result of the pandemic (Beaunoyer et al., 2020; Warf, 2018). However, none of the individuals interviewed mentioned that program participants gained employment or used their access to maintain employment. Due to their economic disadvantage, participants in the program may not have been able to achieve the same real-life benefit from ICT use as those who are not economically disadvantaged (van Duersen & Hesper, 2015). Previous research has suggested that low-income individuals would not use the Internet to realize economic benefit (van Dijk, 2017). However, the findings demonstrate that participants of the Internet and Devices program recognized the economic opportunities that access granted by actively seeking information and tools for employment purposes. Therefore, I induce that vulnerable Canadians who gain access to ICTs have the motivation to use ICTS for economic factors, such as searching for employment, in addition to social and cultural factors, which I explain in the following sections, to achieve beneficial outcomes.

Social

Social outcomes identified included having access to information and services, experiencing a sense of community, and maintaining social connections. Having access to information was a crucial outcome for these individuals during the pandemic to maintain fundamental social structures (Beaunoyer et al., 2020; Warf, 2018). The participants in the Internet and Devices program used ICTs to access government services or health related services such as mental health resources or information about COVID-19. Prior to the pandemic, these individuals would access these services in person. Once the pandemic was declared and restrictions were put in place, online access to services and programs was their only option. As mentioned by one participant:

> "Our vaccine program is all online here in Cape Breton. Our healthcare system is moving
> to an online platform as well. This has all happened during COVID. So it's been a bit of a
> change for folks. Even folks who have access are struggling with that change. We have a
> high senior population here in Cape Breton and blood work and your vaccine is now
> booked online. I've done some research and it doesn't seem that there's an alternative
> available right now that's, which happened really quickly. So I know that this program
> was definitely detrimental to the folks who needed access to healthcare and service"
> (Interview 1).

Previous research has shown that the Internet affords us many benefits through access to information, essential services, and other supports (Beaunoyer et al. 2020, Middleton 2016). This example showcases how ICTs have become our lifeline to access information and services from

governments and healthcare entities. This finding was reflected in the other interviews. Another

participant shared:

> "Since COVID so many support services have gone online from mental health and
>
> addictions to just all sorts of other community services too. So like many of the rest of us
>
> they've really had to up their game in their digital skills, if they needed to be connected to
>
> those services" (Interview 2).

Given this change in service offerings during the pandemic, I induce that gaining access

to ICTs, and having the skills to use it, was crucial to the health and well-being of program

participants. The ability to connect with loved ones, friends and maintain a sense of community

to alleviate isolation that was caused by the pandemic was another key outcome. These

individuals had lost in-person access to their community support, and through ICTs were able to

regain that connection. The findings illustrate that without access to ICTs these vulnerable

individuals would have been digitally and socially isolated and unable to fully participate in

society (Beaunoyer et al., 2020; Reisdorf & Rhinesmith, 2020). As one participant shared:

> "They were isolated. They needed to connect. So whether that be with family, friends,
>
> healthcare services that's why they need it" (Interview 3).

In particular, the program provided a social outlet and a means to communicate at a time of

social distancing. One participant shared the experience of one of their clients and stated:

> "This individual was probably very social and really needed that community and
>
> interaction to make it through his days. So this definitely filled that void for him when it
>
> was needed" (Interview 1).

As the research suggests, it can be argued that digital inclusion is required for social inclusion

due to the onset of the COVID-19 pandemic (Reisdorf & Rhinesmith, 2020). Throughout the

findings it was shared that gaining access to ICTs allowed these vulnerable individuals to access

information and services, experience a sense of community, and maintain social connections. In

fact, the program participants would have been in an increasingly vulnerable position, not only

due to social isolation, but would also be at greater risk of contracting the virus if they were

required to access information and services in-person. Without access to ICTs, these individuals

would have been digitally excluded and would not have benefited from the same opportunities as

those who were online (Warren, 2007; Selwyn, 2004). This concept is expanded on in the next

section.

Cultural

Education is one determinant of digital inclusion (Scheerder et al., 2017) and one of the cultural

outcomes identified in the findings. Other cultural outcomes identified include recreation and

entertainment. The individuals who participated in the Internet and Devices program used their

access to complete online courses, to attend school, to access recreational activities like reading,

or to find entertainment such as streaming videos or listening to music. When in-person classes

went to online learning, these individuals required access if they wanted to continue their

education. One participant explained that:

> "One of the things they found easy to do once they got the devices and/or internet was
>
> completing their educational work because we had more limited class time, so it was
>
> more time away from class. So they could do that academic work much more easily and

not just be sitting at home, waiting for the next in-person class. It helped keep people on track with their educational goals" (Interview 2).

As another participant mentioned:

"We found some people were borrowing books from the library, like eBooks and things like that. They had more time to watch things for entertainment on YouTube or through other online mediums. And to poke around, finding funny stuff, finding stuff out, doing internet research, just for things that interested them. They were able to broaden their horizons" (Interview 3).

Vulnerable Canadians who experience the first-level digital divide, access to ICTs, are excluded from equal opportunities to education, employment, and government services (ACORN, 2016; van Dijk, 2017; van Deursen & van Dijk, 2019). Due to the varying levels of the digital divide, marginalized groups are often excluded from the Information Society resulting in significant knowledge gaps between groups in society (Parsons & Hicks, 2008). This knowledge gap would have been further widened for vulnerable Canadians without access to ICTs during the pandemic. These individuals would be unable to participate in economic, social or cultural activities during the lockdown periods. Therefore, I induce that by gaining access to ICTs during the pandemic, vulnerable Canadians were able to gain opportunities to economic, social and cultural factors such as education. Through access to ICTs, vulnerable Canadians were able to experience some forms of economic, social and cultural outcomes that resulted in enhanced quality of life.

Enhanced Quality of Life

While quality of life is a subjective indicator, it was a key sub-theme identified as an outcome to gaining access to ICTs. All participants mentioned how the program enhanced their clients' quality of life. For example, they described how having access to ICTs enabled many of the participants in the Internet and Devices program to achieve their goals. As shared by one participant:

> "It definitely was a huge help in lessening some of the divide that exists for our participants. They were able to access schoolwork and stay in touch to keep working on improving themselves and to feel better about dealing with being isolated" (Interview 3).

Another participant shared that having access to information promoted independence and was a huge benefit of gaining access to ICTs for vulnerable populations. This participant mentioned that having access promoted independence. They noted:

> "I really feel like people who have access to information and are able to see what's out there and sort through it, instead of being told it, they can make their own decisions. They can build confidence and independence is really important in helping folks" (Interview 1).

Additionally a participant mentioned that:

> "If they can go online and just kind of look around at what's available it sort of offers that independence piece. There's no opportunity for stigmatization or to feel that you're vulnerable or being judged" (Interview 2).

Other comments about quality of life centered on care, and the fact that having access to ICTs

provided their clients with options and opportunities to experience something new. One

participant said:

> "A few who have serious mental health and addiction concerns were very happy to
>
> receive their tablet and feel that someone cared enough to help them get
>
> connected"(Interview 2).

Research on the digital divide highlights how participation in ICT use can lead to more

significant social, economic, cultural, outcomes (Broadbent & Papadopoulous, 2013). These

outcomes make up some of the determinants of quality of life as outlined in Canada's Quality of

Life framework (Government of Canada, 2021). Although quality of life was one of the

outcomes of gaining access to ICTs, it resulted from an accumulation of the other outcomes that

were identified. That is, the reason their quality of life increased was due to the outcomes they

experienced as a result of gaining access. I induce that while the access divide was solved by the

Internet and Devices program, there was motivation to use, and beneficial outcomes were

realized, there were still barriers to digital inclusion related to knowledge, skill and affordability

which I will discuss in more detail in the next section.

Barriers to digital inclusion

The Internet and Devices program provided the opportunity for vulnerable individuals in Cape

Breton to gain access to ICTs during the pandemic to enable digital participation. While there

were a number of outcomes identified for gaining access to ICTs, the findings also revealed there

were also barriers that prevented digital inclusion. While the access issue remains the most

significant barrier to digital inclusion for vulnerable Canadians, as research suggests other

factors act as barriers to digital inclusion such as affordability, availability, digital skills, digital literacy and misinformation (Beauynor et al., 2020; Haight et al., 2014; Powell et al., 2010; Ruimy, 2018).

Affordability

Throughout the literature on the digital divide, the affordability of ICTs has been highlighted as one of the major barriers to access, especially for marginalized groups (Peddle, 2012). While the Internet and Devices program offered a solution to this barrier, it was a short-term fix for Internet access. As noted earlier, the program started out as a three-month offering that was expanded to cover nine months of service. However, the program could only offer 9 months of Internet services, after which the participants will no longer have this service unless they can afford to maintain the cost, which is unlikely. As highlighted in previous research on the digital divide, the affordability of Internet access is a significant barrier (Francis, 2020). Internet access is hard to maintain due to the current price threshold that has been set in Canada.

The sustainability of these programs is an issue highlighted in the interview data. Sustainability is tied to funding which links back to the affordability barrier. As mentioned by one participant:

> "Sustainability is a big piece. Like I mentioned, to give people something and have to take it away is almost more damaging than them having it in the first place. So we want sustainable programs that help people build their confidence, and add quality to their lives". (Interview 2)

In order for these programs to be sustainable, social profit organizations require permanent financial support from the government and partnership from the telecommunication

companies themselves. As a solution to this issue, interview participants expressed a desire for

telecommunications companies to provide a form of corporate social responsibility to ensure

marginalized groups can get the access they need. As one participant shared:

> "We need more collaborative partners and we're working on that. There's a real appetite
>
> for corporate social responsibility right now. We're really tapping into that. And you
>
> know, it's going to take some strategy but we have made some progress. We're looking at
>
> a social enterprise strategy and we're working with the municipality and with the
>
> province. We're going to put some applications forth and hopefully get some funding to
>
> have a sliding scale type payments system where it is income tested. So if you make
>
> above $80,000 a year, you might have to pay $80 a month for the Internet, but if you're
>
> living with low income, you might pay $10. So the higher income folks offset the costs
>
> for the lower income folks" (Interview 1).

Funding sustainability is an issue that can have a negative impact on individuals who gain

access through programs like this. Highlighted in a report by the Public Interest Advocacy

Centre, as costs of communications services continue to rise, low-income Canadians struggle to

afford and retain these services (Public Interest Advocacy Centre, 2016). As shared by one

participant:

> "It can be really hard to take something away that people have already become dependent
>
> on and has become a part of their life" (Interview 3).

Therefore, due to the affordability issue, access to ICTs remains a major barrier to digital

inclusion. Although the access issue was solved through the introduction of the Internet and

Devices program, access was short term and could not be sustained due to the fix-term nature of the funding received.

Availability

Another barrier to digital inclusion was the availability of Internet access in certain areas of Cape Breton. Due to the lack of affordable access, many individuals were used to connecting to free Wi-Fi at locations such as the mall, coffee shops, learning institutions or libraries. When the pandemic started, their only option was to access the internet at home. However, one participant shared that the availability issue was: "more challenging in rural areas, especially during lockdown due to access connectivity" (Interview 3).

For those that live in rural areas, Internet service was not available due to a lack of infrastructure. There are also limited service providers in certain areas of Cape Breton, which further limits access options. Most service is offered through small local telecommunications companies. These are both physical and economical issues which limit availability. This first level divide is being addressed through Canada's Connectivity Strategy, which aims to ensure all Canadians have high-speed internet access including rural and remote communities (Government of Canada, 2019). However, based on the findings it is clear that the rural and remote availability divide still persists and reliable Internet service is not an option for some individuals based on location (Lai & Widmar, 2020).

Digital Literacy

Digital literacy is most simply explained as the ability to appropriately and effectively use ICTs. According to those interviewed, many of the participants of the Internet and Devices program did not have strong digital literacy skills. One participant stated that there was:

"Some frustration with usage due to their lack of experience and literacy issues'"

(Interview 3).

Due to their limited experience with ICTs digital inequalities resulted from differences in digital

literacy (Beauynor et al., 2020; Haight et al., 2014; Powell et al., 2010; Ruimy, 2018). Although

the findings highlight the economic, social, and cultural outcomes of gaining access to ICTs,

these were experienced at varying levels by program participants. Digital literacy is the second

requirement to enable digital inclusion (Middleton, 2016; Hadziristic, 2017; Goedhart et al.,

2019) and in this case was a barrier at varying levels. Although program participants faced

barriers related to digital literacy, they still had the motivation to access and use ICTs to realize

benefits. Since digital literacy is often conceptualized as an individual's ability to adapt to and

navigate ICTs (Hadzirstic, 2017), some program participants were able to challenge this barrier.

Diving deeper, there were two specific challenges throughout the findings in relation to digital

literacy. These include digital skills and misinformation and are explored in greater detail below.

Digital Skills

Digital skills are a component of digital literacy and focus on what tools to use and how

to use them in relation to ICTs (Bali, 2016). Participants of the Internet and Devices program had

limited experience using ICTs, and therefore lacked the skills for effective use. While there was

a spectrum of skill sets, interview participants agreed that most individuals who participated in

the Internet and Devices program had basic digital skills. The individuals interviewed perceived

that skills are influenced by factors such as age and previous levels of use. Previous research on

the digital divide suggests that different levels of access to ICTs were based on an individuals'

characteristics such as level of income and education, employment, age, and sex (van Dijk,

2013). The impressions of those interviewed were that most program participants had previously connected to the internet using a mobile device or a desktop computer.

While there are programs offered through social profit organizations to help individuals learn digital skills, in-person learning was disrupted due to social distancing restrictions. As one participant stated, "It's really hard, very hard, to teach digital skills digitally" (Interview 2). When talking about skills, interview participants mentioned that some of their clients lacked the knowledge on how to locate certain information on the Internet. For example, one mentioned how lack of digital skills impacted their ability to find employment:

> "If you are applying for a job you may be able to navigate your way to the website and go
>
> through the application. Bravo, if you can do that, but you also have to be able to reply to
>
> emails. It's a lot of these skills that seem so simple to us, that really are multilayered and
>
> difficult when you are starting from scratch" (Interview 2).

However, participants also mentioned how their clients slowly acquired skills by gaining access and being motivated to use that access.

> "They could play around with it more and use it in ways that they maybe didn't see as a
>
> possibility like to do their schoolwork so much more easily when you have a device"
>
> (Interview 3).

While the program participants had acquired a motivation to access ICTs and use them, they had to learn to manage ICTs (van Dijk, 2013). Digital skills are not easy to measure, as previously highlighted in the research, because most skills are taught by learning through practice (van Dijk, 2005). The findings suggest that this was the case for some participants who were able to acquire

new skills through use, while others lacked the knowledge to use tools, to access information or to identify misinformation, which will be discussed in the next section.

Misinformation

A barrier to digital inclusion tied to digital literacy that was identified in the findings was the issue of misinformation. "Digital literacy is not about the skills of using technology, but how we use our judgement to maintain awareness of what we are reading and writing, why we are doing it, and whom we are addressing" (Bali, 2016, p. 4).There is a significant problem with misinformation being spread online and this is often amplified in a time of crisis (World Health Organization, 2021). As shared by one participant:

> "When you're dealing with individuals who may have never been on the internet, they
> may not understand what's true and what's not true*"* (Interview 1).

For instance, one interview participant shared that some of their clients became vaccine-hesitant due to misinformation being spread through social media. Those interviewed identified this issue as the most damaging impact of gaining access to the Internet. One representative mentioned:

> "I think our participants are more vulnerable with their lack of education. Not that that is
> the only risk factor for falling prey to misinformation, but yeah, I think it does make them
> more vulnerable. So that's a downside*"* (Interview 2).

In particular, misinformation of COVID-19 on the Internet was rampant. The internet has become an important source for information, especially health related information, and individuals need to be aware about the quality of the information they read and, in turn, re-

produce (Cuan-Baltazar et al., 2020). Falling victim to misinformation is not a unique situation

for individuals who participated in the Internet and Devices program. It can happen to anyone.

The spread of misinformation is influenced by common identity since individuals gravitate

towards information that is familiar and aligns with pre-existing beliefs (Agunwa, 2021). What

these findings highlight is the need for digital literacy training as part of ICTs programs to

minimize barriers to digital inclusion.

Summary of findings

Through the analysis, two main themes emerged: outcomes of gaining access and barriers

to digital inclusion. The outcomes of gaining access that were experienced include economic,

social, and cultural which resulted in an enhanced quality of life. The barriers to digital inclusion

were related to affordability, availability and digital literacy. The findings suggest that when the

access divide was solved by the Internet and Devices program, there was motivation to use that

resulted in beneficial outcomes being realized, yet there were still barriers to digital inclusion

related to knowledge, skill, availability and affordability. In the next section, I will draw on the

findings to discuss the outcomes of gaining access to ICTs for vulnerable Canadians during the

COVID-19 pandemic.

Chapter 5: Discussion

Having access to ICTs is essential for many aspects of life yet digital divides persist. In digital divide research, evaluating the outcomes for the "have nots" who gain access to ICTs through digital inclusion programs is often overlooked. The literature tends to focus on the reasons for the divides instead of exploring the outcomes that result from solutions to the divides. The COVID-19 health crisis accelerated our reliance on ICTs. Therefore, I felt it was necessary to explore if there were outcomes of gaining access to ICTs experienced by vulnerable Canadians during the COVID-19 pandemic. The findings indicate that vulnerable Canadians who participated in the Internet ad Devices program experienced three outcomes as a result of gaining access to ICTs: economic, social, and cultural outcomes that enhanced their quality of life. These findings support previous research by Scheerder et al. (2017). The data suggests that even when the access divide is solved, it does not in fact define the experience of using ICTs or the outcomes based on that use. As Middleton (2020) suggests Internet access, or the first level digital divide, is only one requirement for digital inclusion. However, the data contributes a clearer understanding of the importance of motivation when the access divide has been solved. In line with the hypothesis due to the increased reliance on ICTs caused by the pandemic, vulnerable Canadians did have the motivation to use ICTs to achieve beneficial outcomes based on use.

Since technology and society are interviewed, individuals that are digitally excluded are disadvantaged (Parson & Hicks, 2008; Warren 2007). Due to their pre-existing social disadvantage, economic outcomes for these vulnerable individuals focused on opportunities for finding and gaining employment. While access to ICTs during the pandemic was required to

support remote work, this economic outcome was not present in the findings. This highlights that participants were likely low-wage workers that were using their newfound access to improve their employment prospects. Although this program was a response to a crisis, digital inclusion programs should be set up to tackle all levels of digital divides from access to digital literacy to ensure effective use. This strategy could help disrupt the cycle of disadvantage.

There were numerous social outcomes identified in the research. These focused on access to information, programs and services related to health, government, and social needs, as well as maintaining a sense of community and social connections. In particular, having access to ICTs during the pandemic was a determinant of health while not having access was detrimental to one's health. Canadians required access to locate health-related information about the virus, to stay updated on restrictions, and to book COVID-19 tests and vaccinations. Most importantly, access to ICTs was required to maintain self-isolation. That is, the first level digital divide, and the ability to afford home internet access, is a major reason for the inequality in people's ability to self-isolate (Sinclair & Reeves, 2020). At the same time, digital literacy is important to ensure access does not inadvertently expose users to misinformation about health. The findings showed that increased access resulted in negative consequences for some users encouraging the spread of misinformation that lead to vaccination hesitancy. This reinforces the importance of addressing the digital literacy divide so that vulnerable individuals can engage and understand online information to obtain beneficial use of ICTs (Beauynor et al. 2020). The cultural outcomes identified related to education, recreation and entertainment. Participants could participate in online school, recreation classes and expand their entertainment options. This was particularly important when in-person options were limited. Entertainment is often viewed as frivolous use, but it is imperative for overall health and well-being (Pressman et al., 2009).

Previous research had suggested that vulnerable people will use the Internet to consume and socialize instead of for economic benefit (van Dijk, 2017), however, these findings suggest otherwise. Although participants in the Internet and Devices program did use their access to socialize, they also participated in activities for social improvement. Recognizing the limitations of the small sample size and the inability to connect directly with participants in this specific digital inclusion program, my research indicates that the social, cultural and economic outcomes that resulted from gaining access to ICTs enhanced the quality of life of participants. Based on interview data, it can be concluded that without the program the participants would have been isolated, not only in a physical sense, but also from society, since life essentially moved online. Staff from participating organizations stated that these vulnerable individuals, who are used to being excluded from many aspects of society, could in some ways now participate more equally. However, this research also points to the varied impacts of persistent digital divides. When describing the impact of the program, one interview participant shared:

> "It really points to the depth and kind of the multiple layers of the digital divide. It's not just, oh, I don't have the Internet. It's all the implications that go along with it. That you really are on the outside. You're cut off. So they felt like, wow, people care about us and we don't feel abandoned and we have a way to participate now. So that's powerful stuff. Very powerful, I think" (Interview 2).

These results build on existing evidence that determinants of digital inclusion are sociodemographic and socio-economic indicators related to income, education, and age (Scheerder et al., 2017). Although participation in this program led to significant positive outcomes, there were still several barriers to digital inclusion once access to ICTs was gained.

Digital literacy, the ability to effectively use ICTS to realize benefits, is the second requirement to enable digital inclusion (Middleton, 2016; Hadziristic, 2017; Goedhart et al., 2019). Digital literacy issues related to skill level and misinformation were barriers to digital inclusion. Access is a crucial component of digital inclusion, yet skills and effective use are required to ensure beneficial outcomes of use (Salman & Rahim, 2012).

However, even though skill levels were described as basic, participants of the program were able to use ICTs to achieve beneficial outcomes. As suggested by Van Dursen & Hesper (2015), high levels of social isolation improve an individual's chance of engaging effectively with ICTs. Based on the demographics of the individuals who participated in this program, some of the participants had little to no pre-existing digital skills. However, interview participants explained that they did have motivation to gain the knowledge and to acquire a basic skill set once the access issue had been solved. The interview findings show that some participants were motivated enough to teach themselves digital skills, while other participants needed assistance. According to interview participants, those people who experienced digital inequalities related to skills were able to adapt and navigate in the digital environment of the pandemic.

Nonetheless, low levels of digital literacy limited effective use of ICTs once access was gained. In order for vulnerable Canadians to be able to effectively use ICTs, those with limited experience require additional training to enhance digital literacy to navigate the complex online environment. The organizations that funded the Internet and Devices program could not provide in person training during the COVID-19 pandemic due to restrictions and lockdown policies. Not-for-profit organizations can enhance government connectivity initiatives by providing programming to enhance digital skills and literacy to achieve effective use.

While not-for- profit organizations like the UWCB and CMHANS try to tackle the digital divide issue, it is important to note that government-funded ICT programs are generally not sustainable; mostly due to funding issues related to fixed-term funding models and priorities of the government in power (MacDonald et al., 2012). Further, even with funding available, these organizations are limited to what they can achieve, due to a number of factors such as program costs and funding restrictions. The organizations involved in the Internet and Devices program shared a desire to see greater corporate social responsibility from telecommunication companies when it comes to addressing the digital divide. In this case, corporate social responsibility could focus on social concerns for vulnerable populations without access to ICTs.

While my research found ongoing barriers to digital inclusion, the positive outcomes of the program were influential to participants' lives. This program provided a short-term solution to the digital divide issue for vulnerable individuals within a Cape Breton community. The effects of going from a digital "have not" to a digital "have" and then back to a digital "have not" again are unknown. As shared by one participant, "we're concerned about when the program ends. It can be really hard to take something away that folks have already become dependent on and has become a part of their life" (Interview 1). Overall, affordability is the biggest issue that needs to be addressed when tackling the digital divide. Through the findings it was clear that the program participants had the motive to use and the desire to acquire skills through their use yet the affordability issue will affect their ability to maintain access once the program ends. In the final chapter, I focus on the necessity for social policy to address this issue.

Chapter 6: Conclusion

With the onset of the pandemic, access to ICTs became essential for many aspects of life. In normal times, those who experience the first-level digital access divide are at a disadvantage when participating in society and are excluded from equal opportunities to education, employment, and government services access. The digital divide is still prevalent in Canadian society and the pandemic has highlighted how significant the divide is, especially for vulnerable populations. While the organizations responsible for administering the Internet and Devices program are aware there is a need for ICTs access, as one interview participant shared, "we didn't expect that there was that much of a digital divide" (Interview 1). The findings highlight that the participants of the Internet and Devices program had motivation to access and use ICTs. This motivation was the result of a desire to fulfill social, cultural and economic needs. This is consistent with previous research on the digital divide. As previously highlighted by Van Deursen et al. (2017), online engagement results in social, economic, cultural and political outcomes. The findings suggest that participants in this particular program, which was put in place as a result of the pandemic, experienced a number of outcomes that were directly linked to their ability to gain access to ICTs. These outcomes mirrored their needs and included a combination of social, cultural, economic factors that enhanced quality of life.

During the COVID-19 pandemic, having access to the Internet has become an issue of social equity. The pandemic has highlighted how essential this service is. ICTs are an important component for health and well-being (Barna, 2020), especially when isolated, as was highlighted when participants spoke about the improvements in quality of life that resulted from the program. What was apparent while reviewing the literature is that marginalized groups are often

excluded from the Information Society, resulting in significant knowledge gaps between groups

in society (Parsons & Hicks, 2008). This gap widened even further as a result of the COVID-19

pandemic. All levels of government have a role to play to ensure all Canadians have access to the

Internet for their social well-being. When speaking about the essentialness of the Internet, one

participant said it best:

> "Research is needed to garner support for the Internet in being more than a frill, more
>
> than just more than a privilege. If you exist in today's society, it comes down to human
>
> rights really, and inclusiveness in the community.*"(Interview 2)*

The Internet and Devices program was not a unique program. With the onset of the pandemic,

social profits and municipalities across Canada have been focused on finding a solution to the

digital divide. In Halifax and St. John's, COVID-19 Community funding was used to boost

public Wi-Fi in vulnerable neighbourhood communities. Prior to the pandemic, libraries, and

other institutions, acted as a bridge to span the divide. These organizations understand that access

to ICTs is a community need that extends beyond the pandemic (CMA Foundation, 2020). While

there are options for public access, during the pandemic – and perhaps beyond it – home access

provides the greatest opportunity to lessen social inequalities.

Our society recognizes that there is a need to close the digital divide in Canada, yet most

government programs continue to focus on infrastructure when the real issue is about equity.

Expanding infrastructure is a start to ensure all Canadians can be connected. The findings

identified positive outcomes related to social, cultural and economic factors as well as enhanced

quality of life. Yet there were still barriers to digital inclusion including availability,

affordability, and digital literacy. Having a digital strategy is a start to address the availability

barrier, but social equity is also essential. Government funding given to telecommunication companies to address digital divides needs to be tied to social policy. Social policy is the way societies around the world meet human needs for security, education, work, health and well-being (Platt, 2021). Affordability will continue to be an issue if telecommunications providers are not regulated or incentivized to provide relief to vulnerable Canadians. There is also a need for a digital literacy strategy to ensure effective use can be achieved by all Canadians. While there is focus on the availability barrier, digital policies need to be inclusive to address the affordability and digital literacy barriers as well. As highlighted in the findings, availability remains a barrier for vulnerable populations in remote and rural areas. Securing and maintaining access is a real issue for vulnerable Canadians and is linked to affordability. Government programs like Connecting Canadians should include a social policy component with clear expectations of corporate social responsibility for the telecommunication companies who receive government incentives.

While the findings from this study are not generalizable and are limited to the insights from a small number of participants who work with vulnerable populations in Canada from a particular Canadian community participating in a specific solution to a digital divide issue under unique circumstances, the insights generated did allow for a broad understanding of the outcomes of gaining access to ICTs. The outcomes of gaining access fulfilled economic, social, and cultural needs. Having these needs met resulted in an enhanced quality of life for participants of the program. The findings also highlighted the barriers that prevented digital inclusion. Affordability continues to be an issue, not only for vulnerable populations. There are sustainability challenges tied to these programs due to the funding required to operate them. The

other barriers included availability and digital literacy. When it came to digital literacy, factors such as digital skills and issues of misinformation were the major barriers encountered.

The findings of this study support previous research on the digital divide and digital inclusion that was shared in the literature review. One interesting finding that contrasted previous research was in relation to vulnerable populations and how they use ICTs. The findings showed that this group used their access to try to better their social position. This could have been a result of the circumstances of the situation and the high reliance on ICTs at the time. While it was not possible to interview participants, future research would benefit from an ethnography approach. The ability to shadow participants would provide greater understanding of the ways vulnerable populations use ICTs and the outcomes experienced as a result. Overall, exploring the outcomes of gaining access to ICTs to understand the experiences of vulnerable populations in Canada has confirmed the essentialness of ICTs. While there is a strategy in place to speed up the expansion of the Canadian broadband networks to narrow the digital divide for marginalized Canadians, more pressing is the need for policy to address the affordability of broadband access in Canada as a crucial first step to diminishing digital inequalities.

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