The Canadian Journal of Information and Library Science
La Revue canadienne des sciences de l'information et de bibliothéconomie

Canadian Public Library Pandemic Response: Bridging the Digital Divide and Preparing for Future Pandemics

Channarong Intahchomphoo (iD) et André Vellino (iD)

Aller au sommaire du numéro

Découvrir la revue

Citer cet article

Intahchomphoo, C. & Vellino, A. (2024). Canadian Public Library Pandemic Response: Bridging the Digital Divide and Preparing for Future Pandemics. *The Canadian Journal of Information and Library Science / La Revue canadienne des sciences de l'information et de bibliothéconomie*, *47*(1), 37–51. https://doi.org/10.5206/cjils-rcsib.v47i1.17128

Résumé de l'article

Cet article examine l'impact de la pandémie de COVID-19 sur les services permettant d'accéder à un ordinateur et à l'Internet dans les bibliothèques publiques canadiennes, ainsi que les implications de ce manque d'accès pour les personnes confrontées à des barrières socioéconomiques, et comment les bibliothèques publiques canadiennes pourraient aborder les problèmes de fracture numérique à l'ère post-pandémique. Cet article discute également des recommandations concernant la préparation future aux pandémies pour les bibliothèques publiques. Ce projet de recherche a mené une enquête en ligne bilingue (anglais et français) ciblant les techniciens de bibliothèque, les bibliothécaires et les membres des conseils de bibliothèque à travers le Canada. Sur 1 631 courriels d'invitation à participer à la recherche envoyés au personnel des bibliothèques publiques à travers le Canada et trois publications sur Facebook dans des groupes de personnel de bibliothèque publique canadien, sur une période d'un an allant du 3 novembre 2021 au 6 novembre 2022, 226 personnes ont répondu au questionnaire de l'enquête en ligne. Les résultats suggèrent que la pandémie de COVID-19 a exacerbé les inégalités sociales au Canada, y compris l'accès aux ordinateurs et à l'Internet. La fracture numérique pourrait entraîner de mauvais résultats en matière de santé et exposer davantage les populations défavorisées à des risques en termes d'accès à des opportunités d'emploi futures. La fracture numérique doit être traitée afin que les Canadiens provenant de ménages à faible revenu et ceux vivant avec un handicap ne soient pas laissés pour compte. Il est important de reconnaître les efforts inlassables, la responsabilité sociale et l'éthique professionnelle des bibliothèques publiques au Canada qui travaillent sans relâche à promouvoir l'accès aux ordinateurs, à l'Internet, ainsi qu'à la formation et au soutien en matière de littératie numérique. Enfin, les recommandations de cet article pour la préparation future aux pandémies dans les bibliothèques publiques canadiennes peuvent également être applicables et bénéfiques aux bibliothèques publiques à l'échelle mondiale.

Canadian Public Library Pandemic Response: Bridging the Digital Divide and Preparing for Future Pandemics

Channarong Intahchomphoo (iD) [1] and André Vellino (iD) [2]

[1]School of Engineering Design and Teaching Innovation, University of Ottawa
[2]School of Information Studies, University of Ottawa

This article examines the impact of the COVID-19 pandemic on computer and Internet access services in Canadian public libraries as well as the implications of this lack of access for people facing socioeconomic barriers, and how Canadian public libraries could address digital divide issues in the post-pandemic era. Recommendations on future pandemic preparedness for public libraries are also discussed in this article. This research project conducted a bilingual (English and French) online survey targeting public library technicians, librarians, and library board members across Canada. From 1,631 research invitation emails sent to public library staff across Canada and three Facebook posts on Canadian public library staff groups, over a one-year period from November 3, 2021, to November 6, 2022. 226 individuals participated in the online survey questionnaire. Findings suggest that the COVID-19 pandemic has exacerbated social inequalities in Canada, including access to computers and the Internet. The digital divide could lead to poor health outcomes and put existing disadvantaged populations at greater risk in terms of future employment opportunities. The digital divide needs to be addressed so that Canadians in low-income households and those living with disabilities do not get left behind. Importantly, public libraries in Canada have been working tirelessly to equalize access to computers, the Internet, and digital literacy training and support. Their determination, social responsibility, and professional ethics need to be acknowledged. Finally, this article's recommendations for future pandemic preparedness in Canadian public libraries may also be applicable and beneficial to public libraries globally.

Keywords: Canadian public libraries, COVID-19 pandemic, digital divide, future pandemic preparedness

The coronavirus (COVID-19) pandemic has been taking many lives and continues to cause suffering for people around the world, including those now living with post-COVID-19 conditions, also known as "long COVID", people whose limited access to healthcare has led to the worsening untreated health conditions, those who have experienced joblessness, or fallen behind in their education during the pandemic. Cultural heritage institutions, including galleries, libraries, archives, and museums, could not have avoided the negative impacts of the COVID-19 pandemic on their services and operations. A study by Intahchomphoo and Brown (2021) shows that university libraries in Canada had to adapt and change their services and operations during the early days of the pandemic as follows: temporarily closing physical libraries, suspending physical collection services and in-person events, continuing to provide virtual reference services, promoting access to and usage of electronic collections, suspending late fees and renewing checked-out items with a new due date, and advising users to wait before returning borrowed items. They suddenly had to operate as full-scale digital libraries, making computers and the Internet necessities for all library users to access information, receive assistance, and communicate with library staff.

Therefore, this article is designed to discuss the impact of the COVID-19 pandemic on computer and Internet access services in Canadian public libraries. The article is based on our field research investigating the strategies public libraries have been using to maintain services during the pandemic, and the experiences of Canadian public library technicians, librarians, and management teams on the consequences of not having access to computers and the Internet for people facing socioeconomic barriers during the COVID-19 pandemic. Public library staff also provide perspectives on how public libraries in Canada could address digital divide issues to help everyone have equal access to computers and the Internet in the post-pandemic era. Also, the findings are used to make recommendations on public library's preparedness for future pandemics. The main reason that public libraries are the

---

Correspondence concerning this article should be addressed to Channarong Intahchomphoo: cintahch@uottawa.ca

focus of this research is that they are open for everyone to use at no cost, and they exist across the country, allowing us to conduct a national study to compare the situation across Canada, in different provinces and territories, small and large cities with different budget and resources during the COVID-19 pandemic. At the time, most human communications had to move to online environments and the pandemic revealed many social and economic inequalities within Canadian society, including computer and Internet access and affordability, particularly among Indigenous communities and people living in rural and remote areas (Koch, 2022).

Literature review

This research project began in April 2021 with a search in the *Library Literature and Information Science* database, a respected and leading academic database containing more than 420 journals, dating back to 1980. The search only returned eight peer-reviewed articles related to the impact of COVID-19 on public libraries. A survey published in the School Library Journal (2020), conducted from April to May 2020, asked youth services librarians at public libraries in the US about the impact of the COVID-19 pandemic on their work. Respondents included 570 youth services librarians. Findings show that 26 percent of survey participants still decided to place orders for new print materials, while 30 percent indicated that they had put print purchase spending on hold. In addition, 54 percent think that the library's youth services budget will be decreased for the 2020–2021 fiscal year, and 67 percent of librarians plan to offer online summer reading programs. In addition, 53 percent are working with local schoolteachers to provide digital library services to children and teenagers.

Public libraries have had to change their service and operation models due to the COVID-19 pandemic. Goddard (2020) notes how the COVID-19 pandemic forced American public libraries to come up with new service models to serve their communities, including contactless curbside service and online reference chatting services to answer users' questions. Many public libraries in the US actively promoted the use of electronic resources including e-books, audio collections, and online literacy programs. Changes in public library services can be observed across a number of US states. Scott (2020) explains that public libraries in North Carolina moved to provide more virtual services during the COVID-19 pandemic, including online storytime reading and promoting e-magazines and e-books. They also extended their Wi-Fi to the library parking lot. Berra (2021) explains how public libraries in Texas decided to shift to offering virtual literacy programs, book curbside pickup, and promoting electronic resources. They also have been supporting students for their online learning and adult job seekers helping them to use and access computers and the Internet including extending the library's Wi-Fi to cover the parking lot, accepting online printing orders to be picked up as curbside service, lending laptops and mobile Wi-Fi hotspots for home use, and teaching people how to find and apply jobs on career websites (Berra, 2021).

The role of public libraries in assisting unemployed people during the COVID-19 pandemic is also discussed by Jones (2020), who compares the impact of COVID-19 on public libraries to past US economic crises. During the 2008 housing and subprime mortgage crisis, public libraries faced large funding cuts. Many unemployed people turned to public libraries for access to computers, online learning, and skill development services to help develop new careers. There were significant increases in public library usage statistics during the economic crisis. This contrasts with the COVID-19 pandemic when 24 million Americans suddenly became unemployed within the early period of the virus outbreak in 2020, and public libraries were either not allowed to open or opened only with limited access and job seekers without computers and Internet access at home were desperate to get support.

US public libraries were very concerned about social inequality during the pandemic, particularly with access to knowledge and technology. Chase (2020) commented that public libraries could be permanently affected by the COVID-19 pandemic. One of the most pressing needs of public library users is access to computers and the Internet. Ayre (2020) addressed the issues of Internet broadband as social inequity in the US and discussed how public libraries have been working hard to provide access to the Internet to low-income Americans before and during the COVID-19 pandemic. Many American public libraries began to lend users mobile Wi-Fi hotspots for home use, took out their bookmobiles equipped with Wi-Fi hotspots, and drove to neighbourhoods to create temporary Internet hotspot connections. During the COVID-19 pandemic, the issues of the digital divide and access to the Internet have become more obvious, and it continues to worsen among low-income communities in the US.

The situation of public libraries outside the US during the pandemic is also noteworthy. Smith (2020) examines the roles of Australian public libraries during the COVID-19 pandemic, observing that they have exhibited creativity and adaptability in maintaining their services. During the lockdowns, public libraries in Australia, like other countries, had to be closed and when they reopened, the libraries had to follow public health guidelines on how to clean surfaces and materials as well as setting and enforcing a maximum number of users allowed to enter library buildings. In the meantime, some core library services were modified such as delivering books to people's homes, introducing contactless book pick-ups, and promoting online access to digital collections. In conclusion, from a scan of the literature on this question, there is a noticeable dearth of empirical research on the impact of COVID-19 on the availability and usage of computer

and Internet services within Canada's public libraries. This research project addressed this knowledge gap.

We conducted an additional supplementary search regarding the concept of digital divide within the Library and Information Science literature specifically focusing on the Canadian context. This search yielded a new set of results aligning with the aims and objectives of our research project. Commencing with Lai (2011) discusses information literacy training in Canadian public libraries, highlighting their crucial role in addressing the digital divide within local communities. Canadian public libraries are noted for providing free access to shared computer devices, Internet connectivity, and information literacy programs. They aim to equip patrons with the appropriate skills to use technologies effectively, both within the public libraries and at home. Such policies and practices are regarded as beneficial in facilitating connectivity for all Canadians and fostering a culture of lifelong learning at the national level.

Howard, Busch, and Sheets' (2010) article compares the digital divides between Canada and the United States, particularly concerning Internet access and social inequality. The authors emphasize the necessity for improved solutions of affordable broadband Internet services to Indigenous communities residing in rural regions of Canada. Governments have undertaken initiatives to establish community Internet access points within local schools and public libraries. This endeavour aims to mitigate the rural-urban digital divide experienced by Indigenous communities compared to non-Indigenous communities residing in cities, where there is superior broadband Internet infrastructure and more affordable Internet service fees. Furthermore, Erickson (2002) discusses the partnership between the private and non-profit sectors with government initiatives aimed at mitigating the digital divide in Canada. Notably, the Bill & Melinda Gates Foundation provided $18.2 million in grants to public libraries in low-income communities across remote northern Canada, which are the traditional homes and lands of Indigenous and Inuit peoples in the Yukon, the Northwest Territories, and Nunavut. These funds were allocated for the acquisition of computers and laptops, as well as for the establishment of computer labs within local public libraries.

However, later, Blanton (2014) discusses the cancellation of funding by the Federal Government of Canada for the Community Access Program, initiated in 1995. This program aimed to support organizations, including public libraries, in providing Internet access points to disadvantaged and low-resource Canadians and communities, addressing issues of affordability in accessing the Internet and technology. In the article, Blanton (2014) emphasizes the urgent need for Canada to establish a national policy and assign legal responsibility to government departments for addressing digital divides within the country. Low-resource Canadians often rely on public libraries for Internet access. However, the with-

drawal of government funding poses significant challenges, particularly for small public libraries located in remote and rural areas. These libraries face obstacles such as outdated broadband infrastructure, limited local economies, and constrained operational budgets, stopping their ability to meet the Internet access needs of all library patrons. This situation contrasts with public libraries in urban areas, which typically have larger technology budgets. This shows the digital divide remains in Canada.

A recent study on the digital divide in Canada conducted during the pandemic by Andrey et al. (2021) revealed that 42 percent of individuals residing in areas within the city of Toronto lack home Internet access. Consequently, they rely on public libraries in their neighbourhoods to connect to the Internet and use computers. Amid the COVID-19 pandemic, Toronto's public libraries expanded their Wi-Fi hotspot program. Furthermore, they have initiated the establishment of new temporary Wi-Fi hotspots in large apartment buildings situated in low-income areas. This initiative aims to provide free Internet access to numerous families, thereby assisting them in adhering to public health guidelines and reducing the risk of contracting the virus, coping with social isolation, facilitating online communication with friends and family, and enabling residents to work and study from their apartments.

Moreover, Dalmer et al. (2022) recently conducted a literature review of academic publications related to public libraries' capacity for social connection and inclusion. As, it is crucial for public libraries to ensure their spaces and services are safe and welcoming for everyone. The studies included in the publication suggest that public libraries help patrons establish and maintain connections in their communities. Various population groups are examined in public library research, including older adults, library staff, children, youth, individuals without stable housing, immigrants, unemployed individuals, people with different abilities, and formerly incarcerated individuals. However, in reality, it is challenging for public library staff to assist patrons with complex needs. Dalmer et al. (2022) also discuss public library virtual programming and services during the COVID-19 pandemic. It highlights how patron's engagement with public libraries has evolved, including the development of strategies to enhance remote access to digital materials. Concerns regarding social and economic inequality have arisen, leading to a digital divide experienced by some public library patrons, particularly those from vulnerable communities lacking access to online information and technology devices, thus risking social exclusion during the pandemic.

Similarly, a literature review conducted by Palmer (2022) for the Squamish Public Library in British Columbia, Canada, aimed to understand future public library trends and best practices. The findings suggest that public libraries serve as community hubs and are adapting to technological changes by offering online collections and tools for patrons. Addi-

tionally, it is anticipated that in the future, public libraries in Canada and other countries will play an even more crucial role in bridging the digital divide for those who cannot afford access to technology resources. Those public libraries will continue to provide essential technology such as computers, laptops, eReaders, Wi-Fi hotspots, advanced software, and 3D printers for public use.

Project Aims and Objectives

This research project has three objectives:

The first objective is to understand the impact of the COVID-19 pandemic on the accessibility and utilization of computer and Internet access services within Canada's public libraries and to investigate the strategies they have been using to maintain services during the pandemic, through the voices of public library technicians, librarians, and management teams. In this study, computer and Internet access services also include access to software, assistive technology tools, printing, scanning, and saving files to external drives.

The second objective is to listen to the experiences of Canadian public library technicians, librarians, and management teams on the consequences of not having access to computers and the Internet for people facing socioeconomic barriers, during the COVID-19 pandemic. This documents how public libraries in Canada can address digital divide issues to help everyone have equal access to computers and the Internet in a post-pandemic era. The digital divide refers to the disparity in access to technology among distinct demographic groups, a divide driven by socioeconomic factors (Intahchomphoo, 2018).

The third objective is to make recommendations aimed at improving the pandemic preparedness of public libraries in the future. This will be beneficial for public libraries not only in Canada but globally to enable them to quickly change their operations and services to contain the spread of contagious diseases for the well-being of people in their communities and for library staff and to better manage computer and Internet access for those who need to use them and cannot afford such services at their homes. Thus, the function of public libraries in this context is twofold: helping people to cope with their lived challenges through the provision of essential digital services and minimizing the risk of infection while at public libraries.

This research project is guided by the following four research questions:

- In the views of public library technicians, librarians, and management teams, what were the impacts of the COVID-19 pandemic on Canadian public libraries' computer and Internet access services?

- What were the strategies used by Canadian public libraries to maintain computer and Internet access services for users during the COVID-19 pandemic?

- During COVID-19 lockdowns, users were not permitted to enter public library buildings. What sort of consequences might there be of not having access to computers and the Internet located at public libraries for people facing socioeconomic barriers?

- In the post-pandemic era, how could public libraries in Canada address the digital divide issues experienced by people facing socioeconomic barriers to facilitate equal access to computers and the Internet?

Positionality Statement

We undertook this research project to investigate the impact of the pandemic on Internet and computer services in Canadian public libraries, focusing on the perspectives of library workers. Our study explores the experiences of these workers and their perceptions regarding the effects of the pandemic on access to Internet and computer services, particularly for individuals deemed "disadvantaged" who face further marginalization. It is important to note that our claims are based solely on the perceptions and experiences shared by the survey respondents, who are library workers themselves. This study does not represent the viewpoints of library users directly. By highlighting the insights and opinions of library staff, our paper contributes valuable evidence to the discourse on digital inclusion and the existing digital divide within public library settings.

Method

This research project used a mixed methods research technique. We conducted an online bilingual (English and French) survey with public library technicians, librarians, and members of library boards and management across Canada. This study investigated their lived experiences and thoughts on the impact of the COVID-19 pandemic on their work and their users and we asked them how they thought Canada could work on bridging digital divide gaps as a post-pandemic goal. The research team used SurveyMonkey through the University of Ottawa's account as a secure online survey platform. This research has received ethics approval from the Office of Research Ethics and Integrity at the University of Ottawa (File # H-10-21-6844).

Dr. Intahchomphoo, the principal investigator, recruited the participants and collected and analyzed the data from the online survey questionnaires. At the time of data collection, Dr. Intahchomphoo was a Replacement Research Librarian (Data) at the University of Ottawa Library. Dr. Vellino provided suggestions to improve the interpretation of the findings and commented extensively on the project publications. Participants were recruited through a formal email in both English and French, sent to the generic email addresses for the public libraries found on websites and listserv emails. Others were recruited via posts on Facebook

groups populated by Canadian public library staff. These posts encouraged public library staff members to participate in the online survey questionnaires. The email also explained the objectives of the research project and how the collected data would be stored and protected. Online survey participants were asked to fill in the information on the research project's online survey with 9 questions in English or French. The survey was designed to take between 10 and 15 minutes to complete. We sent 1,631 research invitation emails and generated three Facebook posts on Canadian public library staff groups, over a one-year period from November 3, 2021, to November 6, 2022. In our analysis, and in this report, we included all online surveys received before February 2023.

This project only collected data through an online survey. Therefore, there was no hard copy of data and, thus, no research documents that needed to be stored physically. All digital copies of data and research documents were protected and stored in the University of Ottawa's Microsoft OneDrive cloud hosting service with password protection via the accounts of Dr. Intahchomphoo (principal investigator) and Ms. Hyslop (collaborator) of the University of Ottawa Library. All data and research documents will be retained for five years after the project's completion. The planned anticipated starting time of the retention is between January 1st and 2022, ending December 31st, 2026. At that date, all digital data will be permanently deleted.

For the online survey participants, there was an introductory page on the survey webpage explaining the objectives of this research project and how the research data would be stored and protected for privacy reasons. Participants had to click the "OK" button on the introduction page as a way of giving their informed consent before being able to fill in information on the actual survey questionnaires and submit their survey answers. There was no compensation for the survey participation in this research.

Data Analysis

The collected data from the online surveys were calculated to generate the percentages of all answers. The identified themes were compared statistically to identify the obvious differences and similarities among them. The survey data was analyzed using the functions available on the SurveyMonkey platform. All personally identifiable information about the participants has been removed and will not be shown in presentations or publications generated from this research.

For questions in the online survey that include open-ended answer options (questions #4, 5, 6, 7, and 8), allowing participants to freely type their responses, please refer to the appendix section at the end of this paper for further details. With this type of open-ended answer option, we organized the responses provided by survey participants by identifying patterns through thematic analysis. This method enabled us to effectively explore common patterns and relationships

within the open-ended survey data collected from multiple participants. Initially, we established a codebook outlining the themes and predetermined codes. Subsequently, we developed additional codes to capture specific emerging themes as we gained more familiarity with the data.

Importantly, we maintain a strict non-disclosure policy regarding the sharing of documents with any third party. The assistance from our research collaborators for this project, namely Library and Archives Canada and the Ottawa Public Library, was limited to reviewing the research design, commenting on the findings, and disseminating knowledge of this study. They do not have access to the raw survey data.
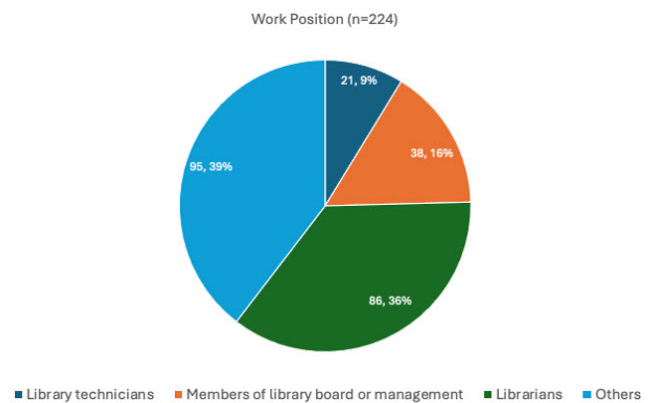
Findings

Description of online survey participants

The 1,631 research invitation emails sent to public library staff in every province and territory across Canada and the three Facebook posts on Canadian public library staff groups, yielded 226 participants for the online survey questionnaire, for a response rate of 13.83%. Out of all respondents, 9% work as library technicians, 16% are members of a library board and/or management, 36% are librarians and 39% self-identify as 'other' including division heads, general directors, chief executive officers, digital services coordinators, library secretaries, district supervisors, branch managers, generalists, outreach coordinators, information technology managers, and pagers – is presented in Figure 1. The overall number of online survey respondents was 226, but 2 persons skipped this question and 16 survey respondents answered of holding more than one position. In total, there were 240 answers to this particular question from 224 respondents.

Figure 1

Characteristics of the online survey respondents: Work position

Work Position (n=224)

21, 9%
38, 16%
86, 36%
95, 39%

■ Library technicians ■ Members of library board or management ■ Librarians ■ Others

Almost half of online survey respondents (107, 47%) work at public libraries in the province of Ontario, followed by Alberta (29, 13%), Saskatchewan (23, 10%), Quebec (20,

9%), British Columbia (15, 7%), Manitoba (14, 6%), New Brunswick (13, 6%), Nova Scotia (2, 1%), and Prince Edward Island (2, 1%).

We received no responses from Newfoundland and Labrador, the Northwest Territories, Yukon, or Nunavut. Characteristic information of our online survey respondents – public library staff and their library locations – is presented in Figure 2.

Figure 2

Characteristics of the online survey respondents: Location of public library
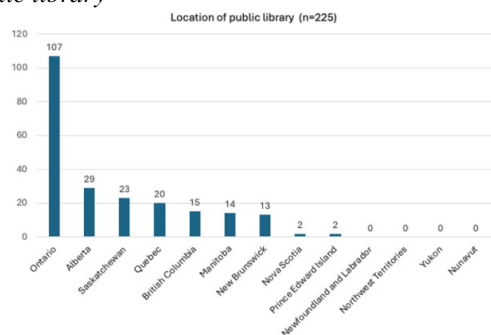
Note: The overall number of online survey respondents was 226, but 1 person skipped.

Online survey participants' experiences on the impact of the COVID-19 pandemic computer and Internet access in different periods of the pandemic

Data from the online survey indicates that Canadian public library employees experienced the negative impact of the COVID-19 pandemic on library computer and Internet access more intensely during lockdowns or closures than during the easing of COVID-19 restrictions. Public library employees are increasingly worried about potential budget cuts in the coming years, which could impact their ability to purchase additional technology tools such as computers, laptops, e-books, e-magazines, and audio collections. It is reported that these concerns have risen to 36% during the period of eased COVID-19 restrictions. However, interestingly, these budget concerns were reported to be slightly lower, at a rate of 32%, during the lockdown or closure period.

Participants in our online survey have reported several significant adverse effects of the COVID-19 pandemic on Canadian public libraries' computer and Internet access services. These effects include: having an impact on the library usage statistics (93%); preventing user access or causing difficulties in accessing and using computers, Internet, and printers provided at the public libraries (89%); exacerbating social inequality, particularly among low-income Canadians who lack equal access to knowledge and technology during a pandemic (79%); affecting the libraries' protocols for cleaning computer and workstation surfaces, in compliance with public health guidelines (75%); and intensifying social inequality, especially among individuals with disabilities who have encountered increased barriers to access knowledge and technology

during a pandemic (62%). Table 1 provides a full view of the online survey results.

Online survey participants' experiences with accessibility issues among users with disabilities to the computer and Internet service provided at their public libraries during pandemic

A deeper examination of the impact on people with disabilities and their access to computer and Internet services at public libraries during the pandemic, as depicted in Table 1, reveals additional insight from 97 online survey respondents. These participants shared their experiences and observations concerning accessibility issues via the survey's comment box, shedding light on various challenges encountered by users with disabilities.

The collected comments fall into several distinct themes:

- Deaf or hard-of-hearing library users often struggled with increased communication difficulties with masked library staff, particularly when seeking computer assistance;
- Many users with disabilities, especially those with conditions that compromised their immune system, were reluctant to visit public libraries due to health concerns;
- The public health measures, including social distancing rules, limited library staff, and reduced service hours, further complicated access to computer and Internet services for users with physical and literacy-related disabilities. As a result, many could not complete complex computer tasks within the restricted time for computer use set by the library;
- Accompanying caregivers proved a challenge for some users with disabilities, given the need to maintain a two-meter spacing;
- Users with visual and hearing disabilities struggled to access public libraries' online programs;
- Users with visual and hearing disabilities struggled to access public libraries' online programs;
- Public libraries' computers, many of which are quite dated, presented further barriers. Users with visual impairments often found it challenging to view the computer screens, and those with hand mobility issues had difficulty using the mouse, with no alternative tools (e.g., sensitive mouse) available; and
- Lastly, not all users with disabilities possess the necessary technological equipment at home, such as a cell phone or computer, to download apps for accessing audiobooks and other online materials.

Online survey participants' strategies used to maintain computer and Internet access services for users during the COVID-19 pandemic

Of the 226 participants in the online survey, 215 answered the question about strategies used to maintain computer and Internet access for users during the COVID-19 pandemic and 11 participants chose not to answer this question. 72% (n=154) of the online survey respondents mentioned that their public libraries extended the library's Wi-Fi to outside the library's building, including the parking lot; 68% (n=147) indicated that their public library accepted online printing orders to be picked up as a curbside service; 29%

Table 1

Online survey respondents' experiences on the impact of the COVID-19 pandemic on public libraries' computer and Internet access services in the different levels of pandemic: during lockdown or closure and after easing of COVID-19 restrictions.

Impact of COVID-19 pandemic on public libraries' computer and Internet access services	During the lockdown or closure (N = 226)		When easing COVID-19 restrictions (N = 215)	
It was more difficult, or we were unable to continue providing literacy programs to local schoolteachers and children that require using a computer and the Internet.	110	49%	79	37%
We will be facing budget cuts for upcoming years and will be unable to purchase more desktop computers, laptops, e-books, e-magazines, audio-collections, and other technology tools as a result of the COVID-19 pandemic.	32	14%	36	17%
There was an impact on the library's programs for lending laptops and Wi-Fi hotspots to individual users.	81	36%	66	31%
There was an impact on the library's programs for lending laptops and Wi-Fi hotspots to organizations that serve vulnerable people.	50	22%	44	20%
The library could not run outreach programs effectively to promote the use of electronic resources and online access to digital collections.	129	57%	107	50%
Users could not access or faced difficulties accessing and using computers, the Internet, and printers provided at the public libraries.	202	89%	140	65%
Decrease in library usage because users were either not permitted to enter public library buildings at all or only a limited number of users were allowed in order to use computers and Internet at the public libraries.	210	93%	172	80%
There was an impact on social inequality, especially among low-income Canadians, as they do not have the same access to knowledge and technology during a pandemic.	178	79%	125	58%
There was an impact on social inequality, especially among people with disabilities, as they face more accessibility issues to knowledge and technology during pandemic conditions.	140	62%	108	50%
There was an impact on how the public libraries clean computers and workstation surfaces, based on the public health guidelines.	170	75%	146	68%
Other; please explain.	32	14%	17	8%

Note: the overall number of online survey respondents was 226, but 11 participants skipped the question about the easing of COVID-19 restrictions period; no participant skipped the question about the period during the lockdown or closure.

(n=63) reported that their public libraries lent laptops and mobile Wi-Fi hotspots for individual home use; 19% (n=41) lent laptops and mobile Wi-Fi hotspots to community partners such as institutions that serve vulnerable people including food banks and resource centres for unhoused people; and 3% (n=7) reported that their public library took out the library's bookmobile equipped with Wi-Fi hotspots and drove to neighbourhoods to create temporary Internet hotspot connections.

Moreover, 35% (n=75) answered in the open comment box that they are using other strategies to maintain computer and Internet access services for users during the COVID-19 pandemic, including: disinfecting of computer workstations after each use, letting in a limited number of people every day to use the computers during a time when the library was not open to the public; limiting the number of computers being used at one time to maintain physical distancing, increasing the space between computer workstations and therefore the space between users; allowing users to pre-book a computer workstation appointment to allow the library to have sufficient time between users for cleaning and sanitizing; giving extreme attention to masking around computer workstations, setting up COVID-19 appropriate computer labs (e.g., in large halls with high ventilation); increasing library Wi-Fi signage to allow more access capacity even if the library Wi-Fi had always been available from outside the building, extending the hours of library Wi-Fi from parking lot from only regular opening hours only to 24 hours a day and 7 days a week, removing the password requirement for accessing the library

Wi-Fi to open up Wi-Fi access to everyone, including non-library members; having outdoor seating for users to use the library Wi-Fi; establishing mobile printing service from anywhere in the county; teaching users how to use library Wi-Fi; partnering with a telecom company to deliver tablets and cellphones via community partners; and lastly, advocating with all officials from the Minister of Health and minister responsible for libraries to the Premier's office to make some degree of computer and Internet access services available specifically for low-income and disabled library users during strict public health orders.

Online survey participants' opinions on the consequences of not having access to computers and the Internet located at public libraries for disadvantaged populations

Of the 226 participants in the online survey, 224 answered the question about the consequences for disadvantaged populations of not having access to computers and the Internet located at public libraries and two participants chose not to answer this question. Results from the online survey indicate that 89% (n=199) of participants thought that the consequences would mean that disadvantaged people might not be able to get support for job searching and applying for jobs posted on the Internet, support that users could normally get from library staff in the pre-pandemic period; 88% (n=197) believed that disadvantaged persons might not be able to access computers and the Internet for online learning or new skills development, particularly people who suddenly became unemployed during the COVID-19 pandemic; 87% (n=194) felt that disadvantaged populations might not able to search for health information about the COVID-19 pandemic on the Internet; 74% (n=166) noted that disadvantaged people might not able to book a COVID-19 vaccine appointment; and 71% (n=158) of survey participants sensed that the disadvantaged people might also not able to book a COVID-19 test appointment.

In addition, 34% (n=76) answered regarding other negative consequences in the survey's comment box and noted that disadvantaged populations may be unable to:

- Send scanned documents for medical visits;
- Print documents including their proof of COVID-19 vaccination and the receipt of negative COVID-19 results to enable visiting someone in hospital;
- Communicate through social media with friends and family;
- Access government benefits and support programs like the Employment Insurance (EI) Benefits and the Canada Emergency Response Benefit (CERB);
- Report tax information to the Canada Revenue Agency (CRA);
- Access pandemic-related government documents, information, and apps such as the ArriveCAN App for travel to the United States of America or elsewhere;
- Do any of their online banking;
- Change to online work from the in-person work environment;
- Take a citizenship test;
- Access entertainment through the Internet that they previously used at the public library;
- Access personal information via email;
- Access online newspapers and up-to-date news articles regarding the pandemic;

- Make online grocery orders;
- Make online appointments with legal and social workers;
- Access information about homeless shelters, low-income housing, food banks, and domestic violence support; and
- File court documents.

Online survey participants' recommendations on how public libraries in Canada could address the digital divide issues experienced by disadvantaged populations to facilitate equal access to computers and the Internet in the post-pandemic era

A total of 192 out of the 226 online survey participants responded to the question regarding how Canadian public libraries might address the digital divide issues experienced by disadvantaged populations, aiming to facilitate equal computer and Internet access in the post-pandemic era. 34 participants opted out of answering this question. The results could be categorized into the following nine recommendations:

1. Advocate for all levels of government to provide public libraries adequate funding to enable having enough computer workstations, laptops, braille keyboards, up-to-date software, e-book readers and printer equipment, which is difficult to do for public libraries with a small budget, as they are often experiencing budget constraints. Also, impress upon governments that public libraries cannot solely address or improve digital divide issues without further help. Governments need to step up and provide better funding for public library programs and services that address the digital divide and assist disadvantaged populations in accessing computers and the Internet.

2. Suggest that all levels of government open a grant for those in low-income brackets to enable them to apply for laptops and/or Internet sticks and request donations of usable computer equipment to either give away or sell at a heavily discounted price to disadvantaged populations.

3. Expand Wi-Fi hotspots, laptop, and tablet loaning initiatives for use at users' homes. Also, extending public libraries' Wi-Fi to outside spaces and providing seating in outdoor spaces for libraries to become 24-hour Wi-Fi hubs.

4. Advocate for Internet speed and quality improvement, as well as lower-cost Internet for rural and remote communities, economically disadvantaged neighbourhoods, and Indigenous communities particularly since Canada has some of the highest Internet access costs in the world.

5. Advocate for universal and equitable access and demand that all levels of governments consider computer and Internet access as essential services for all and access to them as a basic human right in this emerging–completely digital age.

6. Raise awareness through public outreach campaigns about the digital divide issues experienced by disadvantaged populations in Canada and how important it is for them to have equal access to computers and the Internet in the post-pandemic era, an issue brought into stark relief by the tragic repercussions of the COVID-19 pandemic.

7. Implement more computer literacy skill programs with one-on-one training in public libraries across Canada, particularly for disadvantaged people and seniors, to train them to use

technology independently, including email, online banking, government service applications, and tax filing software for access to refunds. All those tasks require public libraries to be adequately staffed.

8. Hire library staff who speak the languages of the communities they serve extending Canada's official languages of English and French, including Indigenous languages, Mandarin, Punjabi, Cantonese, Spanish, Arabic, Persian, and others. In this way, public libraries will be able to better provide technology instructions that reflect and respond to Canada's multicultural reality.

9. Ensure that disadvantaged people know that they can access computers and the Internet at no cost in public libraries because some do not actually know about their local library's computer and Internet services. We also recommend promoting public libraries' computers and Internet services in traditional, non-digital media channels such as radio, TV, newspapers, and posters in public spaces to inform disadvantaged people about the existence of these services. This approach is important because those who lack Internet access might not be able to obtain this information from social media platforms or library websites.

Discussion and Conclusion

Our findings obtained from the online survey suggest that the COVID-19 pandemic has had many negative impacts on Canadian public libraries' computer and Internet access services. The pandemic exacerbated social inequality in Canada. Regrettably, the COVID-19 pandemic devastated many low-income Canadians and left people living with disabilities with no access to online information and online communication. Pre-pandemic, they could use free computer and Internet services at public libraries.

In response to these issues, Canadian public libraries have tried to use different strategies to maintain computer and Internet access for their users during the pandemic. The response by public libraries to this situation was very impressive in our opinion, including extending the library's Wi-Fi to the outside of the building and parking lot, accepting online printing orders, and lending laptops and Wi-Fi hotspots, particularly to vulnerable and low-resource communities. These are great examples that show how Canadian public libraries were able to swiftly redirect their service strategies and think of the technology needs of the populations at risk during a very difficult period.

Canadian public library staff, including technicians, librarians, and board members, clearly care about the consequences that affect or could affect their users if they did not have access to computer and Internet services, particularly among people facing socioeconomic barriers, who need to perform job searches, learn new skills, search for health information, and book COVID-19 tests and vaccine appointments. Furthermore, the data from this report shows there is an obvious inequality in access to computers and the Internet in Canadian society. In the context of the COVID-19 pandemic, it means that the digital divide actually leads to poor health outcomes and puts existing disadvantaged populations at even more of a disadvantage with respect to future employment opportunities.

In addressing how Canadian public libraries could assist in mitigating the digital divide issues experienced by people facing socioeconomic barriers, ensuring more equitable access to computers

and the Internet in the post-pandemic era, our survey research participants put forth nine recommendations. We deem all of these suggestions to be excellent and urgently in need of implementation. However, we believe the digital divide issues in Canada are not new and that the public has been aware of them for a long time. Canada ranks among the nations with the highest costs for home Internet and personal mobile data plans. Furthermore, a small group of major companies controls nationwide telecommunication services. Geographically, Canada is the second largest country in the world and the current state of telecommunications infrastructure urgently needs to be upgraded and better maintained, particularly in the rural and remote areas. The improvement of Canada's Internet infrastructure requires leadership from federal and provincial governments rather than relying on the private sector, given that projects may not yield sufficient profits in sparsely populated areas.

Another crucial point we want to make, based on the findings in this project, is that disadvantaged Canadians have been disproportionately impacted by social inequality and the digital divide during the COVID-19 pandemic. Public libraries across Canada have been doing and will certainly continue to do their part to try to make Canada more equal for everyone when it comes to access to computers and the Internet, as well as digital literacy support and training. We truly admire their determination, sense of social responsibility, and professional ethics. Canadian public libraries need to be acknowledged for their work during the COVID-19 pandemic.

As researchers of this project, we believe that every Canadian public library should receive governmental funding to improve their ventilation systems, thus promoting the intake of fresh air and the removal of small airborne particles such as viruses, thus reducing the rate of disease transmission. Finally, we also support the recommendations on future pandemic preparedness for Canadian public libraries and we think that these recommendations could be applied to public libraries around the world.

Acknowledgments and Disclaimer

References

Andrey, S., Masoodi, M. J., Malli, N., & Dorkenoo, S. (2021). *Mapping Toronto's digital divide*. Toronto Metropolitan University: Brookfield Institute for Innovation+ Entrepreneurship.

Ayre, L. (2020). What more can we do to address broadband inequity and digital poverty? *Information Technology and Libraries*, *39*(3). https://doi.org/10.6017/ital.v39i3.12619

Berra, D. (2021). Utilizing technology to support and extend access to students and job seekers during the pandemic. *Information Technology and Libraries*, *40*(1). https://doi.org/10.6017/ital.v40i1.13261

Blanton, C. (2014). The cancellation of the community access program and the digital divide (s) in Canada: Lessons learned and future prospects. *The Journal of Community Informatics*, *10*(2). https://doi.org/10.15353/joci.v10i2.2656

Chase, S. (2020). The permanent new normal? *Public Libraries, 59*(3), 8-10.

Dalmer, N., McKenzie, P., Rothbauer, P., Martin-Yeboah, E., & Oswald, K. (2022). "Palaces for the people": Mapping public libraries' capacity for social connection and inclusion. https://macsphere.mcmaster.ca/bitstream/11375/28142/1/Dalmer_SSHRC_AsocialSociety_PalacesforthePeople.pdf

Erickson, C. A. (2002). Providing digital opportunities through public libraries: the Canadian example. *New Library World*, *103*(4/5), 141-149. https://doi.org/10.1108/03074800210428551

Goddard, J. (2020). Public libraries respond to the COVID-19 pandemic, creating a new service model. *Information Technology and Libraries*, *39*(4). https://doi.org/10.6017/ital.v39i4.12847

Howard, P., Busch, L., & Sheets, P. (2010). Comparing digital divides: Internet access and social inequality in Canada and the United States. *Canadian Journal of Communication*, *35*(1). https://doi.org/10.22230/cjc.2010v35n1a2192

Intahchomphoo, C. (2018). Indigenous peoples, social media, and the digital divide: A systematic literature review. *American Indian Culture and Research Journal*, *42*(4), 85-111. https://doi.org/10.17953/aicrj.42.4.intahchomphoo

Intahchomphoo, C., & Brown, M. (2021). Canadian university research libraries during the early days of the COVID-19 pandemic. *The Canadian Journal of Information and Library Science/La Revue canadienne des sciences de l'information et de bibliothéconomie*, *44*(1), 70-81. https://doi.org/10.5206/cjilsrcsib.v44i1.10910

Jones, S. (2020). Optimizing public library resources in a post COVID-19 world. *Journal of Library Administration*, *60*(8), 951-957. https://doi.org/10.1080/01930826.2020.1820281

Koch, K. (2022). The territorial and socio-economic characteristics of the digital divide in Canada. *Canadian Journal of Regional Science*, *45*(2), 89-98.

Lai, H. J. (2011). Information literacy training in public libraries: A case from Canada. *Journal of Educational Technology & Society*, *14*(2), 81-88. https://www.jstor.org/stable/jeductechsoci.14.2.81

Palmer, M. (2022). Study of future public library trends & best practices. *Public Library Quarterly*, *41*(1), 83-107. https://doi.org/10.1080/01616846.2020.1868224

School Library Journal. (2020). A largely unknown future: SLJ survey gauges the pandemic's impact on public libraries. *School Library Journal, 66*(6), 21.

Scott, R. (2020). COVID-19 hope. *North Carolina Libraries*, *78*(1).

Smith, J. (2020). Information in crisis: Analysing the future roles of public libraries during and post-COVID-19. *Journal of the Australian Library and Information Association*, *69*(4), 422-429. https://doi.org/10.1080/24750158.2020.1840719

Appendix A - Bilingual Online Survey

Information and Informed Consent

We are conducting a study to understand the impact of the COVID-19 pandemic on computer and Internet access services at public libraries in Canada. This study is a research collaboration between the University of Ottawa Library, the Library and Archives Canada, and the Ottawa Public Library.

In this online survey, you will be asked questions related to your professional experience regarding the impact of COVID-19 pandemic as well as your personal opinion on how public libraries in Canada could address digital divide issues to encourage equal access to computer and Internet services in the post-pandemic era.

Importantly, no personally identifiable information will be shown in presentations or publications generated from this research. You do not have to answer the questions that you do not want to answer. You can decide to end or withdraw from this online survey at any time you wish. Your participation in this study is completely voluntary.

Your participation is strictly confidential. Documents and files will be stored in the University of Ottawa's Microsoft OneDrive cloud hosting with password protected via the accounts of Dr. Channarong Intahchomphoo (Co-principal investigator) and Caroline Hyslop (Co-principal investigator) of the University of Ottawa Library. The research team uses Momentive (formerly known as SurveyMonkey) through the University of Ottawa account as a secured online survey platform. For information about privacy policy of Momentive could be found at www.it.uottawa.ca/software/surveymonkey.

Collaborators from the Library and Archives Canada and the Ottawa Public Library will not have access to the research data collected from this study. The Library and Archives Canada and the Ottawa Public Library are reviewing the research design and commenting on the findings report. We will not share research documents with any third party.

Digital and printed documents in this research including the files of this survey will be destroyed 5 years after the study's completion.

There is no compensation for your survey participation. This research has received ethics approval from the Office of Research Ethics and Integrity at the University of Ottawa (File # H-10-21-6844). They can be reached at 613-562-5387, ethics@uottawa.ca

If you have questions, please do not hesitate to contact us.

Co-principal investigator: Dr. Channarong Intahchomphoo, Replacement Research Librarian (Data), University of Ottawa Library & Research Fellow - Faculty of Engineering, University of Ottawa, cintahch@uottawa.ca

Co-principal investigator: Caroline Hyslop, Associate University Librarian, Research Services, University of Ottawa Library, Caroline.Hyslop@uottawa.ca

Project Supervisor: Dr. André Vellino, Associate Professor, School of Information Studies, University of Ottawa, avellino@uottawa.ca

Remark: Participants in this survey must currently be working at a public library in Canada in any position including library technician, librarian, member of library board and management and others. Moreover, this survey allows unlimited numbers of respondents from the same organization.

Acceptance: By clicking "OK" button below, you have agreed to provide us your consent to participate in this study.

Information et consentement

Nous menons une étude pour comprendre l'impact de la pandémie de COVID-19 sur les services d'accès aux ordinateurs et à l'Internet dans les bibliothèques publiques au Canada. Cette étude est une collaboration entre la Bibliothèque de l'Université d'Ottawa, Bibliothèque et Archives Canada et la Bibliothèque publique d'Ottawa.

Dans cette enquête en ligne, on vous posera des questions liées à votre expérience professionnelle concernant l'impact de la pandémie de COVID-19 sur les services aux usagers ainsi que votre opinion sur la façon dont les bibliothèques publiques au Canada pourraient résoudre les problèmes de fracture numérique encourager un accès équitable aux ordinateurs et à Internet durant l'ère post-pandémie.

Il est important de noter qu'aucune information personnelle identifiable ne sera affichée dans les présentations ou les publications générées à partir de cette recherche. Vous n'êtes pas obligé de répondre aux questions auxquelles vous ne souhaitez pas répondre. Vous pouvez décider de mettre fin ou de vous retirer de cette enquête en ligne à tout moment. Votre participation à cette étude est complètement volontaire.

Votre participation est strictement confidentielle. Les documents et les fichiers seront conservés dans l'hébergement infonuagique Microsoft OneDrive de l'Université d'Ottawa avec un mot de passe protégé via les comptes de Dr Channarong Intahchomphoo (Co-chercheur principal) et Caroline Hyslop (Co-chercheuse principale) de la Bibliothèque de l'Université d'Ottawa. L'équipe de recherche utilise Momentive (anciennement SurveyMonkey) via le compte de l'Université d'Ottawa comme plateforme d'enquête en ligne sécurisée. Pour plus d'informations sur la politique de confidentialité de Momentive peut être trouvé à www.ti.uottawa.ca/logiciels/surveymonkey.

Les collaborateurs de Bibliothèque et Archives Canada et de la Bibliothèque publique d'Ottawa n'auront pas accès aux données de recherche recueillies à partir de cette étude. Bibliothèque et Archives Canada et la Bibliothèque publique d'Ottawa examineront la conception de la recherche, commenteront le rapport et les résultats. Nous ne partagerons pas les documents de recherche avec des tiers.

Les documents numériques et imprimés de cette recherche, y compris les fichiers de cette enquête, seront détruits 5 ans après la fin de l'étude.

Il n'y a aucune compensation pour votre participation à l'enquête. Cette recherche a reçu l'approbation éthique du Bureau d'éthique et d'intégrité de la recherche de l'Université d'Ottawa (dossier # H-10-21-6844). Vous pouvez les joindre au 613-562-5387, ethics@uottawa.ca.

Si vous avez des questions, n'hésitez pas à nous contacter.

Co-chercheur principal : Dr Channarong Intahchomphoo, Bibliothécaire de recherche remplaçant (données), Bibliothèque de l'Université d'Ottawa et Chercheur associé, Faculté de génie, Université d'Ottawa, cintahch@uottawa.ca

Co-chercheuse principal : Caroline Hyslop, Bibliothécaire universitaire associée, Services de recherche, Bibliothèque de l'Université d'Ottawa, Caroline.Hyslop@uottawa.ca

Superviseur de project : Dr André Vellino, Professeur agrégé, École des sciences de l'information, Université d'Ottawa, avellino@uottawa.ca.

Remarque : Les participants à cette enquête doivent actuellement travailler dans une bibliothèque publique au Canada dans n'importe quel poste, y compris technicien de bibliothèque, bibliothécaire, membre du conseil d'administration et de gestion de la bibliothèque et autres. De plus, cette enquête permet un nombre illimité de répondants d'une même organisation.

Acceptation : En cliquant sur le bouton « OK » ci-dessous, vous avez accepté de nous donner votre consentement pour participer à cette étude.

Questions

1. EN: To preventing multiple responses from the same participant, please provide your email address. FR: Pour prévenir de multiples réponses du même participant, s'il vous plaît fournir votre adresse courriel

2. EN: What is the title of your work position at the public library you are currently working? FR : Quel est le titre de votre poste à la bibliothèque publique où vous travaillez actuellement ?

   - Library Technician / Technicien de bibliothèque
   - Librarian / Bibliothécaire
   - Member of Library Board and Management / Membre du conseil d'administration et de la direction de la bibliothèque
   - Others, please indicate / Autres, veuillez indiquer

3. EN: What is the name of public library that you are currently working, and which province or territory is it located? FR: Quel est le nom de la bibliothèque publique pour laquelle vous travaillez actuellement, et dans quelles province ou territoire se situe-t-elle?

   (a) Library name / Nom de la bibliothèque :

   (b) Library location (province and territories) / Emplacement de la bibliothèque (Province et territories) :
   - Ontario
   - Quebec / Québec
   - Nova Scotia / Nouvelle-Écosse
   - New Brunswick / Nouveau-Brunswick
   - Manitoba
   - British Columbia / Colombie-Britannique
   - Prince Edward Island / Île-du-Prince-Édouard
   - Saskatchewan
   - Alberta
   - Newfoundland and Labrador / Terre-Neuve et Labrador
   - Northwest Territories / Territoires du Nord-Ouest
   - Yukon
   - Nunavut

4. EN: What is the impact of the COVID-19 pandemic on your public library's computer and Internet access services in the different levels of pandemic? FR: Quel est l'impact de la pandémie de COVID-19 sur les services donnant accès aux ordinateurs et à l'Internet de votre bibliothèque publique aux différentes étapes de la pandémie?

   (a) Impact during the lockdown / Impact pendant la fermeture:
   - More difficult or unable to continue providing literacy programs with local schoolteachers and children that require using a computer and Internet. / Plus difficile ou incapable de continuer à offrir des programmes d'alphabétisation par des enseignants locaux avec des enfants ayant besoin d'utiliser un ordinateur et Internet.

- Facing budget cuts for upcoming years to purchase more computers, laptops, e-books, e-magazines, audio-collections, and other technology tools. / Faire face à des coupes budgétaires dans les années à venir pour qui limiteront la capacité à acheter plus d'ordinateurs, d'ordinateurs portables, de livres électroniques, de magazines électroniques, de collections audios et autres outils technologiques.
- Impact on the library's programs on lending laptops and Wi-Fi hotspots to individual users. / Impact sur les programmes de la bibliothèque, sur de la diminution des prêts d'ordinateurs portables et de l'accès plus restreint aux points d'accès Wi-Fi pour les utilisateurs individuals.
- Impact on the library's programs on lending laptops and Wi-Fi hotspots to organizations that serve vulnerable people. / Impact sur les programmes de la bibliothèque de prêt d'ordinateurs portables et des points d'accès Wi-Fi sur les organisations qui servent les personnes vulnérables.
- Library could not run outreach programs effectively to promote the use of electronic resources and online access to digital collections. / La bibliothèque ne pouvait pas exécuter efficacement les programmes de sensibilisation pour promouvoir l'utilisation des ressources électroniques et l'accès en ligne aux collections numériques.
- Users could not access or face difficulties accessing and using computers, Internet, and printers provided at the public libraries. / Les utilisateurs n'ont pas pu accéder ou ont rencontré des difficultés pour accéder et utiliser les ordinateurs, Internet et les imprimantes fournies dans les bibliothèques publiques.
- Impact on the library usage statistics, decreasing as users are not permitted to enter public library buildings or enter with a maximum number of users allowed in order to use computers and Internet at the public libraries. / Impact sur les statistiques d'utilisation des bibliothèques, qui sont en décroissance, car les utilisateurs ne sont pas autorisés à entrer dans les bâtiments des bibliothèques publiques ou sont suivant un nombre restreint d'utilisateurs autorisés à utiliser les ordinateurs et Internet dans les bibliothèques publiques.
- Impact on social inequality especially among low-income Canadians, as they do not have the same affability to knowledge and technology during a pandemic. / Impact sur les inégalités sociales, en particulier chez les Canadiens à faible revenu, car ils n'ont pas la même affabilité envers le savoir et la technologie pendant la pandémie.
- Impact on social inequality especially among people with disabilities, as they face more accessibility issues to knowledge and technology during a pandemic. / Impact sur les inégalités sociales, en particulier parmi les personnes handicapées, car elles sont confrontées à davantage de problèmes d'accessibilité aux connaissances et à la technologie pendant la pandémie.
- Impact on how the public libraries clean computers and workstation surfaces based on the public health guidelines. / Impact sur la façon dont les bibliothèques publiques nettoient les ordinateurs et les surfaces des postes de travail en fonction des directives de santé publique.
- Others, please explain / Autres, veuillez expliquer

(b) Impact when easing COVID-19 restrictions / Impact lors de l'assouplissement des restrictions COVID-19 :

- More difficult or unable to continue providing literacy programs with local schoolteachers and children that require using a computer and Internet. / Plus difficile ou incapable de continuer à offrir des programmes d'alphabétisation par des enseignants locaux avec des enfants ayant besoin d'utiliser un ordinateur et Internet.
- Facing budget cuts for upcoming years to purchase more computers, laptops, e-books, e-magazines, audio-collections, and other technology tools. / Faire face à des coupes budgétaires dans les années à venir pour qui limiteront la capacité à acheter plus d'ordinateurs, d'ordinateurs portables, de livres électroniques, de magazines électroniques, de collections audios et autres outils technologiques.
- Impact on the library's programs on lending laptops and Wi-Fi hotspots to individual users. / Impact sur les programmes de la bibliothèque, sur de la diminution des prêts d'ordinateurs portables et de l'accès plus restreint aux points d'accès Wi-Fi pour les utilisateurs individuals.
- Impact on the library's programs on lending laptops and Wi-Fi hotspots to organizations that serve vulnerable people. / Impact sur les programmes de la bibliothèque de prêt d'ordinateurs portables et des points d'accès Wi-Fi sur les organisations qui servent les personnes vulnérables.
- Library could not run outreach programs effectively to promote the use of electronic resources and online access to digital collections. / La bibliothèque ne pouvait pas exécuter efficacement les programmes de sensibilisation pour promouvoir l'utilisation des ressources électroniques et l'accès en ligne aux collections numériques.
- Users could not access or face difficulties accessing and using computers, Internet, and printers provided at the public libraries. / Les utilisateurs n'ont pas pu accéder ou ont rencontré des difficultés pour accéder et utiliser les ordinateurs, Internet et les imprimantes fournies dans les bibliothèques publiques.
- Impact on the library usage statistics, decreasing as users are not permitted to enter public library buildings or enter with a maximum number of users allowed in order to use computers and Internet at the public libraries. / Impact sur les statistiques d'utilisation des bibliothèques, qui sont en décroissance, car les utilisateurs ne sont pas autorisés à entrer dans les bâtiments des bibliothèques publiques ou sont suivant un nombre restreint d'utilisateurs autorisés à utiliser les ordinateurs et Internet dans les bibliothèques publiques.

- Impact on social inequality especially among low-income Canadians, as they do not have the same affability to knowledge and technology during a pandemic. / Impact sur les inégalités sociales, en particulier chez les Canadiens à faible revenu, car ils n'ont pas la même affabilité envers le savoir et la technologie pendant la pandémie.
- Impact on social inequality especially among people with disabilities, as they face more accessibility issues to knowledge and technology during a pandemic. / Impact sur les inégalités sociales, en particulier parmi les personnes handicapées, car elles sont confrontées à davantage de problèmes d'accessibilité aux connaissances et à la technologie pendant la pandémie.
- Impact on how the public libraries clean computers and workstation surfaces based on the public health guidelines. / Impact sur la façon dont les bibliothèques publiques nettoient les ordinateurs et les surfaces des postes de travail en fonction des directives de santé publique.
- Others, please explain / Autres, veuillez expliquer:

5. EN: What are the strategies used by your public library to maintain the computer and Internet access services for users during the COVID-19 pandemic? Please select the following answers, more than one selection allowed. FR: Quelles sont les stratégies utilisées par votre bibliothèque publique pour maintenir les services d'accès aux ordinateurs et à l'Internet pour les utilisateurs pendant la pandémie de COVID-19 ? Veuillez sélectionner les réponses suivantes, plus d'une sélection est autorisée.

- Extending the library's Wi-Fi to outside the library's building including the parking lot. / Étendre le Wi-Fi de la bibliothèque à l'extérieur du bâtiment de la bibliothèque, y compris le stationnement.
- Lending laptops and Wi-Fi mobile hotspots for home use (individual users). / Prêt d'ordinateurs portables et de points d'accès mobiles Wi-Fi pour un usage domestique (utilisateurs particuliers).
- Lending laptops and Wi-Fi mobile hotspots to community partners (institutions that serve vulnerable people). / Prêt d'ordinateurs portables et de points d'accès mobiles Wi-Fi pour partenaires communautaires (institutions au service des personnes vulnérables).
- Taking out the library's bookmobiles equipped with Wi-Fi hotspots and driving to neighbourhoods to create temporary Internet hotspot connections. / Utiliser les bibliobus équipés de points d'accès Wi-Fi et les conduire dans les quartiers pour créer des connexions de points d'accès Internet temporaires.
- Accepting online printing orders to be picked up as a curbside service. / Accepter les commandes d'impression en ligne à ramasser en tant que service en bordure de rue.
- Others, please explain / Autres, veuillez expliquer:
- If no strategies were implemented, please explain / Si aucune stratégie n'a été mise en œuvre, veuillez expliquer:

6. EN: During the COVID-19 lockdowns users are not permitted to enter public library buildings. In your opinion, what sort of consequences of not having access to computers and Internet located at public libraries might there be among disadvantaged populations?

Note: this survey defines the "disadvantaged populations" in a broad way including people who face barriers due to gender, economic status, racialization, disability, Indigeneity or other factors.

FR: Pendant les fermetures de COVID-19, les utilisateurs ne sont pas autorisés à entrer dans les bâtiments de la bibliothèque publique. À votre avis, quelles conséquences le fait de ne pas avoir accès aux ordinateurs et à Internet dans les bibliothèques publiques pourrait-il avoir chez les populations défavorisées ?

Notez que cette enquête définit les « populations défavorisées » de manière large, y compris les personnes confrontées à des obstacles en raison du sexe, de la situation économique, de la racialisation, du handicap, de l'appartenance autochtone ou d'autres facteurs.

- Unable to book a COVID-19 test appointment. / Incapable de prendre un rendez-vous pour le test COVID-19.
- Unable to book a COVID-19 vaccine appointment. / Incapable de prendre un rendez-vous pour le vaccin COVID-19.
- Unable to search health information on the Internet about the COVID-19 pandemic. / Incapable de rechercher des informations sur la santé sur Internet concernant la pandémie de COVID-19.
- Unable to access computers and Internet for online learning or new skills development among people who suddenly became unemployed during the COVID-19 pandemic. / Incapable d'accéder aux ordinateurs et à Internet pour l'apprentissage en ligne ou le développement de nouvelles compétences chez les personnes qui se sont soudainement retrouvées au chômage pendant la pandémie de COVID-19.
- Unable to get support on job searching and applying to jobs posted on the Internet which users could normally get from the library staff in the pre-pandemic. / Incapable d'obtenir de l'aide pour la recherche d'emploi et pour postuler aux offres d'emploi publiées sur l'Internet que les utilisateurs pourraient normalement obtenir du personnel de la bibliothèque pendant la période prépandémique.

- Others, please explain / Autres, veuillez expliquer:

7. EN: Have you experienced the accessibility issues among users with disabilities to the computer and Internet services provided at your public library during pandemic? FR: Avez-vous rencontré des problèmes d'accessibilité parmi les utilisateurs handicapés aux services informatiques et Internet fournis à votre bibliothèque publique pendant la pandémie?

   - Yes, please explain / Oui, veuillez expliquer:
   - No, please explain / Non, veuillez expliquer:

8. EN: In your view, in the post-pandemic era, please tell us how public libraries in Canada could improve upon the digital divide issues experienced by disadvantaged populations to have equal access to computers and the Internet? FR: À votre avis, à l'ère post-pandémique, veuillez nous dire comment les bibliothèques publiques au Canada pourraient améliorer les problèmes de fracture numérique vécus par les populations défavorisées pour avoir un accès équitable aux ordinateurs et à Internet?

9. EN: Would you be interested to participate in a half-hour interview via Internet video or telephone call with us? It will help us to learn more about your experience and thoughts. If yes, please provide your email address in the text box below. We will get in touch with you to set up a time for the interview.

   Please note that your interview will be audio-recorded. We will ask you to give verbal consent (recorded) of your willingness to participate before the interview takes place. Your privacy and data will be protected. There is no compensation for your interview participation.

   FR: Souhaitez-vous participer à un entretien d'une demi-heure par vidéo sur Internet ou par téléphone avec nous ? Cela nous aidera à en savoir plus sur votre expérience et vos réflexions. Si oui, veuillez indiquer votre adresse courriel dans la zone de texte ci-dessous. Nous vous contacterons afin de prendre un rendez-vous pour l'entretien.

   Veuillez noter que votre entretien sera enregistré. Nous vous demanderons de donner votre consentement verbal (enregistré) avant le début de l'entretien. Votre vie privée et vos données seront protégées. Il n'y a aucune compensation pour votre participation à l'entretien.