Addressing the Senior Digital Divide: Evaluating the Technology, Access and Support for Seniors (TASS) Project

A Community-Academic Partnership

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ACKNOWLEDGEMENTS

Many individuals and organizations have supported the Technology, Access, and Support for Seniors (TASS) project. We wish to acknowledge the following for their generous financial support: United Way Greater Toronto / Allan Slaight Fund; The Regional Municipality of York; the Emergency Community Support Fund, Federal Government; Mitacs, Federal Government; and the Ministry of Seniors and Accessibility, Ontario Government. We wish as well to thank Ava Joshi, United Way Greater Toronto and Janet Rurak, York Region for acting as community co-chairs of the Research Advisory Board. In addition, we appreciate input from Deborah Lieberman, Judy Coultes-Macleod and Kevin Nugent, York Region. Their support of Human Endeavour's vision and this evaluation study is greatly appreciated. We thank our meeting note taker extraordinaire, Megan Wong. The engagement of senior serving organizations and managers, who gave so generously of their time and expertise, was essential to the design and completion of this project. We express enormous gratitude for their involvement and critical feedback at all stages of the research process: Lyne Way-White, Club Action 50+ East Ferris-Corbell; Krysia Schafer, The District Municipality of Muskoka; Melanie Rowe and Ramanan Thanabalan, Community & Home Assistance to Seniors; Melinda Lau and Frieda Tsang, Senior Persons Living Connected; Diane Werner, Parkdale Golden Age Foundation; Christina Vettese, York Region; Harmeet Kaur, Manjyot Kainth, and Gulwinder Bhui, Punjabi Community Health Services; Maureen Bruce-Payne, North Bay Golden Age Club; Noor Din, Human Endeavour; Marilia Lana and Wendy Caceres-Speakman, Rexdale Community Health Centre; and Myriam Castilla, Vaughn Community Health Centre. To the seniors who completed the survey and agreed to be interviewed, we are profoundly grateful. Their enthusiastic engagement with TASS and our evaluation study was inspirational for the TASS design team, the research team, seniors and participating senior serving organizations. Finally, we end with a special acknowledgement of the role of Noor Din, CEO of Human Endeavour, who devised and implemented the TASS project in the first place and to his team: Anas Talat, Jyoti Booter, Shaista Thanvi, Ajiitha Anand, Micheline Sadaf and Yasir Admad who provided support on the TASS Helpline, technical support, and help with conducting online surveys and interview interpretation. There is no doubt that Noor's innovative contributions to enhancing the digital worlds of seniors has altered the senior serving sector in Ontario. We all owe Noor an enormous debt of gratitude for this tireless dedication and support of seniors, especially newcomers.

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Executive Summary

This impact evaluation study aims to assess the economic, social and cultural impact of the Technology, Access and Support for Seniors (TASS) project, initiated in May 2020 by Human Endeavour, a senior serving organization in York Region. Recognizing the need to pivot to online program delivery, Human Endeavour and community partners obtained grants to purchase and distribute free, over 400 easy to use, integrated android tablets preloaded with apps and data to vulnerable seniors, who were identified by our community partners United Way Greater Toronto, the Municipalities of York and Muskoka, and eleven senior serving organizations. In this research, we evaluate the impact and effectiveness of TASS by gathering survey and interview data: online surveys from 105 of the 400 seniors who received tablets and technical support from the TASS Helpline (just more than 25%); 29 in-depth Zoom interviews (just more than 25% of the 105 seniors surveyed); and 13 in-depth Zoom interviews with project managers from eleven senior serving organizations; and Zoom interviews with 2 key informants participating in TASS. Findings reveal that TASS bridged the first, second and third digital divides among seniors; lessened material barriers to digital uptake; sustained seniors' social and emotional health and well-being; sustained seniors' physical health and well-being; facilitated aging in place; and enhanced intergenerational learning and support. Examining the effectiveness of TASS, an online program delivery model, provides insight into what digital strategies enhance seniors' social inclusion while also helping senior serving organizations meet the workforce and skills challenges required to reduce the senior digital divides.

Purpose of the TASS Evaluation Project

This impact evaluation study aims to assess the economic, social and cultural impact of the Technology, Access and Support for Seniors (TASS) project, initiated in May 2020 by Human Endeavour, a community organization serving seniors in York Region. In March 2020, the global pandemic forced public spaces to close and in-person programs to be cancelled. Recognizing the need to pivot to online program delivery, Human Endeavour and partners obtained grants to purchase, lend and distribute, at no cost, over 400 easy-to-use, senior friendly, integrated android tablets preloaded with apps, data and security to vulnerable seniors, identified by United Way Greater Toronto, the Municipalities of York and Muskoka, and eleven senior serving organizations. Human Endeavour also established a multilingual Helpline, with paid staff available to support seniors in using their devices. (see

In January 2021, York University was asked by Human Endeavour to undertake a small pilot study examining the benefits seniors derived from participating in the TASS program. Three seniors who had received tablets and used them for 3 months were interviewed along with 5 project managers responsible for overseeing the distribution of tablets to seniors. The pilot project allowed the research team to test the survey and interview instruments. Following the presentation of findings to the York Region Seniors Cluster Table in February, 2021, York University, in conjunction with Human Endeavour, decided to expand the research study to include a larger sample of seniors and organizations. (see Appendix, p. 40)

In June 2021, an expanded TASS evaluation project commenced. Its main purpose was to evaluate the effectiveness of the TASS project in bridging the digital divide for a broad range of seniors who had participated in the project. Specifically, our objectives were to assess the social, economic, and health and well-being outcomes for 105 seniors and 11 senior serving organizations participating in TASS. In the following report, we outline the general and specific objectives of the TASS evaluation study, its target population, and quantitative and qualitative data assessing its effectiveness in connecting both seniors and senior serving organizations with the digital world. In the findings section, we demonstrate that seniors in the TASS project are found at all three levels of the digital divide, thus providing differential benefits from their access and use. In the conclusion, we provide a series of recommendations for both senior serving organizations and funders.

Setting the Context

Before the global COVID-19 pandemic, seniors across Ontario participated in-person in physical and social programs offered by a variety of senior serving organizations. At Human Endeavour, for example, a senior serving organization in York Region, more than 750 seniors participated in-person activities, each week, at no cost. For many Ontario seniors, weekly program attendance at community organizations represents their primary social contact with

friends, with whom they developed, over time, "trusted deep connections" (Procyk & Dinca-Panaitescu, 2021, 2).

The closure of public spaces disrupted traditional activities for seniors and for senior serving organizations. Without in-person programs, COVID-19 immediately thrust most seniors into deep social isolation, precipitating fear, anxiety, and depression. At same time, COVID-19 revealed the widespread lack of digital literacy among the older population served by senior serving organizations, most of whom lacked access to, and knowledge of, how to use technology. COVID-19 also revealed the inability of senior serving organizations to pivot quickly to online program delivery due to their lack of infrastructure, trained staff, and online support.

In short, COVID-19 revealed two distinct problems

- Different levels of digital literacy within the senior population, ranging from non-existent to basic literacy, which affected seniors' access to and use of technology
- Different levels of organizational capacity, across senior serving organizations, to pivot from in-person to online program delivery, ranging from no organizational capacity to limited capacity

Cognizant of these issues and recognizing an urgent need to switch from in-person to online program delivery, Human Endeavour initiated the TASS project, which entailed providing its senior clientele with the necessary tools to connect to online programming. These tools included: access to a free, easy to use android tablet, preprogrammed with apps, data, security; and access to support and training through a multilingual Helpline (see p. 12 for languages). From its inception in May 2020, Human Endeavour provided monthly updates on the TASS project to fellow organizational members of the York Region's Seniors Cluster Table, jointly administered by United Way Greater Toronto (UWGT) and York Region. Once up and running successfully, Human Endeavour offered to expand the TASS project to include other senior serving organizations, subsequently including a wide range of organizations across Ontario.

As it expanded to include other senior serving organizations, TASS encountered numerous challenges. Most of the senior serving organizations who joined the TASS project serve an economically and socially marginalized group of seniors, often racialized, living in both urban and rural areas, either alone or with a partner or family. At the beginning, many of the seniors had little or no knowledge of technology and little or no access to a tablet. Many of the seniors had limited facility in English. Some seniors faced physical and/or mental health challenges. Rural and remote seniors had inconsistent and expensive internet connections. Organizations serving seniors encountered their own set of challenges, including: lack of staff trained in online program delivery; lack of computers/tablets to provide to seniors; lack of funding to upgrade infrastructure; and lack of funding sources to purchase adequate supplies and equipment.

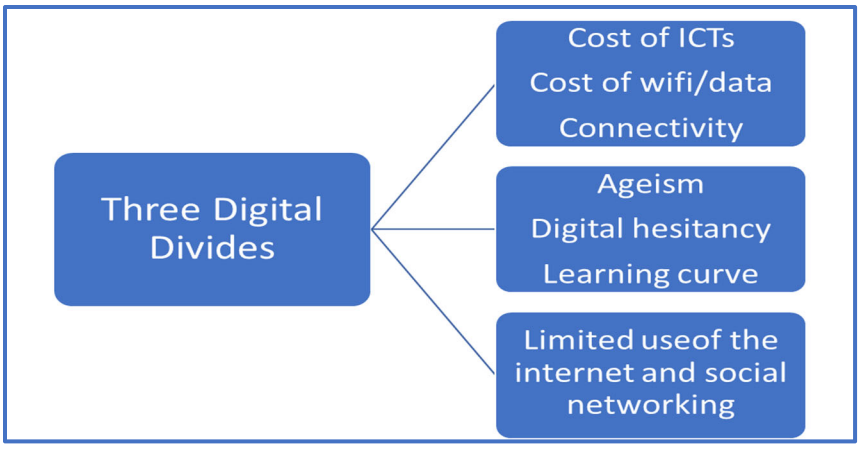
TASS thus represented a unique and innovative initiative aimed at reducing the first, second and third digital divides facing both seniors and senior serving organizations. COVID-19 revealed the structural inequities, such as immigrant status income, education, disability, rural/urban residence and relationship status as key variables restricting digital access and use. TASS revealed the specific supports and resources required for both seniors and senior serving organizations in order to bridge individual and organizational digital divides. With digital access now considered a social determinant of health in later life, access to Information and Communication Technologies (ICTs) is critical.

Given that 23 per cent of the population will be seniors by 2030 (Statistics Canada, 2019), insights gained from this project will reveal how different subgroups of seniors experience differential barriers and facilitators that affect their access and use of ICTs (Fang et al., 2019, 12). This is especially so since TASS came into being in response to the COVID-19 pandemic (Statistics Canada 2021). Insights gained from our study will be relevant for other sectors of the economy. Eason, (2008), in his discussion of sociotechnical systems theory, talks about the growing interdependence between human and technical resources and "a world in which flexible, multifunctional information and communication technologies are being regularly implemented into existing operational work systems" (n.p.). Given the rate at which information and services are being digitized in all areas of life affecting seniors – health care, government services, home care, community programs- it is urgent that seniors' access to and use of ICTs be supported in order to erase digital divides.

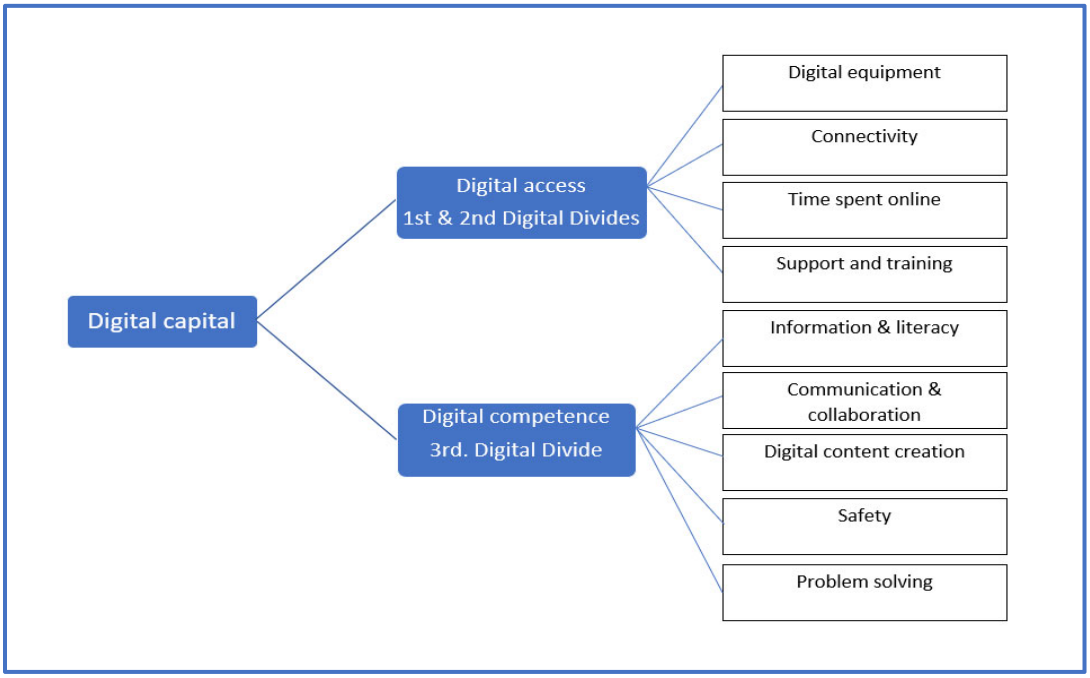
Understanding the Digital Divides

We frame the TASS evaluation project within the field known as gerontechnology, which emerged in the 1990s to highlight the interplay between technology and aging (McDonough, 2016, 1). Central to this field is the term '*digital divide*' referring to the tendency for older adults to be less likely to use the internet than younger people, and for those older adults who do access the internet, to do so less often (McDonough 2016, 1). The digital divide identifies who uses the internet and who does not, as well as identifying gradations of digital exclusion, that is, the complexity, depth and variety of internet use (Haight et al., 2014; McDonough 2016; Pew Research Centre, 2014).

Studies of the digital divide have distinguished among three stages: the first digital divide refers to access to ICTs, including cost and connectivity; the second digital divide refers to acquisition of digital skills; and the most recent, the third digital divide, refers to the expansion of those digital skills so that users can derive social, economic and health benefits from their ICT use.



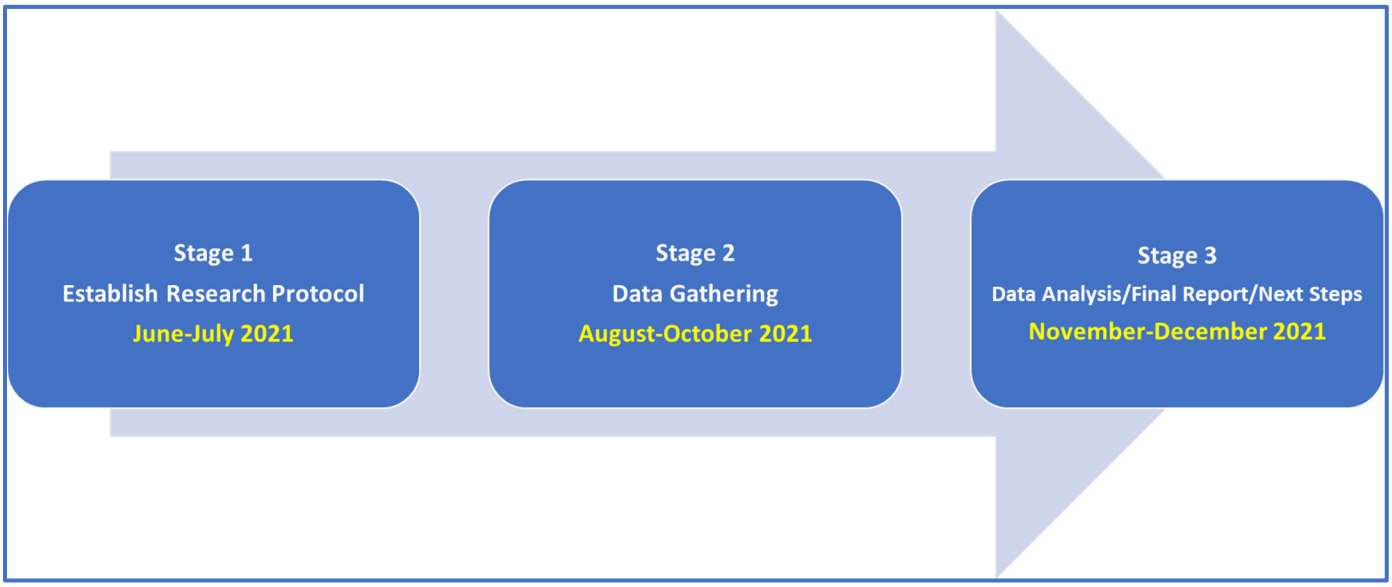
In 2018 Ragnedda, in an attempt to better understand this third digital divide came up with the concept of *digital capital,* the attitudes and abilities that individuals develop and then bring to their use of ICTs as well as the external resources that can be accumulated and used to derive benefit from ICTs on and offline. Ragnedda emphasized the strong relationship among demographic, socioeconomic and cultural inequalities in accessing, using and, most importantly, gaining benefits from ICT use. Since digital capital is now so closely intertwined with traditional axes of inequality, by widening, instead of lessening, digital divides, social and economic inequalities intensify making it harder and harder for marginalized populations to build their social capital (Ragnedda, 2018, 811). COVID-19 revealed how structural inequities, including immigrant status, income, education, disability, rural/urban residence, and relationship status, restrict digital access and use, thus delimiting the digital capital available to disadvantaged seniors.



Methodology

The research process included three different stages. In Stage One, a research protocol was established, a Research Advisory Board (RAB) was created, an ethics protocol was approved, and data gathering instruments were approved. In Stage Two, both quantitative and qualitative methods were used to gather data from two distinct populations: seniors and project managers. In Stage Three, data was analyzed, next steps and recommendations were discussed, and a final report was prepared.

Three Stages of the Research Process



Stage One: June-July 2021

This project adopted a participatory impact evaluation design (Halskov and Hansen, 2015) involving a sample of both seniors and program managers who had participating in the TASS project between July-December 2021. Senior participants included those who had received a free preprogramed tablet (TASS) distributed by Human Endeavour and partners at some point since July 2020. They had to have used the tablets for at least 3 months and had accessed the TASS Helpline at least once during their three-month use.

Recipients of the tablets included clients from senior serving organizations from different ethno-cultural backgrounds living in the Greater Toronto Area and in rural Ontario, specifically North Bay and the District of Muskoka.

TASS Research participants	
Key Informants	
1	United Way Greater Toronto
2	The Regional Municipality of York
Senior Serving Organizations	
1	Housing Services Branch, Regional Municipality of York
2	The District Municipality of Muskoka
3	Club Action 50+ East Ferris
4	North Bay Golden Age Club
5	Community and Home Assistance to Seniors
6	Senior Persons Living Connected
7	Parkdale Golden Age Foundation
8	Punjabi Community Health Services
9	Human Endeavour
10	Rexdale Community Health Centre
11	Vaughan Community Health Centre

Program managers of the eleven senior serving organizations involved with TASS were contacted and sent the following documents: an e-mail invitation to participate in the research project outlining its goals and methods; informed consent forms, approved by the Office of Research Ethics (ORE), York University, for participating seniors and project managers; a link to the on-line TASS survey; and copies of the in-depth interview questions for seniors and program managers. Program managers were actively involved in the recruitment of seniors.

Specific Steps: Stage One

- A Research Advisory Board (RAB) was convened consisting of representatives from all 11 participating senior serving organizations (see Appendix One)
- Two community co-chairs of the RAB were elected: Janet Rurak, Program Manager, York Region Seniors Strategy, and Ava Joshi, Manager, Community Investment at United Way Greater Toronto
- An online survey of seniors was developed using Survey Monkey (See Appendix Two)
- An interview guide for in-depth interviews with seniors was developed (See Appendix Two)
- An interview guide for in-depth interviews with program managers and key informants was developed (See Appendix Two)
- An informed consent form was developed
- A research ethics application was submitted to York University's Research Ethics Board

Stage Two: August-October 2021

In Stage Two, two forms of data were collected: an online survey for seniors and in-depth interviews with both seniors and program managers. An online survey was created using Survey Monkey, which asked for basic demographic information as well as general questions on the use of the TASS tablets. A purposive sample of 105 seniors were chosen to be surveyed from the original 400 seniors participating in TASS so that seniors from all organizations were represented. On average, it took between 30 to 40 minutes to answer the survey. Program managers and Helpline volunteers at Human Endeavour provided necessary assistance to seniors to answer the survey as well as providing language translation when required. A subsample of 29 senior survey respondents were interviewed in-depth for an hour through zoom or over the phone. The diversity of seniors responding to the survey and interviews is evident in the demographic chart on the next page. Program managers and one research assistant provided language translation when required during the interviews. Two seniors, who were blind or deaf, were interviewed using accessible tablets developed by Human Endeavor. Finally, in-depth interviews were conducted with 13 program managers from 11 senior serving organizations and 2 key informants.

Interviews and open-ended survey questions were transcribed using a program called TEMI. Open-ended survey responses and interview responses were coded using MAXQDA a software program for qualitative and mixed methods data analysis. Coding was an iterative process consisting of repeated rounds of analysis (Saldana, 2016, 218). Interview transcripts and open-ended survey responses were coded for common themes through 3 stages of grounded theory: open, axial, and selective coding (Corbin & Strauss, 1990).

Specific Steps: Stage Two

- Helpline support was arranged at Human Endeavour in Urdu, Tamil, Punjabi, Hindi, Cantonese, Mandarin and Spanish as well as any other languages identified e.g., Farsi, Russian
- Helpline volunteers were trained at Human Endeavour to provide phone/Zoom support to seniors who requested assistance in completing the online survey
- Surveys were distributed to 105 seniors, from the pool of 400 seniors who had used TASS tablets for at least three months, and received technical support from the TASS Helpline (see TASS data collection)
- From the pool of 400 seniors who had participated in TASS, a purposive sample of just over twenty-five per cent (29) were chosen for an in-depth interview by phone/Zoom (see TASS data collection)
- Senior interviewees were provided with a $30 honorarium
- In-depth interviews were conducted by phone/Zoom with 13 program managers from 11 senior serving organizations and 2 key informants (see TASS data collection)

- Where necessary, interpreters were used for the senior interviews
- All data from non-English language transcripts were translated into English
- All interviews were transcribed using TEMI, a voice to-text software program
- Digital recordings of interviews and survey data were uploaded to a password-protected university server and all data recorded via Zoom from were erased from this platform
- Following the constant comparative method of grounded theory analysis, all survey and interview data were coded using a software program called MAQDA
- Major themes were developed

Senior Survey and Interview Demographics

- **Number of senior surveys:** 105
- **Number of senior interviews:** 29
- **Region:** Ontario
- **Average age:** 74.5
- **Age groups**: 57-59=5%, 60-69=24%, 70-79=40%, 80-89=24%, 90-97=7%
- **Gender**: 84.62% female, 13.46% male, 0.96%; non-binary, 0.96% prefer not to answer.
- **Living arrangements:** 47.11% live independently/single, 22.12% live only with spouse/partner, 30.77% live with family
- **Languages:** Cantonese, English, Farsi, French, German, Greek, Gujrati, Hindi, Italian, Punjabi, Spanish, Tamil, Urdu, Tagalog

TASS Data Collection				
Online Surveys				
# of Surveys Received from TASS Tablet Users (Seniors)	105			
In-depth Interviews				
	Key Informants	**Program Managers**	**Seniors**	**Total**
# of Interviews Completed	2	13	29	**44**
# of Interviews Requiring Interpretation			5	**5**
# of Interviews Conducted with Accessible Tablets			2	**2**

Stage Three: November-December 2021

In Stage Three, data was analyzed. Key points from each interview transcript and from the open-ended survey responses were highlighted and then grouped into general codes, such as social connections, health, intergenerational relations, effect of TASS on seniors and senior serving organizations, digital divide, material conditions, challenges during COVID-19, and Post-COVID-19 perspectives. Findings revealed the ways in which TASS improved seniors' digital literacy, and reduced material barriers constraining seniors' access to ICTs, sustained physical health, improved emotional health and well-being, maintained social connections and boosted social and digital capital, facilitated aging in place and enriched intergenerational opportunities. Findings also revealed the many ways in which TASS benefited senior serving organizations by enhancing their workplace skills and resources thus enabling them to better meet the needs of their clients.

Specific Steps: Stage Three

- Preliminary findings were presented to a RAB meeting on November 1, 2021
- A preliminary final report was presented to the Seniors Cluster Table, York Region on November 25, 2021
- A draft final report was presented to a RAB meeting on December 6, 2021
- A final report was distributed to all participants on December 20, 2021
- All transcribed, analyzed, and coded material will be destroyed in March, 2022.

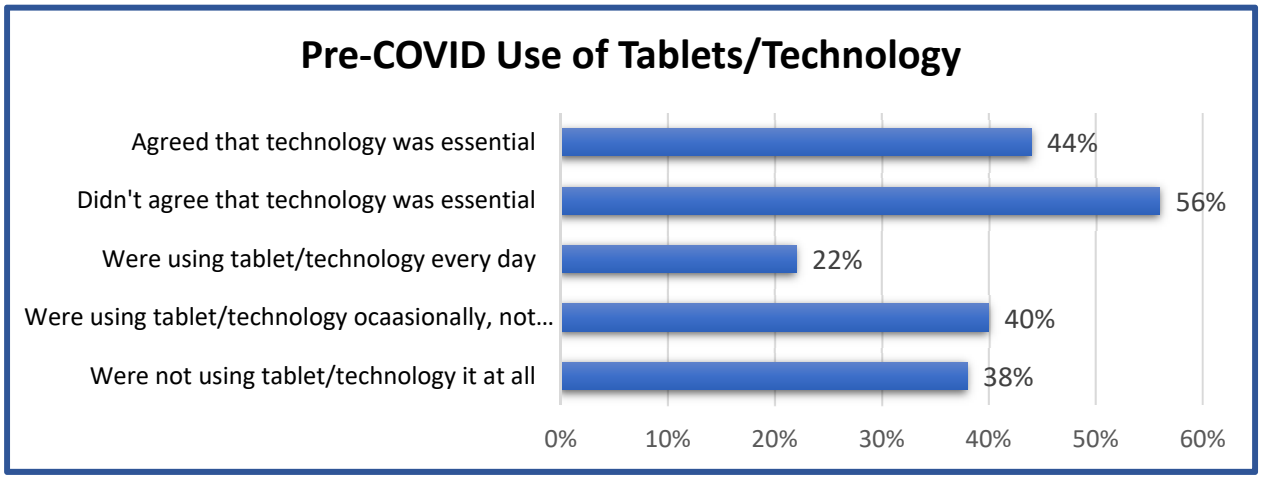
Research Findings: In the Voices of Seniors and Managers

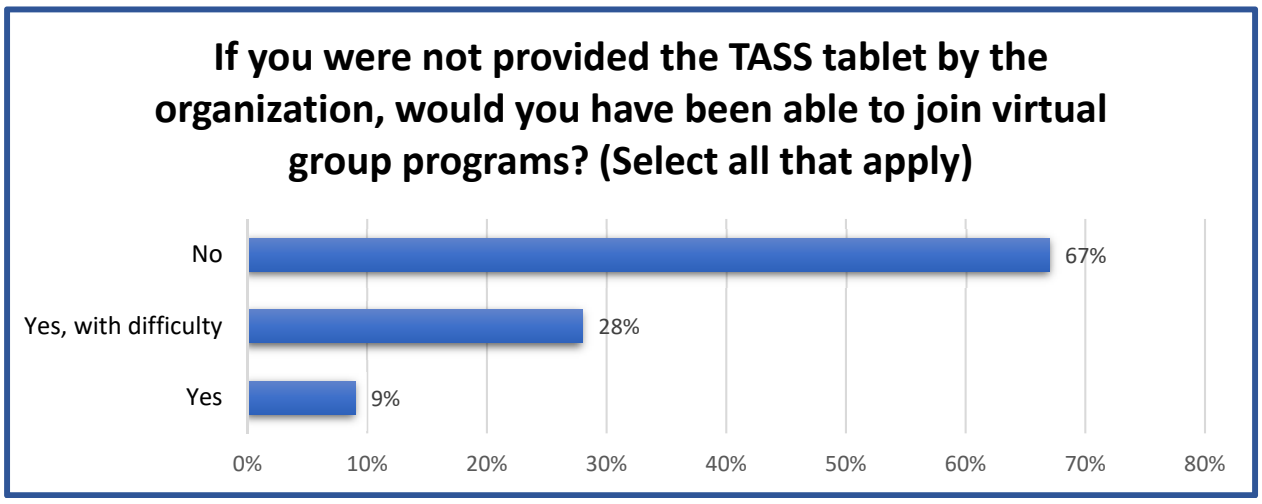
TASS Bridged the Digital Divides

When COVID-19 hit, the majority of seniors who attended in-person programs at senior serving organizations found themselves adrift. Even though seniors we surveyed and interviewed represented a diverse socioeconomic group, many found themselves with little or no experiences with technology. TASS recognized this gap and provided seniors with user-friendly remote access tablets, accompanied by a Helpline available Monday-Friday to troubleshoot technical issues and assist seniors with access to their programs. In addition, TASS also provided an instruction booklet which encouraged use and facilitated learning. Staff at senior serving organizations also provided both individual and group technical training and support and

TASS delivered online training for seniors using regular tablets but also provided one-on-one training for seniors using accessible tablets for blind and deaf users.

In the online survey, we asked seniors about their use of technology pre-COVID-19. Distinct differences emerged. More than one-third of the seniors, thirty-eight percent, did not use technology at all pre-COVID-19 and were classified as being members of the first digital divide. The remaining two-thirds had access to technology, but their use varied from occasionally to frequently and thus were classified as being part of the second digital divide.





In the absence of access to technology seniors were unable to connect to the group programs they had attended. Managers pointed out that TASS enabled their organizations to serve seniors online, an option that otherwise would not have been available:

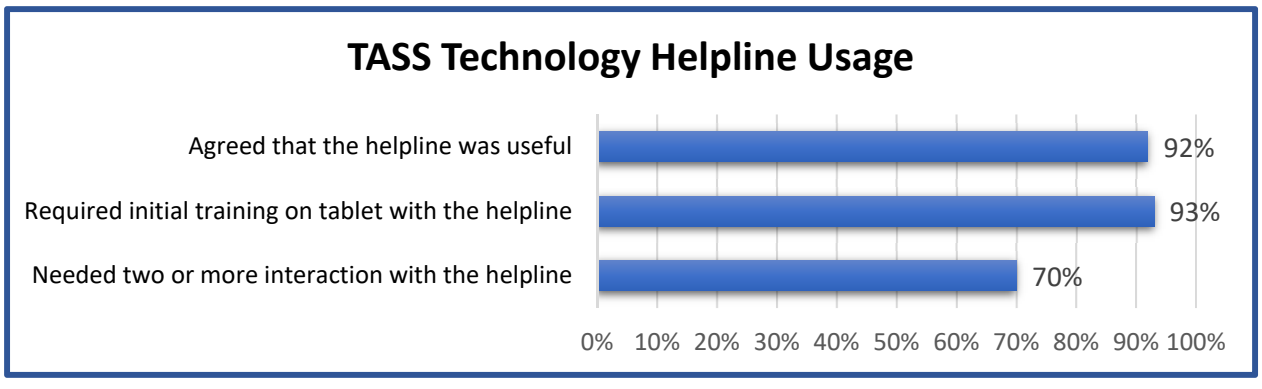
Once COVID hit, we didn't have a choice. We had to make that quick pivot. And, you know, because of our own organizational capacity, we couldn't do it on our own. So, that's where the partnership came in in terms of, well, you know, who can help us achieve this. And so that's how we initially joined TASS. (M5)

Despite having been provided with a TASS tablet and limited data, some seniors and managers describe digital hesitancy and fear among seniors. For hesitant seniors, patience and time and culturally specific resources are necessary. For those seniors, managers invested considerable time and energy into providing one-on-one instruction and support. One manager stated that some seniors are worried about "damaging or breaking the tablets" while others described the fear and anxiety that they experienced in using the TASS tablets:

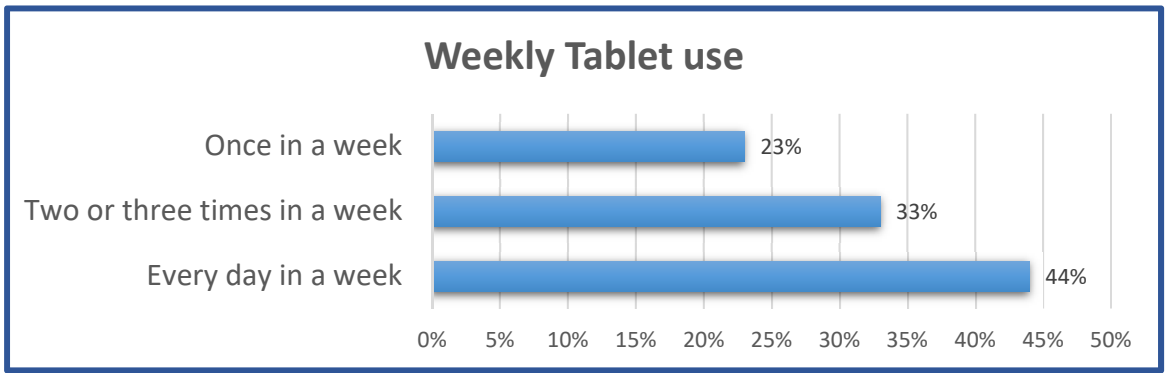
We have some seniors who are so frightened to use the tablet, especially those with mental health issues, anything new to them. They, they look at it as a trigger for their anxiety. Even the tablet is so simple already. They still have the anxiety to try it. When you give them a tablet, they think it's like a time bomb. (M1)

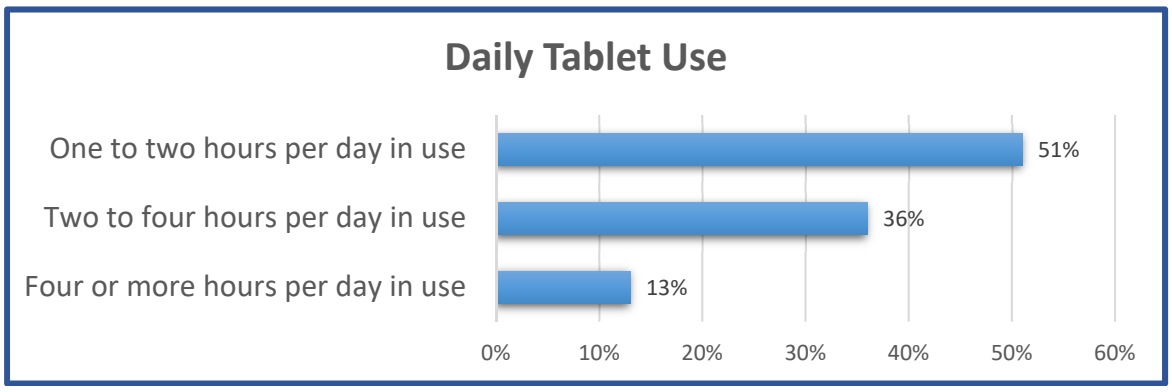
Studies highlight the importance of providing support and training if you want seniors to use technology (Fang et al., 2019). Motivators encouraging digital use have been found to include access to information and support, social connections, personal enjoyment. Particularly important in encouraging senior digital use are social support and training, especially user-friendly design features; peer-to-peer assistance and encouragement; tailored training and intergenerational learning and support opportunities; reliable and affordable access to broadband internet; and provision of digital devices (Fang et al., 2019; Friemal, 2016; Haight et al., 2014; Jung et al., 2010; Larsson et al., 2013; Peral-Peral et al., 2015).

Anticipating reluctance when first presented with the tablets, managers and senior serving organizational staff addressed the issue of digital hesitancy through one-on-one instruction and support and technology training. Central to the provision of help was the multilingual Helpline established by Human Endeavour. When TASS offered seniors tablets and support, many displayed considerable willingness to embrace technology as a means of coping with the challenges that emerged with the pandemic. Even still, use of TASS tablets varied considerably. One senior (26) for example, stated that they only used Zoom to access programs at the senior serving organization and that they always needed help in connecting to Zoom.



In the following charts, we can see that about one-quarter (23%) of seniors surveyed used the tablet once a week. A third (33%) used the tablets two or three times a week while forty-four percent used the tablets every day of the week. Daily use varied as well. Once online, the majority of seniors (51%) stayed online for one to two hours per day, thirty-six percent (36%) stayed online between two to four hours a day, while a very small minority (13%) stayed online for four or more hours a day. Missing from this data is any information on what the seniors used the tablets for during the time they were online and if they expanded on their initial introduction to the Internet over time.





Feng et al (2019) found that older adults are more likely to engage with technology when social supports are in place, including help and encouragement from family as well as peers (p. e7). One senior, when asked in their interview who they would call in addition to the TASS Helpline, called upon her granddaughter:

I've asked my granddaughter in the past and she's tried to help me, but sometimes he wouldn't be available, so I called the Helpline. (S19)

Other seniors relied on each other for help:

And one of the other ladies we met in the church parking lot, and she showed me how to bring the tablet up and, and what to do to zoom. (S5)

Clearly, having access to their own tablet and learning how to use their tablets enhanced seniors' sense of self-efficacy, self-worth, and independence. In their response to the survey question about what they liked best about the tablet, seniors stated that they learned new things and they felt more independent. In their interviews they elaborated on both these points.

I'm a quick learner. …And it was funny when I tried doing zoom with my family up in Sudbury, I ended up teaching them something (S5).

This pleasure at being a "quick learner" was repeated in other comments the seniors made:

I went from being a total neophyte when it came to technology to feeling very secure that I was going to be able to master this… I'm not a master, but I'm at least able to handle it. (S10)
I knew technology was out there. But I'm from the old school and it takes a while for, for me to get used to all this.…I said to myself, well, this machine is not going to win over me. So, I'm going to play around with this. It was easy. So, I kind of learned on my own, except for, you know, talking to a friend or something like that. You got to get with the future. (S7).

However, for seniors living in remote or rural locations one key aspect of the digital divide remains especially problematic. Digital infrastructure poses a challenge. Internet connections are not strong in those areas. Given that access and use of ICTs is recognized as a social determinant of health, the lack of connectivity found among disadvantaged seniors living in rural or remote areas must be addressed. Seniors living in areas with poor internet connection expressed frustration with how this gap in service impacted use of their tablets.:

… the tablet I use, I really like it but one day last week I was in and out of a meeting in a half an hour, six times maybe, disconnect, disconnect, reconnect, disconnect. It's not the tablet. Because of my connectivity issue with, you know, my geographical area, the only reason that would prevent me from participating in programs or limiting my participation in programs would be my connectivity issues. (S28)

Managers expressed frustration as well and shared that they are actively working to see this critical gap addressed. One manager stated that they are:

….taking a broadband study to the government. So, it, it's helping leverage our collective experiences as senior serving organizations to say listen, we are all experiencing very similar challenges in getting technology in the hands of seniors. How can we, how can we solve this, how can we get some, some help to deal with this (3).

The urban-rural infrastructure differences reveal how the digital divide is not merely a result of economic inequality. As Haight et al (2014) argue, the issue is population density in relation to geographic distances. Rural and remote areas have small numbers of people, therefore commercial carriers are disinclined to provide high-speed internet. There are "limited economic incentives" (505). The geographic distances and the "technical challenges" posed by creating the

necessary infrastructure in Canada's northern communities are further disincentives that must be addressed to achieve digital equity (505).

TASS lessened material barriers

Structural inequities restrict seniors' digital access and use, including immigrant status, income, education, disability, rural/urban residence, and relationship status (Fang et al., 2019; Friemel, 2016; Seifert and Schelling, 2018). When managers were asked to describe the economic security or insecurity of the seniors they served, many classified the seniors as "low to moderate income". One manager stated:

…economically insecure for sure. We do offer a large, subsidized program for clients. We will not deny service based on income. And a lot of our fundraising efforts go towards providing those subsidies to clients (M5).

Still another manager identified the area she serves as *"one of the lower income areas in the city of Toronto"* (M9). Many seniors lived in social housing, received a monthly benefit from the Canada Pension Plan (CPP), and/or Old Age Security (OAS), and/or the guaranteed income supplement (GIS). A manager described her community as "*very needy*":

I would say a quarter of seniors live with family members, a daughter or son, or they live with the daughter and her husband, or son and his wife in apartments mostly, some of them live in social housing, we have a very difficult needy community because of social insecurity, income insecurity, low-income (M2).

Some of the managers highlighted the connection between food insecurity and income insufficiency:

… food insecurity goes hand in hand with financial insecurity. So, every aspect of our programming pre COVID included food so a significant amount of the budget that we receive for our programs was assigned to food (M10).

Seniors also raised the issue of food insecurity, mentioning that they use food banks. One senior expressed feeling unsafe in their current housing. Others expressed ongoing concerns about housing affordability, especially the high cost of rent and the long waiting list for subsidized housing.

I'm not looking to move, but we have to, this building is going to be torn down. … I'm using my tablet just to find some housing or to get in touch with my worker at the housing unit to see if she's got any leads for me. … When I moved in my rent was $600 a month, 15 years ago. I can't

afford the rents now, even for a room. And there are long wait lists for subsidized housing, eight, ten, fifteen years. … (S30)

While both male and female seniors are vulnerable to financial insecurity in later life, older women, especially those who are racialized, newcomers, single, or lone parents, are over-represented in part-time, and low paid precarious labour markets. Adding to their lack of financial independence is women's lifelong dependent care responsibilities. For example, sponsored seniors who immigrated to care for grandchildren, find themselves financially dependent on their adult children and grandchildren. Seniors without access to adequate pensions and unable to set aside savings are vulnerable to financial insecurity in later life. (Canadian Women's Foundation, 2018).

Financial abuse also exacerbated senior income insecurity. When adult children take seniors' monthly government income supports, seniors are left with little money of their own and financially dependent on their adult children. In addition to financial abuse, a few seniors also raised the issue of physical abuse they have suffered in multigenerational families, necessitating some seniors to live independently, often in unaffordable and precarious housing.

Interestingly, when we asked seniors in the online surveys about their most significant COVID-19 challenges, "money" was at the bottom of the list with only 0.8% of respondents stating it as a concern. While this lack of concern about money in the survey data may seem to contradict the interview data in which both seniors and managers describe the economic insecurity many seniors experience, it is important to note that when the question was asked, at that stage of the pandemic, almost everyone found isolation and fear of contracting the virus to be their biggest challenges.

These financial findings are consistent with the results of the October 18, 2021, Statistics Canada Report on the impact of the COVID-19 pandemic on seniors. In that report, seniors were indeed "less likely to expect the pandemic to have a "major" or "moderate" impact on their ability to meet their financial obligations" (p. 1). However, in that same Report, the authors inserted a cautionary note about how those results should be interpreted. They state that first COVID-19's economic impact on senior's finances requires further examination since all the necessary information is not yet available. Second, data from the 2021 census will permit results to be disaggregated according to different subpopulations of seniors, which will provide a deeper understanding of seniors' finances. Vahai et al (2020) in their study of the effects of COVID-19 on the mental health of seniors, point out that should the pandemic go on for a long time, seniors express considerable concerns about the effects on both their long-term financial and physical well-being. Given all the financial demands seniors face, many cannot afford the high cost of internet and data plans:

So the cost of wifi, internet is something that I'd really have to consider. (S30).

Another senior said that while they felt internet was a necessity in their lives, they simply could not afford it:

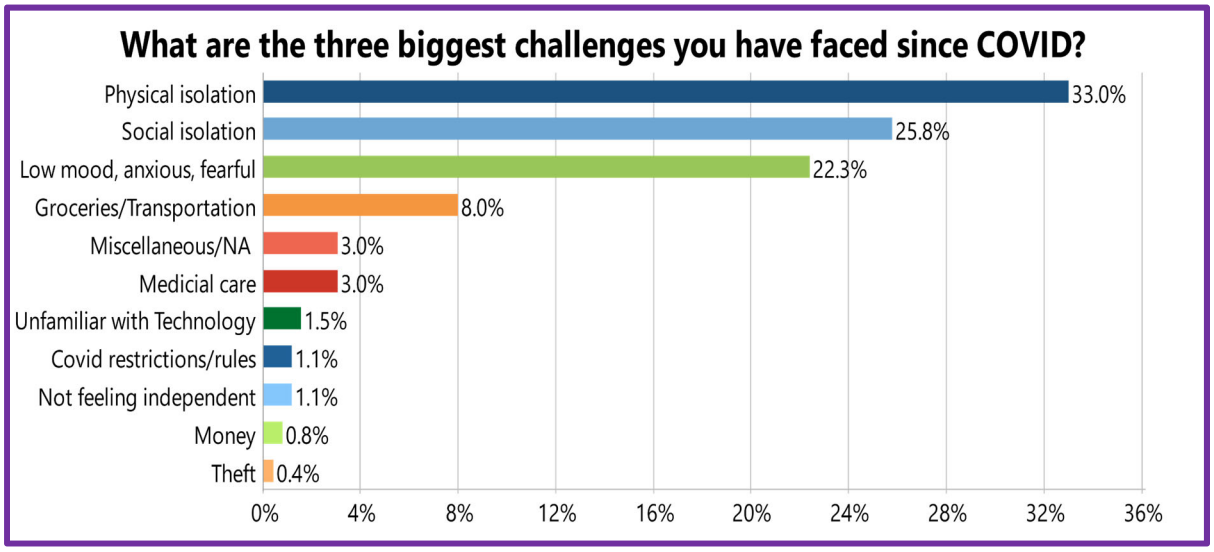
And I think that, you know, we realized with COVID that the tablet is literally a lifeline and even with COVID over it, the need still is there, but, and not everyone can afford it. It's extremely expensive to get internet and data. (S11)

Social, economic, geographic and racial barriers experienced by disadvantaged seniors contributes to their digital exclusion and make it extremely difficult for them to climb out of the digital divides. TASS cannot resolve persistent, systemic inequalities for every senior but it did provide vulnerable seniors with a voice and a way of a way of articulating their concerns to senior serving organizations.

Yeah. Have to voice out. What is in your heart Yeah. No. Nothing. nothing will, will happen if you keep silent. (S8)

TASS sustained social and emotional health and well-being

When seniors were asked, in both the surveys and the in-depth interviews, about the three biggest challenges they faced during COVID-19, physical and social isolation ranked as the top two challenges, followed by low mood, anxiety, and fearfulness. Physical and social isolation and feelings of loneliness which arose during COVID-19 are exactly what TASS was designed to alleviate.



The 2021 Statistics Canada report discussing the impact of the COVID-19 pandemic on the mental health of seniors pointed out that should the pandemic go on for a long time, along with their financial worries, seniors' concerns about their social emotional and physical well-being would also intensify. Seniors surveyed and interviewed echoed the Statistics Canada

findings. They cited concerns about continuing physical and social isolation, their fear of contracting the virus with the emergence of more virulent variants, their need to take social distancing precautions for an unforeseeable time period, and their anxiety around when the pandemic would end. As we near the two-year mark, cases continue the trend of rising, plateauing, falling and then rising again. According to the trends, restrictions to mitigate the spread of COVID-19 are removed and then put back in place. Health care workers continue to see patients remotely, and third doses of the vaccine are being vigorously promoted. Given that we remain in the midst of a growing pandemic, a more comprehensive evaluation of the long-term impact on seniors' emotional and physical health has yet to emerge (Vahia et al, 2020).

When surveyed early in the pandemic, seniors stated that their mental health was "good" or "excellent (Statistics Canada, 2021). Yet, one year into the pandemic, the same respondents reported that their mental health had steadily deteriorated (p. 5). Similarly, Raina et al (2021) found that the negative impacts people reported at the beginning of the pandemic not only persisted but actually worsened over time (n.p.).

Data collected during COVID-19 indicates that certain groups, such as women living alone and with others, were especially vulnerable to experiencing loneliness and social isolation (Savage et al, 2021). Significant negative decline in mental and emotional health occurred due to limited social connections. In our study, in both surveys and interviews, seniors confirmed this negative trend, found especially among senior women, seniors living alone, low-income seniors, and racialized and disadvantaged seniors. Once COVID-19 struck, most seniors, and especially the non-technology users, had limited or no access to programs offered by senior serving organizations. As one senior said in her interview,

So now COVID comes total isolation, total opposite of what I was doing. I got pretty down and depressed. I wasn't able to attend the classes anymore. I wasn't able to do the exercises anymore. I wasn't able to socialize with my friends anymore that cut me off, cut me like a knife. it really hurt my whole being, we have a computer, but we can't afford to have data… So, when I was contacted that they were going to do a project with a tablet, I jumped on the wagon…it's been a lifesaver. (S11)

Seniors spoke about the ways in which the TASS tablets had decreased their social isolation by enhancing their social connections with other seniors:

I connect to people, I chat with people have coffee and chats with very interesting topics…they would have guest speakers…there was a line dancing program, which I think is not really my thing, but I sort of enjoyed it… also, I did sort of an exercise which was to salsa music, and I love salsa dancing…

Other seniors talked about how the TASS tablets allowed them to connect with family and friends:

So, I was able to zoom with my brother and I got to see his house inside his house. He just bought a house, and I was crying, and it felt like I was actually there, you know.

Being able to connect to programs and sessions offered by senior service organizations has lessened seniors' anxiety, loneliness and depression as well as providing a structure to their day. As one senior stated:

I was totally lost when the Centre closed. I started going through, like, I don't get really bad depression anymore. I've kind of learned how to, to handle myself, but I did start sliding into one. And yeah, it did help, especially with the Wednesday group, like you have something to look forward to, you know, a reason to get up in the morning. (S9)

When seniors were asked what they liked best about their tablets, they stated that connecting to friends, family and community programs via zoom made them feel less lonely.

My mood has definitely increased after I got the tablet. I know earlier actually I would just remember God when I was feeling lonely, but now that I have a tablet, I would just try to log into a program when I am feeling lonely. And even if I'm not participating, I just watch and that would make my mood better. (S20)

After accounting for individual personality differences among seniors, even those who described themselves as "loners" or "not sociable" still benefited from the connections TASS facilitated:

Sitting in front of this tablet with a cup of coffee in my hand and talking to somebody well that's no problem but I'm really not a sociable person. Even in my younger days, I wasn't a party person. I was very much a loner. I didn't go out to parties or socialize a lot with people. My perfect job would be a forest ranger living with Yogi somewhere in the woods. (S30).

For seniors with physical accessibility issues, such as blindness or deafness, the TASS tablets changed their lives. One blind senior uses an app on his accessible tablet to read him the titles of the CDs in his collection and to read him his emails. He expresses considerable joy in the worlds that have opened up for him with his accessible TASS tablet. Another senior who is deaf expressed great excitement at joining the digital world:

I'm deaf I use relay. I believe I got my tablet in April and I am 71 years old, and I have never, ever had a computer, a laptop, an iPad, a cell phone, a smartphone, or anything. This is the first experience with it. And now I'm wondering how did I get along without it? (S30)

TASS tablets literally kept many seniors "sane":

… I think my tablet kept me sane with being here by yourself with nobody else to talk to. I don't even have an animal. (S21).

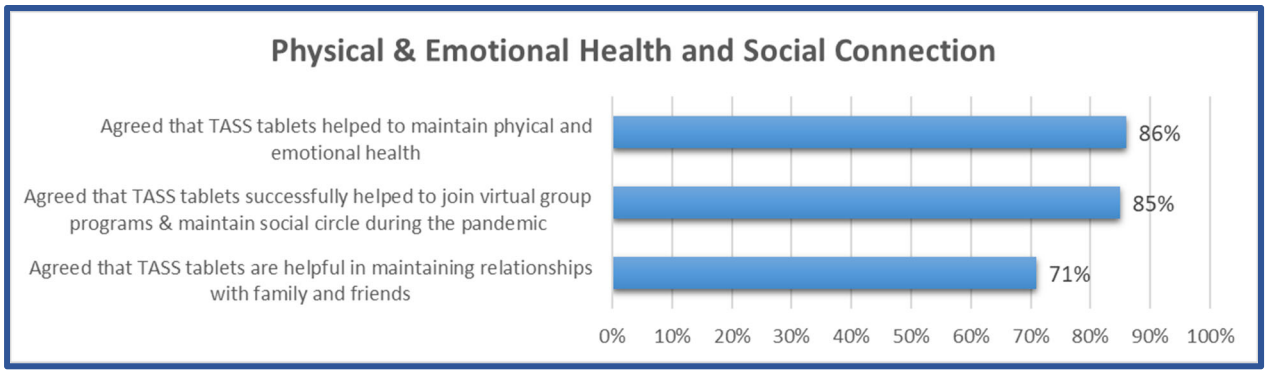
Throughout the pandemic, TASS tablets have sustained the emotional health and well-being of seniors by facilitating their ongoing connections with friends, family, and others at community programs. Since the TASS tablets included embedded internet and data, seniors found that they could more easily connect to senior serving organizations, other social agencies,

health care providers and others for assistance with housing, transportation, groceries, delivery of prepared meals, and help with housekeeping chores. TASS succeeded in providing seniors with a vital lifeline:

...my tablet and my phone are my lifeline to sanity right now (S28).

Savage et al (2021, 2) call for more research on the ways in which technology use among older adults can lessen their social isolation and loneliness. The TASS project, and this evaluation study in particular, contribute to the growing literature documenting the positive benefits of broadening senior digital access and use. By expanding seniors' digital capital, seniors' "Trusted connections and social networks" are enlarged, thus augmenting and broadening their social capital (Procyk, & Dinca-Panaitescu, 2021).

The TASS tablets have demonstrated their importance as a means for seniors to access vital services, maintain health and well-being, engage with their communities, learn new things, and stay connected to family and friends.



Seniors with the social and economic tools to control and manage negative social circumstances are thought to have enhanced resiliency to manage day-to-day stress (Statistics Canada, 2020, 4). Access to digital technology and training and support, are considered an important social determinant of health, which, spread widely across the senior population, has the potential to raise resiliency among older adults, especially those facing economic, social and cultural disadvantages during COVID-19 (Vahia et al., 2020, 2254).

TASS Sustained Physical Health and Well-Being

While the effects of the pandemic on social isolation are well documented, less well understood is the relationship between social isolation and physical health. Holt-Lunstad et al., (2020) noted that social isolation increases the risk for cardiovascular events, Type-2 diabetes, even acquiring the common cold (3). Managers, as well as seniors, talked about how seniors' physical health had declined during COVID-19 when physical isolation was required:

So social isolation is the worst, they are so afraid of catching the virus. They even stopped all the PSW services and then we just, we opened for in-person on Monday, and they came back, oh my goodness. They aged so much both the brain function and the physical functioning really deteriorated. (M1).

Holt-Lunstad et al., state that, " a meta-analysis of 148 prospective studies found that social connection (averaged across a variety of measures) increases odds of survival by 50 percent" (2). The TASS tablets offered an opportunity for seniors to connect with their health care providers, which might otherwise have proven difficult:

The dietician for me for the past, you know, two years almost has been a godsend. And I mean, I, I don't know what I would have done without staying in contact with her. I don't even know if I'd be here today, quite frankly, based on just all my symptoms and everything else. (S28)

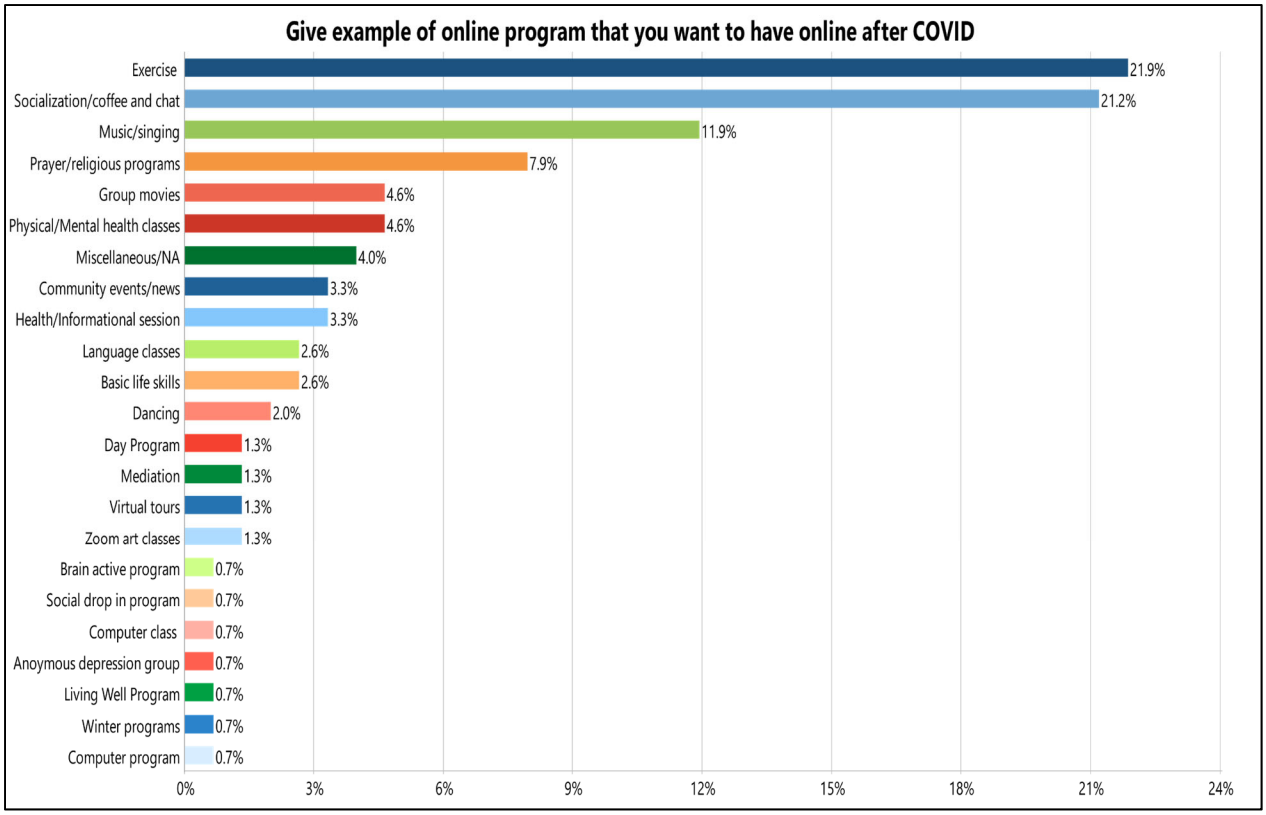
Maintaining connections with health care providers proved to be especially crucial for seniors with chronic health conditions, such as Diabetes and Colitis:

I'm diabetic. I found out that they had a program for diabetes. So, I got on that. They sent me a book. (S22)

Despite the drawbacks seniors and organizations experienced during COVID-19, there have been some benefits. Some managers noted that there was a "silver lining to pivoting online"

We've always had wait lists for our programs because of funding and also restrictions on space. And there aren't those limitations in a virtual environment - they've disappeared. So, we've been able to actually … we've been able to take on a considerable number of new members into our programming, That's been a huge difference and that's where I see the benefit as well. (M10)

How essential the tablets are to seniors and senior serving organizations was made clear when they were asked to give examples of the online programs they would want to see continue online post-COVID-19. They explained that sometimes in the winter it was difficult to get out. They also said that if they are not feeling well, they would not want to be cut off from friends and community centre activities. Especially important were exercise classes. Seniors understood the importance of exercise for maintaining their overall physical and mental well-being, preventing falls, and lifting their mood. Opportunities to meet old friends, make new friends, and socialize were frequently cited as equally important. (see chart on the following page)



Senior survey and interview data reveal that maintaining access to health care providers remains crucial to maintaining seniors' health and while Zoom had many benefits, managers working with frail seniors with complex health conditions noted that they found it difficult to assess their clients' health online. Often the cameras were turned off so managers could not see weight loss, any bruises from falls or abuse, or accurately assess changes in mood. If seniors remotely connected while someone else was in the room, the lack of privacy inhibited seniors' ability to speak freely. One manager pointed out that when seniors were able to return to the Centre she noticed a marked change in their physical condition. Even though the TASS tablets enabled seniors to maintain connections with health care providers and to maintain social connections, given the complex needs of frail seniors, TASS was not able to provide adequate provision to this group. We return to this issue in our discussion on aging in place.

TASS facilitated aging in place

Aging in place means more than living in the home you may have lived in for many years. It means living in "age-friendly communities" that are safe, secure and have access to public transportation and community services. TASS provides a vital link to those sources of support. York Region's Seniors Strategy (2018) supports the wishes of seniors to age in place, in homes and communities familiar to them. Current research does as well (Leroux et al,

2021). The high death rate from COVID-19 of seniors living in Long Term Care facilities has led to what one group of researchers call a "nursing home aversion" (Achou et al, 2021). According to the Canadian Institute for Health Information, June 2020,

> While Canada's overall COVID-19 mortality rate was relatively low compared with the rates in other OECD countries, it had the highest proportion of deaths occurring in long-term care. LTC residents accounted for 81% of all reported COVID-19 deaths in Canada, compared with an average of 38% in other OECD countries (ranging from less than 10% in Slovenia and Hungary to 66% in Spain. (p,2)

Technology plays an import role in ensuring seniors can live safely and comfortably at home. Managers we interviewed affirmed seniors' preference to age in place, and they saw a critical role for TASS to help aging in place occur. This is especially important for seniors living in rural or more remote locations where public transportation does not exist and winters are harsher. One manager pointed out the need for a hybrid model:

We definitely see some significant benefit to keeping up a certain level of virtual programming for various reasons, right. The geographical isolation being one, we, we recognize that not everybody can make it to these, these centers, even when we come to the community, they might live 10 minutes down the road and don't have access to a vehicle and can only really go places when they attend a medical appointment. So this might be, this might be an option for them moving forward. So we're grappling with the idea of provided providing hybrid programming (M3).

Eason's (2008) work demonstrates how technology in 2022 is now retooling the social services sector in the same way that business was redesigned fifteen years ago. Eason's appreciation for sociotechnical systems stems from his understanding of the complex ways people at work can utilize both human and technological resources to achieve organizational goals. He also appreciates the way the system, as an open system, can adapt to changing needs. TASS, for example, has demonstrated through research and development and input into the design process from seniors and managers, that new sociotechnical resources can be created in response to newly identified needs. The system constantly evolves, adapting to changing circumstances and individual needs.

Since access to stable internet continues to be problematic, especially in more rural and remote locations, managers are working collaboratively to bring this issue to the attention of government. Bacsu et al (2012) confirm that aging in place for rural seniors has to include access to a variety of services that support their independence. While these needs also exist for seniors in urban areas, for seniors in rural and remote areas, isolation, geographic distances, a lack of public transportation, lower incomes, and education levels, mean that integrated services are often not available in the small towns and villages. In the absence of such services, families often have to move their elderly family members into care facilities, sometimes outside the seniors. But through technology, TASS can enhance seniors' engagement with the people and activities

they enjoy and prioritize, thus enhancing their social, physical and emotional well-being and facilitating aging in place. For all these reasons, when asked to look ahead to their technological needs, seniors we surveyed and interviewed expressed satisfaction with their tablets and recommended that the TASS program be expanded to include more vulnerable seniors.

TASS Enhanced Intergenerational Learning and Support

Technology brings generations together. One senior talked about receiving help from a granddaughter. Another talked about how her son posted pictures and how she learned to access those pictures so she could keep up-to-date with her family. Still another senior described how before COVID-19, there were computer classes with young people providing instruction. In addition to receiving technological support, seniors also mentioned receiving help from children and grandchildren with groceries, laundry and ensuring their personal safety when they left their apartment:

… my house, about the place I'm living now that I don't usually like it because those people I'm living with in my building, I don't know how to describe them. So, I always stay indoor. Scared… So, if I go out, maybe my daughter or my son meet, they will be downstairs. (S2)

COVID-19 also brought families closer together. One senior mentioned how sheltering in place with her family led to closer relationships with family members:

The one thing good about the COVID is the family came very close because every day it was like Monday to Friday, my son and my daughter-in-law went to the office. My son left at seven 30, my daughter left at eight 30. We would see them only at dinner time. I would just bring, pick up the children and bring them home. And that's it. And then now with this family, it's very, very close and we can understand one another. We giving time to one another. And at the same time, the children are learning more about what life is and isn't (S16).

On the other hand, living closely together for long periods of time during COVID-19 also led to a rise in elder abuse. One senior mentioned suffering abuse at the hands of her daughter who is no longer permitted to live in the family home. Managers as well raised concerns about incidents of elder abuse. While all these issues predate the pandemic, they have been made worse by the heightened stress families have experienced from living together for prolonged periods of time, isolated from sources of support, and sometimes dealing with providing full-time care for a frail senior (CanAge 2020) Caregiver burnout, resulting from caring for dependent partners, adult children, grandchildren or frail elderly, has increased during COVID-19 (Alzheimer's Society, 2021). As one manager stated:

… it's been hard on their caregivers. They are so stressed out in caring for them 24/7 that they are so stressed out that they try to speed up their long-term care placement even if they know the

infection rate is so high there, but they, they, they find no way out except to put the parents into long-term care home. So, they feel so guilty, but they are so burned out because they could not send their parents to day care anymore. (M1)

The Alzheimer's Society of Canada has produced tip sheets for caregivers providing care at home for loved ones with dementia (Alzheimer's Society, 2021). Centre staff are also exploring innovative ways to provide supports and services to those with substantial care burdens. One manager described a home day program for those seniors who have declined since COVID began and they are no longer able to attend the in-person program at the Centre:

We also know in terms of, for example, our day programs, you need to be eligible for face-to-face programming, that there is a significant decline in clients. And so they are no longer eligible to attend in-person because their needs are exceeding the capacity of the, the staff. We are doing a pilot through the Eastern York region OHT with the Alzheimer's society of in-home day programs. So it's a one-on-one session, … one to - two-hour visit (M5).

The same manager mentioned how these one-on-one home sessions include an introduction to the tablets to encourage seniors to join virtual programs or use the tablets for other purposes mindful of course of the stress on caregivers who must assist seniors with using their tablets. Human Endeavour continues to explore ways to make the TASS tablets accessible for seniors with early-stage dementia.

Study Limitations

There were several study limitations. COVID-19 restrictions did not permit in-person data gathering. Geographic distances limited visiting organizations and interviewing staff in-person. Fluency with English/French proved challenging for some seniors answering the online surveys and interviews. In these situations, interpreters were engaged and available on the multilingual Helpline. As with any data gathering situation dependent on interpreters, it is difficult to assess how accurately the interviewer's questions were conveyed and how accurately the seniors' answers were translated. For seniors with limited or no facility in English, completing the online survey was difficult, requiring assistance from senior serving organization staff or the TASS Helpline. Also, some seniors needed technical assistance. Out of the 105 surveys completed, 70 or 66.7% of respondents required either language or technical support. In retrospect, perhaps conducting an online survey with this population was not the most effective data gathering method and merits reconsideration going forward.

A more challenging methodological issue concerned the ability of seniors with early-stage dementia and other complex medical conditions to provide informed consent for the surveys and interviews. As a result, these seniors were eliminated from the participant pool. It is important, however, to include such participants in future research and emerging research offers recommendations for ways to obtain informed consent and to communicate with participants with early-stage dementia (Beuscher & Grando, 2009; Carmody, Traynor, & Marchetti, 2015; Mayo & Wallhagen, 2009). In response to this need, Human Endeavour, in collaboration with

staff from senior serving organizations, has approached the Alzheimer's Society, hoping to explore ways to make TASS tablets accessible for seniors who have early Alzheimer's and other forms of dementia. The goal is to improve the quality of life for this growing group of seniors and to make possible their participation in future research.

The lack of stable internet for those in some rural, remote and northern communities meant that participation in the research study was somewhat constrained. It was difficult for some managers to connect to all the RAB meetings, to encourage their senior clientele to fill out the online surveys and to encourage seniors to participate in an in-depth interview. For example, one senior interview which started on zoom had to be continued by phone while yet another senior asked that the interview be conducted solely by phone due to connectivity issues.

Lastly the culture of an organization had a bearing on recruitment and participation. Multiple demands on staff impacts their willingness to participate, especially when seniors being recruited often required staff support. A few managers felt uncomfortable encouraging seniors to participate in surveys and interviews, seeing their participation as a possible invasion of clients' privacy. Lack of opportunities to meet in person and to visit with managers and staff at their locations meant that building trust took longer to develop with some organizations than others. In these cases, email and zoom did not replace the trust that ensues from consistent in-person contacts. Nonetheless, taking into consideration the challenges of remote data gathering, the commitment of managers and staff to this evaluation project was outstanding. Their active participation in the RAB and their active participation in all stages of the study is deeply appreciated by every member of the Research Team.

Conclusion

TASS technology was developed as an antidote to COVID-19, as a way to keep seniors engaged, informed, active and socially and physically healthy. As such, it represented an innovative approach to senior program delivery during COVID-19. TASS also marked a change, post- COVID-19, on how senior serving organizations will provide programming, the skills their staff will need to learn, and the resources organizations will need to acquire to offer hybrid programs in the coming decades.

TASS reduced many traditional barriers facing seniors and senior serving organizations, such as difficulty seniors confront with accessible transportation, leaving their homes in inclement weather, and accessing affordable technology. During COVID-19, TASS emerged as a social determinant of health, playing a crucial role in improving seniors' quality of life and helping to sustain their social, emotional and physical health and well-being. Future technology will play an expanded role in ensuring the health and well-being of seniors and enhancing the efficiency of the senior serving sector to serve the aging population effectively.

In my ideal world, just based on my personal circumstance I really hope I really really, hope that our government and that our people and that our providers and everybody realizes the benefit of

this virtual care model. Because I think not only does it work, but it's extremely beneficial, I'm not sure about cost effectiveness because I'm not involved of that end of it. But certainly, I see the need and certainly I see the benefit. So, I hope that that doesn't change. (S28)

This study highlighted how TASS succeeded in bridging the first and second digital divides and was moving some seniors into enhancing their technological competencies – the third digital divide. Seniors expressed satisfaction with both their tablets and the support they received. At the same time, they expressed a need for more training. One senior wanted to learn how to initiate a zoom call, another wanted to feel more comfortable with email, and another wanted to know how to put pictures on her tablet, how to file share and how to download from the internet. Yet another senior wished her tablet could enable her to establish an online store to sell her crafts. She felt there was a market for her work and being able to start a small business would improve her financial situation, maybe enable her to purchase internet and data on her own device.

… my tablet it's been a lifesaver. I tell you if I could have this tablet indefinitely, I would go forward. I'm hesitant in going forward and trying to open my own store online because I have to be able to continue it. And if I can't continue, what's the use of me opening a store online. So, I'd like to do it with my computer but I can't. Cause like I said, data and wifi are expensive,. So I'm, I'm, I'm hoping that there'll be able to extend this for, for indefinitely, but I don't know. …You know if I had a store it would help me be food secure as well if I had it and I could do my online business. If I had data and wifi. I use food banks now.

TASS, as an "economic multiplier", has the potential to improve opportunities for seniors to "stimulate" their economic security (Ontario Nonprofit Network & Assemblée de la francophonie de l'Ontario, 2021, p. 9).

All the seniors expressed a desire to keep their tablets and saw a need for the program to be expanded to more seniors. Those seniors who received accessible tablets spoke about how the tablet opened new worlds for them. They expressed in moving videos mounted on YouTube the impact the tablet had on their lives. They too wished to see the program expanded.

Seniors' social capital increased with their accumulation of digital capital. Trust, community building, information and resource sharing, were all enabled through enhanced digital competency. Wellness checks by staff from senior serving organizations served the purpose of building trust among seniors and organizational staff and eased seniors' fears of being isolated and alone. Seniors also spoke about how vital connections to community groups, friends and families ensured they could safely remain at home, while others commented on how technology allowed them to have essential supplies, such as groceries and medicine, dropped off at their homes.

The first two weeks of Covid made me nervous just the first two weeks. And immediately the community health center got in touch with us. They kept calling us practically every other day to find out how we are doing what we need. …, if we need something, we need to go somewhere. If

something is missing, we need food or whatever. They did not step back every day. …I never felt alone.

Managers also expressed satisfaction with the tablets. Managers found they were able to serve more seniors with virtual programming. They were not limited by physical space. At the same time, the future demand for hybrid delivery models in which seniors have access to both online and in-person programs has serious financial and training implications for senior serving organizations, including hardware costs and expenses related to staffing and expanded training for managers and staff who may not have the requisite skills to provide online programs.

But the desire of both seniors and program managers for technological capacity building (skills, training, devices, internet access, and helplines) raises the question of sustainability. Who will pay for more tablets, internet and additional staff to provide training and support? If access and use of technology has now been defined as a social determinant of health, who will take the lead going forward?

By relying on Internet of Things (IoT), Artificial Intelligence (AI), and Machine Learning (ML), technology is paving the way to building age-friendly communities. Technology is helping seniors access a wide variety of information and services and it is also helping senior serving organizations to implement innovative program delivery models as a way to provide more efficient and targeted services, with limited staff and financial resources, to the growing population of seniors.

Recommendations

- Continue and expand TASS recognizing that it is a social determinant of health which enables seniors to maintain vital community connections.
- Continue to provide digital literacy programs which enhance seniors' competence with the internet and increases both digital and social capital.
- Continue implementing a hybrid model of service delivery.
- Continue to advocate for strengthened broadband access to facilitate senior engagement with their digital communities.
- Continue to advocate for the strengthening of social infrastructure with a particular focus on housing and transportation.
- Continue to advocate for increased funding for the nonprofit sector so that senior serving organizations can meet the need for enhanced staffing and technological resources.
- Continue to decrease gendered, classed, and racialized structures of inequality through programs which meet community diversity
- Continue to engage with Human Endeavour, as it rolls out its "Roadmap" a long-range plan for technology initiatives which will enhance the lives of seniors and increase organizational capacity.

Next Steps: TASS Technology Road Map (2020-2025)

Human Endeavour has a "Roadmap" a long-range plan for technology initiatives which will enhance the lives of seniors and increase organizational capacity. Based on their 15-year experience of working with diverse seniors, discussions with partner organizations, research, and learning from the pandemic, Human Endeavour is proposing the following:

Projects designed, implemented and ongoing

- **TASS Project:** In-home senior-friendly technology, access and technical support
  Focus: *Keep seniors safe, connected, active and healthy during the pandemic*

- **TASS Accessible Project:** In-home accessible technology for blind/deaf seniors.
  Focus: *Enable blind/deaf seniors to be productive, engaged, and active in daily life activities*

- **TASS Technical Capacity Building Project:**
  Focus: *Build capacity of organizations, management, and front-line staff on the use of technology during the pandemic. Provide one-on-one technical support to organizations.*

Projects in development

- **TASS Technology for early Alzheimer's and Dementia, Multiple Sclerosis (MS), Parkinson's disease**
  Focus: *In-home technology, auto-monitoring of Activities of Daily Living (ADL), assisting in ADLs (e.g., reminders), and continuously generating health and wellbeing status for caregivers/service providers. Human Endeavour is conducting initial research, collecting feedback, proposing solutions, upcoming review with partners. Design and Implementation in 2022.*

- **TASS Technology for Long Term Care / Nursing Home Facilities**
  Focus: *Auto-monitoring of various aspects of seniors' daily living and personal conditions to preserve the quality of life of frail seniors and help staff to provide efficient and timely care. This will be designed and implemented in late 2022-2023.*

Projects to be developed

- **Integrate TASS and non-TASS Devices Project:**
  Focus: *Provide technical support to seniors and organizations not using TASS technology/tablets.*

- **TASS Technology for Monitoring of Vital Signs and Chronic Diseases**
  Focus: *In-Home (can be scaled for groups) to monitor chronic diseases and generate continuous health status indicators, generate necessary triggers for caregivers and/or paramedics to take immediate action to avoid hospitalization and extreme fluctuations in health.*

- **TASS Technology to Build Age-friendly Smart Homes, Buildings, Communities, and Cities for Seniors**
  Focus: *The use of the Internet of Things (IoT), Artificial Intelligence (AI), and Machine Learning (ML) will set up an infrastructure in a smart city that can improve accessibility to a wide range of daily services for the seniors and ensure their independence as well as inclusion to ensure ageing in place.*

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APPENDICIES

APPENDIX ONE: PARTICIPATING ORGANIZATIONS

1. Club Action 50+ East Ferris, North Bay
2. District Municipality of Muskoka, Muskoka
3. CHATS (Community and Home Assistance to Seniors), York Region
4. SPCL (Senior Persons Living Connected), Scarborough
5. Parkdale Golden Age Foundation (PGAF), Toronto
6. York Region, The Regional Municipality of York – York Region
7. PCHS (Punjabi Community Health Services), Brampton
8. North Bay Golden Age Club, North Bay
9. Human Endeavour, York Region
10. Rexdale Community Health Centre, Toronto.
11. Vaughn Community Health Centre

Organizational Addresses and Contact Information

Club Action 50+ East Ferris-Corbell
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392 Hwy 94, Corbell, ON P0H 1K0
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The District Municipality of Muskoka
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Community and Home Assistance to Seniors (CHATS)
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Project Manager – Expanding Social Engagement Project
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Parkdale Golden Age Foundation (PGAF)
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Housing Services Branch, Regional Municipality of York
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Punjabi Community Health Services (PCHC)
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North Bay Golden Age Club
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http:// http://www.northbaygoldenageclub.com/

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Rexdale Community Health Centre
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Manager – Services for Seniors
8 Taber Road, Etobicoke, ON, M9W 3A4
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Vaughan Community Health Centre
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United Way Greater Toronto
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26 Wellington Street East, 12th floor, Toronto, ON M5E 1S2
416 777 1444 EXT 465
https://www.unitedwaygt.org

Seniors Cluster Table

The Seniors Cluster Table (SCT) was established under 3C in April 2020 to bring together organizations serving York Region seniors to explore partnerships and leverage funding opportunities to meet the needs of vulnerable, isolated seniors due to COVID-19.

The COVID-19 Community Coordination (3C) initiative is a joint partnership between York Region, United Way Greater Toronto (UWGT), local municipal partners, community organizations, and other key stakeholders to support York Region's most vulnerable residents during COVID-19.

Discussions at the table have ranged from enhancing seniors' access to food, technology, vaccination, socialization, and other basic essentials to how programs and services recover from COVID-19.

The cluster tablet met weekly in the early pandemic, but now it meets once a month. Representatives from 30 plus non-profits and local governments regularly attend to share their programs, progress, discuss emerging challenges, and collaborate to ensure the health and well-being of diverse seniors across the York Region.

Contact Information York University

Nancy Mandell, Professor, Department of Sociology, York University mandell@yorku.ca

Larry Lam, Professor Emeritus, Department of Sociology, York University larrylam@yorku.ca

APPENDIX 2: THREE DATA COLLECTION INSTRUMENTS

a) SURVEY LINK:

TASS Senior Survey: https://www.surveymonkey.com/r/D2TC9ND

b) INTERVIEW GUIDE FOR PROJECT MANAGERS AND EXECUTVE DIRECTORS

1. What do you think are the main goals of this project?
2. What is your particular role in this organization?
3. Can you tell me about the different programs that your organization offers for seniors?

   (a) Technically supported programs (b) social engagement programs

4. Can you describe the senior population that you serve?
   a. Region served
   b. Housing (subsidized, rental, own condo/house)
   c. Living arrangements (alone/with partner/with other family members/with friends or other non-related individuals)
   d. Income level (Moderately secure/insecure)
   e. Ethno-racial background
   f. Immigration status (newcomers, long term resident/citizen)
   g. Linguistic ability in English/French

5. Can you tell me the three biggest challenges that you see facing seniors during COVID-19?
6. How did COVID-19 affect your organization's program delivery? How did your organization adapt? What gaps do you think still exist in program delivery for seniors?
7. Why did you sign on to the TASS program? How has it changed your program delivery?
8. What are the main benefits/drawbacks of the TASS program for seniors and for your organization, in your opinion?
9. Did the TASS program achieve its intended outcomes (how we deal with COVID-19) in the short term. For example, are there groups who have physical limitations who could not access programs but can now be connected through technology?
10. The project is intended to lead to a long-term road reconsideration of future delivery of services. Going forward, how will your organization incorporate technology into your program delivery? What comes after the COVID-19 pandemic?

c) INTERVIEW GUIDE FOR SENIORS

Pre-COVID: Past Involvement Questions

1. What senior programs did you attend before COVID-19?
2. How often did you use these programs?
3. What did you like about these programs? Dislike?

COVID-19 Strikes: How has it been for you?

4. What are the three biggest challenges that you have faced since COVID-19?
5. What were you able to maintain, what stayed the same even with COVID-19? (e.g., I still saw my friends but on Zoom or via another videoconferencing tool)

Specific Questions about Technology and COVID-19 Programming

6. When did you get your tablet?
7. Who did you call when you ran into problems?
8. What programs do you connect to now using your tablet?
9. In one week, how often do you join a program(s)?
10. What are the main benefits of having the tablet that is preprogrammed?
    * transportation: Was transportation to in-person seniors' classes an issue for you prior to COVID-19?
    * social connections: Are you more or less connected to the community? Which communities?
    * technical help: Is the tablet easy to use?
    * making new friends: Have you made any new friends since joining the TASS project?
    * connecting with new groups: Noor Din has Zoom meetings more than twice a week for online prayers and other religious activities. Have you connected with any new groups since joining the TASS project?
    * language: Are there any language issues in using the tablets or the TASS Helpline?
    * effects on daily activities: How is your daily life impacted by using this tablet?
    * Has having the tablet made a difference in your mood?
11. What is your level of comfort with technology? Are you more or less comfortable with using technology since you joined the TASS project? What do you see as the disadvantages of connecting online?
12. What do you see as the disadvantages of connecting online?
13. Overall, on a scale of 1 to 10, with 10 being the highest, how would you rate your level of satisfaction with the TASS project?

Life Post-COVID-19

14. What would you like to see happening in the future post-COVID-19 period with program delivery?
    - Do you want to return to the centre?
    - Are there some activities that you would want the organization to keep online? If yes, please provide specific examples
15. Should the TASS project continue would you consider continuing to use the tablet as a means to attend virtual group program**s?**

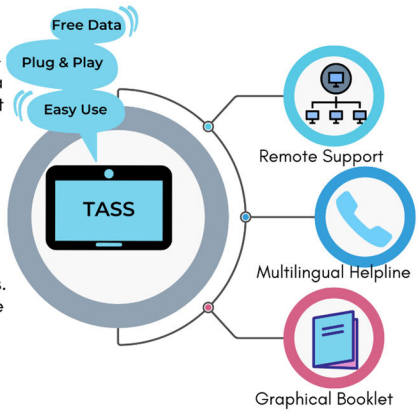
APPENDIX THREE: INFOGRAPHICS

BRIDGING THE DIGITAL DIVIDES
TECHNOLOGY, ACCESS AND SUPPORT FOR SENIORS (TASS)

BACKGROUND

COVID-19 pandemic started in March 2020. Public spaces were closed. Human Endeavour recognized the need to pivot to online services and offered TASS senior-friendly technology in May 2020.

May 2020 to November 2021, 600+ free tablets with data and technical support helpline have been provided to seniors through partners across Ontario. TASS helpline engaged in 15000+ calls and remote technical interactions. 25+ organizations are partnering through collective impact TASS project.



OBJECTIVE

Gather feedback from seniors who used TASS tablets for at least 3 months

DEMOGRAPHICS

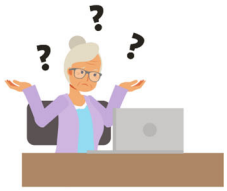
31% Of the seniors are between the age of 80-97. Rest are between 57-79

85% Of the seniors are female

48% Of the participants are living alone

14 Different languages spoken across all seniors

TASS IMPACT ON SENIOR DIGITAL LITERACY

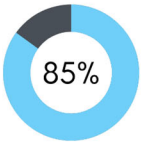


If seniors were not provided TASS tablets, 92% would have had difficulty joining virtual group programs.

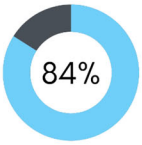
51% of the seniors spent 1 to 2 hours online.
36% of the seniors spent 2 to 4 hours.
13% spent more than 4 hours online per day when using TASS tablet.

71% of the seniors have called TASS helpline two or more times for technical support

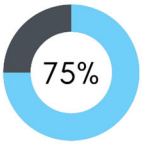
92% of the seniors said TASS helpline is useful in supporting them with tablet use



85% of the seniors who used TASS tablets felt more comfortable using technology



84% of the seniors wish to keep TASS tablets even after the COVID-19 pandemic has ended



75% of the seniors would like some activities to continue online post pandemic

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Project and Research Partners. Research by York University. Contact: info@humanendeavour.org

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TECHNOLOGY, ACCESS AND SUPPORT FOR SENIORS (TASS)

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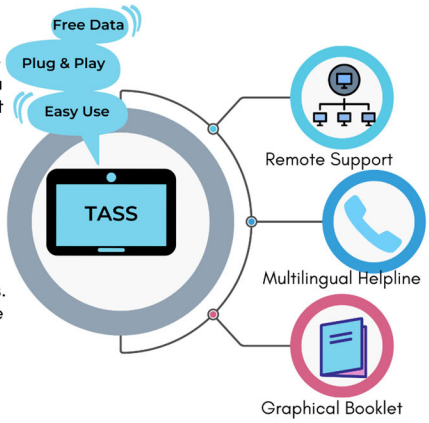

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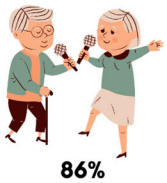
Of the seniors are female

48%
Of the participants are living alone

14
Different languages spoken across all seniors

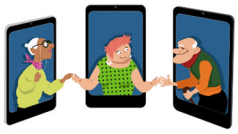
TASS IMPACT ON SOCIAL CONNECTIONS AND PHYSICAL & EMOTIONAL HEALTH

85%
Seniors agreed that TASS tablets have helped maintain their social circle during the pandemic

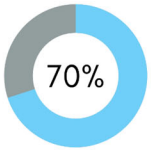


86%
Seniors agreed that TASS tablets have helped maintain their physical and emotional health

79%
Seniors agreed that having their own tablets increased their independence



Seniors were able to maintain connections with family and friends and make new friends through virtual online programs



70% of the seniors attended more community programs than pre-COVID

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Project and Research Partners. Research by York University. Contact: info@humanendeavour.org