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Digital Literacy Interventions for Older Adults in Canada

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Executive Summary

This policy report sought to identify barriers and facilitators to successful digital literacy programs in Canada. A review of academic literature, public digital literacy programs, and consultations with policymakers was conducted to identify gaps, barriers, and key facilitators. Internal and external barriers included memory, anxiety, financial constraints, and geographic infrastructure. Digital devices such as cell phones, tablets, and voice-activated SMART homes are often expensive, combined with ongoing internet service fees and phone bills the result is services and technology that are inaccessible to many older adults. For those who can access these technologies, the fear of breaking something, or anxiety about learning new skills often hinders their use of technology. These barriers can be addressed through facilitators including consistently available social supports, a positive, safe learning environment, and older adult engagement. Based on the identified barriers and facilitators, this report recommends that programs be designed in partnership with older adults to ensure their needs are met, and to facilitate a safe and welcoming learning environment. There is a need to invest in long-term funding for digital literacy programs including reinvesting and expanding *The Digital Literacy Exchange program* to support the continued development of digital literacy programs for older adults. Resources for programming should allocate funds for instructor salaries and training, and for devices for low-income older adults. Finally, to address the digital divide in long-term care, the development of long-term care standards and regulations around internet infrastructure is essential to the use of digital technologies in these settings.

Policy Question

The purpose of this policy report is to identify barriers and facilitators to enhance the effectiveness of interventions designed to increase older adults' digital literacy. Additionally, this report will identify recommendations to address the barriers.

Research Question: *What are the barriers and facilitators that impact interventions that aim to enhance digital literacy in older adults?*

Relevant Terminology

Older Adults

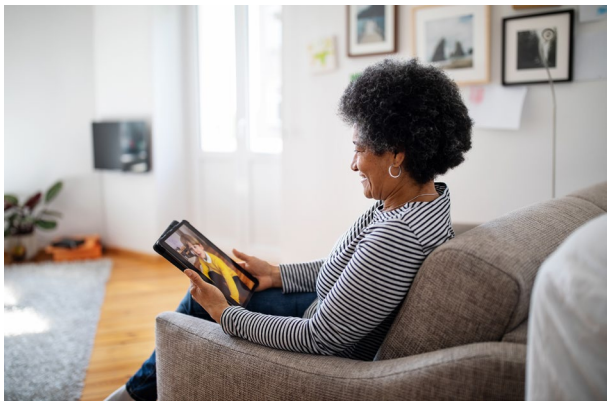
Individuals aged 65+[1,2]. Considered one of the fastest growing population groups in Canada, it is estimated that by 2050 the population of older adults aged 85+ could reach more than 2.7 million[3].

Digital Literacy

The set of skills and knowledge needed to use and understand information from various digital devices and sources[1,4].

Digital Divide

The inaccessibility of information and communication technologies for certain groups due to the costs of technology and internet services, as well as sociodemographic variables such as income, education, age, and gender[5].



Background

Social Context

2021-2030 has been declared The United Nations Decade of Healthy Ageing. This global collaboration seeks to bring together governments, academics, the private sector, and communities to improve the lives of older adults by focusing on four main action areas: Age-friendly Environments, Combatting Ageism, Integrated Care, and Long-term Care[6]. The use of digital literacy and access to the internet for older adults as a way to meet these goals is a clear and direct path. Additionally, access to the internet is increasingly considered by many as a human right[7,8,9]. The shared values of dignity, fairness, equality, respect, and independence which guide our understanding of human rights are more easily achieved through the internet and connected technology. This has become glaringly evident throughout the COVID-19 pandemic as the importance of digital and virtual solutions for everything from social connections to medical care have been demonstrated[10,11,12]. However, the digital divide means that many older adults lack the skills and knowledge to access the internet or use technology.

Loneliness & Social Isolation

The COVID-19 pandemic highlighted the need for policies, programs, and services to combat existing gaps in our health and social care systems[6]. One prominent issue during the height of the pandemic was social isolation and loneliness among older adults[11,12,13]. During the beginning of the pandemic, many older adults reported increased social isolation and loneliness which was also associated with worsening anxiety and depression[12,14]. To mitigate the isolation many individuals, including older adults turned to digital communication technology to connect with loved ones[10,11,12,14]. Unfortunately, there is a digital divide that includes barriers to uptake and access to technology for many older adults[13]. Among those who reported continued or worsened loneliness over time, many reported as a contributing factor discomfort with technology due to a lack of knowledge, or an inability to access new technology. Limited use of technology often meant an inability to engage with broader social networks, resulting in greater feelings of isolation[15].

Benefits of Digital Literacy

The benefits of digital literacy for older adults are manyfold. Increased digital literacy may directly improve older adults' quality of life through greater access to information including health care, and by enhancing social connections through greater communication avenues resulting in increased mental and emotional health[1,4]. Additionally, internet use could provide cognitive stimulation through games, news and information, and access to online courses that could slow down cognitive decline in older adults[8]. Increased digital literacy among older adults could also address age related inequalities by bringing together diverse groups and providing a platform for diverse knowledge[16].

Digital Literacy Exchange Program

The Digital Literacy Exchange Program (DLEP) is a temporary program funded by the Canadian Federal government through the Department of Innovation, Science and Economic Development. The program is designed to support initiatives aimed at teaching digital literacy skills to Canadians who may experience barriers to participating in the digital economy, including older adults, indigenous persons, and newcomers to Canada. The DLEP was launched in 2018 and has invested $17.6 million into eligible initiatives. During the first phase of funding, the program supported the training of more than 400,000 participants. The call for proposals for the second phase closed in September 2022 and funding will take place from 2022/23 to 2024/25[17].

Approach

A review of academic literature was conducted to identify barriers and facilitators to digital literacy for older adults in Canada. Searches were conducted through Google Scholar, Novanet, and through the UN Evidence and Gap Maps for the UN Decade of Healthy Aging. Priority was given to Canadian studies and studies conducted between 2012-2022, however studies outside this focus were included to provide additional context. A review of gray literature was also conducted to understand current digital literacy interventions in Canada. Online consultations with relevant government stakeholders were also conducted to understand digital literacy priorities.

Digital Literacy Interventions

There are many current digital literacy interventions for older adults in place around Canada. Some focus on local communities and some are available nationwide. These interventions often focus on developing training materials for other groups to use, or focus on direct training. Most interventions rely on volunteers to run workshops or offer support to older adults. A selection of programs that are currently active is listed below. For more examples of digital interventions visit https://ised-isde.canada.ca/site/digital-literacy-exchange-program/en/funded-initiatives .

ABC Life Literacy Canada & Youth Empowering Parents – Youth Teaching Adults
(Ontario/ National)
https://youthteachingadults.ca/about/
The program provides a free introduction digital literacy program for adult learners, led by youth volunteer-tutors. It offers free downloadable lesson plans on topics such as how to set up Gmail, or how to use Zoom and WhatsApp. Learners can access and use the lesson plans on their own, or other organizations interested in running workshops can access their materials. All materials are written in clear language at grade 6-8 literacy level.

The Literacy Society of the North Okanagan – Digital Literacy program
(British Columbia)
https://www.literacysociety.ca/programs/digital-literacy/
The program aims to teach low-income older adults how to navigate cell phones and tablets. They offer small group workshops and one-on-one support sessions with volunteers. Many of their volunteers are tech savvy older adults (some are retired teachers and IT professionals, other are individuals who previously took part in the program). Learners join a 3 hour long, small group session with less than 10 other learners, a facilitator, and volunteers. The session focuses on the basics of using their device. Learners can then book any number of one hour long, one-on-one sessions with a volunteer to dive deeper into the use of their device so they can learn aspects that are specific to their needs. Volunteers are supported by lesson plans from the Youth Teaching Adults program so they do not need to be experts on the technologies used in the program.

Connected Canadians
(Ottawa/ National)
https://www.connectedcanadians.ca/programs
Connected Canadians offers numerous programs including customized one-on-one training and support sessions. In these sessions an outreach coordinator conducts an initial needs assessment to identify main gaps and goals, then a client support specialist works with the client to meet their goals. Each session is typically one hour in length and covers basics like setting up email, how to video chat, and how to use the internet. Sessions are typically held outside of regular business hours based on volunteer availability. They also offer specific sessions such as online fitness classes, and social gaming where older adults and one or two support specialists connect to play online Pictionary- style word games while connected via video and audio chat for social interaction. Additionally, they offer instructor-led workshops to retirement homes, community centers, and churches, for a fee.

Atwater Library & Computer Centre – CONNECT: Connecting People to a Digital Lifestyle
(Quebec)
https://www.atwaterlibrary.ca/computer-services/digital-literacy-project/connect-project/

This initiative offers a variety of programs including group workshops covering the basics of computing up to podcasting and web design. They also offer a YouTube video series made in 2020 demonstrating how to and step-by-step guides to help people stay in touch, informed, and inspired during the pandemic. Additionally, they have a lecture series, and one-on-one Q&A sessions with qualified instructors. Prior to the pandemic they also offered in-person peer cafes for individuals to share knowledge and tips with peers to spark creative projects. During the pandemic, many programs moved to phone, email, or Zoom.

HelpAge Canada – Dig-IT
(National)
https://seniorsdig-it.ca/how-it-works/
The Dig-IT program provides older adults with a tablet on loan for the duration of the 6-month program, a limited data plan for 6 months, an email account created for them, access to printed and online course materials, support of volunteer digital coaches, and a year-long subscription to BestBuy's Geek Squad. Participants cannot apply on their own. A local organization (care home, senior center, community center, charitable organization, etc.) applies on behalf of 4-20 low-income older adults and takes the responsibility on working with Dig-It to support participant intake, device delivery, close-out, and evaluation (there is a small stipend for this assistance). Organizations also must identify volunteers in their network to become digital coaches for their community. Participants are then provided the device, data, and Geek Squad membership. A volunteer will call participants for orientation and to help them register for online classes. Participants then independently progress through *Gluu Essentials* online classes and volunteers regularly check in to provide support. Participants can call Geek Squad for technical support at any time, and participants have access to a resource library for support and inspiration.

Gluu Society
(National)
https://gluusociety.org/
The Gluu Society is a Canadian non-profit on a mission to help older adults learn to use technology to stay happy, healthy, and connected. It offers free online courses along with printable materials, videos, and step-by-step instructions for older adults to follow at their own pace. Each course offers certificates and badges to motivate learners and to share their accomplishments. Additionally, it provides resources to teachers and trainers.

Many of these programs were originally funded during the first phase of the DLEP and continue to operate, demonstrating some longevity. These programs often use volunteers as well as paid facilitators and tutors who have a greater understanding of technology and the course offerings. They offer printable easy to understand materials, and they often offer multiple and continuous opportunities for the older adult learners to engage with tutors in one-on-one sessions so they can learn at their own pace with supports. Participant feedback indicates that older adults appreciate and recommend these programs. They demonstrate greater understanding of their digital devices and have been able to incorporate their use into their everyday life. They highlight the value learning these skills has brought to their lives and are excited to continue learning and connecting online.

Key Findings

The literature review identified several barriers and facilitators that impact the success of digital literacy training for older adults. In this section, these barriers and facilitators will be discussed along with identified gaps.

Barriers

Barriers to digital literacy training for older adults can be divided into external and internal factors. External factors include equity and accessibility related concerns while internal factors include personal experiences, concerns, and aging related factors.

External Factors

Financial Constraints

Financial constraints impact digital literacy in several ways. The cost of telecommunication and internet services in Canada is among the highest in the world[18]. While the financial cost of the technology can often deter older adults from accessing technology that may be beneficial to them, low-income older adults may simply not be able to afford technology or the costs of internet connections necessary for the technology to work[19,20,21]. Acquiring and maintaining devices are a lower priority for older adults when they are also struggling with low income, high household expenses, and health care related costs[22].

Geographic Location

Older adults living in rural or isolated areas often experience greater barriers to digital literacy than their urban counterparts[4,23,24]. The physical infrastructure in many rural communities may not facilitate exposure to digital communication technology[23]. In Canada, an average of 6.5% of households do not have access to minimum internet speeds of 50/10 Mbps (50 megabits per second download/ 10 Megabits per second upload). The population without access to minimum internet speeds in provinces and territories ranges from 3.9% in Prince Edward Island to 20.8% in Newfoundland and Labrador, with Quebec and Nunavut as outliers at 0% and 100% respectively[25]. Through the Connect to Innovate Program and Universal Broadband Fund, the federal government aims to provide 100% of Canadians with access to high-speed internet by 2030[26].

Inaccessibility

Older adults who are house-bound, due to physical ability or health may also experience barriers to digital literacy because many training opportunities are either offered in spaces such as libraries or community centers or via online courses (which require a baseline understanding of digital technologies to engage)[16]. The technology itself can also be inaccessible if it cannot be adapted to individuals' personal needs such as using larger fonts and contrasting colours for those with visual limitations, or being lightweight enough to accommodate individuals who grow tired easily or have less physical strength[19]. Voice activated SMART technology can address some of the inaccessibility issues by allowing older adults or individuals with physical disabilities to be able to use their voice to access the internet, enjoy entertainment and leisure activities, and create social connections through video and audio calls.

Internal Factors

Confidence

Many older adults experience low confidence or feelings of inadequacy due to a lack of knowledge about technology[1,4]. However, older adults often underestimate their own knowledge due to internalized ageism or labeling themselves as "too old", and when in mixed groups comparing themselves to younger people who they believe "intuitively" have digital skills [4,27]. Social perceptions of older adults, social environments, and societal attitudes toward older adults and how much the older adult agrees with these perceptions all impact their confidence level[4,28].

Anxiety or fear

Another barrier to technology use by older adults is fear or anxiety about using devices. Many older adults demonstrate a fear of breaking the technology and worry that they either will not be able to replace it due to high costs, or that they will not have someone nearby who can help fix it[1,4,27]. They also express fears about security or privacy issues associated with technology which makes them hesitant to want to learn more[20]. This fear is justified, as many internet frauds and scams disproportionately target older adults[24]. Additionally, many older adults experience anxiety about learning new skills. This anxiety is once again often a side effect of ageism and internalizing societal beliefs that "you can't teach an old dog new tricks"[4].

Learning Processes & Memory

While ageism often plays a role in our perceptions of older adults' ability to learn, there are some internal barriers that hinder the learning processes for older adults. The learning process for new technologies such as computers and cell phones is often complicated and requires learning multiple skills at once, which can be very challenging[1,29]. Factors that influence the learning process for older adults include their attitudes toward novelty, previous experiences with technology, and their physical limitations. Previous negative experiences or frustrations with technology often cause hesitation in trying new technologies[1]. Additionally, cognitive ability and memory becomes a larger hindrance as we age. Older adults report needing additional supports, materials, and time to help counter their trouble remembering steps, processes, and authentication data such as email addresses and passwords[21,30].

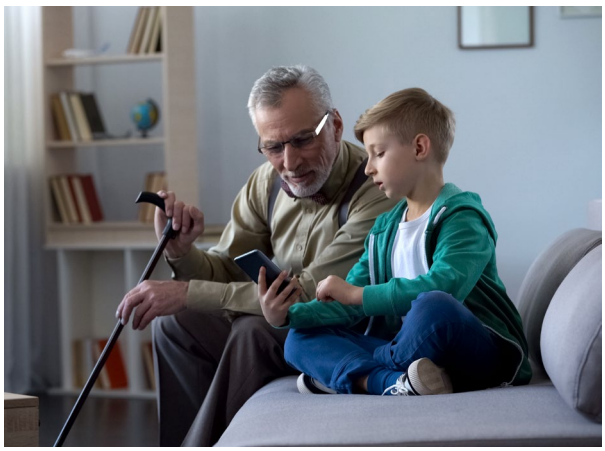
Facilitators

Several factors facilitate technology uptake and digital literacy for older adults. These are primarily external factors to help build confidence and alleviate fears while learning.

Social Support & Warm Experts

Social supports are one of the largest factors when it comes to digital technology uptake by older adults. Many older adults acquire devices from family members and friends as gifts and rely on those around them to support their use of the technology[1,21]. The term "Warm Expert" refers to someone who has knowledge of technology and a close personal relationship with a novice user, so they can support the use and learning of the technology while also situating it in the user's personal context. While it is a term often used to refer to family, friends, or an unpaid helper, consideration should be given to paid positions in order to acknowledge the skills needed to effectively support technology uptake and use[21,31]. A warm expert allows the older adult to experiment with their technology, alleviating fears of breaking something and can help the older adult navigate the language and technical jargon barriers that make it difficult to learn[20,21].

Warm experts require certain skills to be effective. They need to demonstrate patience, empathy, understanding, flexibility, and respect, and there needs to be a feeling of trust between the older adult and the warm expert[21,24]. In one study, a group of mentors noted that a high level of digital proficiency beyond typical day-to-day use was not needed, however experience with customer service, communication, and people skills were much more useful[21].



Continuous supports

Repetition is a key factor for learning in older adults[1,32]. A one-time class is not enough time to facilitate learning. Time is needed to learn new skills, especially for older adults experiencing memory issues[1]. Most successful programs allow for continuous one-on-one training and support when needed. The opportunity for additional support also allows for chances to build trust with trainers as an investment in time is often seen as a demonstration of caring[21]. The digital literacy programs highlighted above followed those approaches by providing individual or small-group mentoring and follow-up support.

Training Environment

The environment in which older adults learn can impact their success. A safe and supportive space to experiment with new technology and ask questions is key[4]. While one-on-one training is beneficial for individualized support, older adults said in interviews that learning with others and having the opportunity to talk to other people who are also learning helped build their confidence[1,4]. Additionally, while remote learning is an option it does present issues. First, it requires a baseline level of digital literacy which many novice users may not have. Second, language and communication barriers are exacerbated by not being able to read trainer's body language or watch how trainers manipulate their devices[21].

Older Adult Engagement in Training

Engagement with older adults in both the program design and the training helps address common barriers associated with ageism[33]. Direct engagement allows the program to develop around the needs and desires of the population and helps establish a positive learning environment. Including older adults as trainers can also help foster trust more quickly and alleviate some of the fear and confidence barriers many older adults experience[4].

Community VS Long-Term Care

It is important to note that most of the scholarly knowledge in this area is focused on community dwelling older adults. Older adults living in long-term care settings who are often lonely and isolated from family, and often experience cognitive decline and low mental health could also benefit greatly from digital literacy training and technology use[34,35]. However, many of the barriers and facilitators may be exacerbated even further in long-term care settings.

Barriers to infrastructure which are often experienced by rural older adults are also experienced by those living in long-term care whether rural or urban. Many Canadian long-term care homes were built between 1950-1990 and are not equipped to properly support the use of "Internet of things" (IOT) technologies[36,35]. Outdated network infrastructure and limited IT department funding mean that even residents with high digital literacy will experience obstacles outside of their control with little support to address them. Bandwidth and connection issues will arise on Wi-Fi networks that are not adequately equipped to handle the increased traffic as more older adults begin to use digital devices. These connection issues may frustrate older adults and negatively affect their continued use of technology.

Older adults living in long-term care also often lack supports needed to continuously learn. Family or friends who may be considered warm experts may only have limited access to their loved ones and are likely not available when issues arise. Nursing staff are often over worked and may not be sufficiently digitally literate to support residents' use of technology. Additionally, many older adults avoid reaching out to nursing staff for support as it is not a medical issue and they do not want to burden the staff[35].

As new digital literacy programs for community dwelling older adults become more prominent and younger older adults begin moving into long-term care with stronger digital literacy skills, it is important to ensure the supports and infrastructure are there to allow these digitally literate older adults to continue to use their devices. While we know the benefits of increasing digital literacy for individuals who did not previously have access, we do not fully know the impact that losing those skills and connections may have on individuals who previously had access and who may be reliant on their devices to maintain social connections.

Policy Recommendations

Improving digital literacy among Canadian older adults will require programs that adopt facilitators and address barriers. It will also require financial supports, enhancements to digital infrastructure, and training supports to ensure the sustainability of programs and skills learned. Older adults value engagement. One of the best ways to ensure a program is relevant and successful is to build it with older adults based on the needs and desires they express. Their insights into what is most important to them can focus the development of programs so they can be the most beneficial to the population they are designed for. Future programs should also be flexible and should account for changing needs/ preferences related to evolving technologies as part of their continuous evaluation framework.

1) **Invest in long term funding for Digital Literacy programs.**

Digital literacy will not be learned in one quick lesson. It requires ongoing training and repetition. Additionally, as technology advances and changes the need for new training will continue to arise. As such it is important that older adults have access to training programs long term.

a) Reinvest and expand The Digital Literacy Exchange program to support the continued development of digital literacy programs for older adults.

b) Develop provincial Digital Literacy funding opportunities for community organizations to develop or participate in digital literacy training.

2) **Resource Allocation**

It is important that financial supports are available to invest in digital literacy programing and training going forward. Allocation of funds should focus on providing salaries, training, and devices.

a) Provide funding opportunities to hire trainers and staff. It is important to acknowledge the skills trainers provide and support them in being able to continuously provide it. Older adults value consistency, having access to the same trainer who they trust is valuable in their learning journey. Specific funding to hire older adults as staff and trainers would also benefit new learners, as peer support can ease fears associated with ageism.

b) Funding to provide both digital and social training for staff to ensure consistency across trainers. Social training should focus on the importance of providing patience, empathy, and building trust and respect for older adults. New programs can partner with existing programs like the *Gluu Society*, or *Youth Teach Adults* program to access training materials.

c) Develop funding programs to support access for low-income older adults to reliable internet services, and digital devices such as cell phones, laptops, tablets, and voice activated SMART technology.

3. Develop infrastructure regulations for long-term care

Older adults living in long-term care often have less control over their environment than older adults in community. It, therefore, is the responsibility of long-term care homes to ensure their infrastructure will support the use of digital technologies by residents. Standards and regulations should be developed to minimize the digital divide in long-term care.

a) Require publicly funded long-term care homes to include IT supports as a funding line in annual budgets. This will enable proper expertise in long-term care to develop and maintain appropriate digital infrastructure and networking.

b) Add minimum internet requirements to Canadian long-term care standards.

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