Digital Literacy and Older Adults' Experiences with Technology: A Qualitative Study Protocol

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Background

Digital literacy is the "the ability to use information and communication technologies to find, evaluate, create, and communicate information, requiring both cognitive and technical skills" as defined by the American Library Association (*Digital Literacy*, 2019). This encompasses both the physical aspect of using a technological device, and the skills used in the understanding of the internet. Digital literacy improves the skills related to the use of technologies. The digital divide is the gap in access to and use of technologies between younger adults and older adults. Though age plays a key role in the digital divide, other factors, such as gender, ethnicity, and socioeconomic status, also play an important role (Fang et al., 2018). The digital divide is the result of an intersection of inequities tied to age. While the presence of technology has continued to increase, the digital divide shows gaps in access, uptake, and use of technologies among older adults (Pruchno, 2019). Many older adults are "digital immigrants" who have not had the same lifelong exposure to technologies like the internet as younger adults, and so, have had to adapt to using it later in life (Vidal, 2019). Older adults are not a homogeneous group; one type of intervention will not work for everyone. Though in general, as people age, they have less comfort with using technology (Lee et al., 2018).

The effective use of the internet has been seen to produce positive effects on social support and wellbeing (Szabo et al., 2018). At the same time, there can be far greater negative effects, and the positive effects are often not equal. How one engages and how comfortable one is with technology is important in how the technology effects wellbeing (Pruchno, 2019). Much of life is now accessed through technology, such as financial tasks and health services. Having these services be available through online means can increase accessibility, such as for those with physical disabilities or auditory processing disorder.

The COVID-19 pandemic has vastly reduced the ability to socially engage. For younger people, the negative effects of isolation and loneliness stemming from lockdowns can be mitigated by reaching out to social support through technology. For many older adults, this is not an option. The use of technology to connect with friends and family has a positive effect on mental health and wellbeing (Szabo et al., 2018). As well, one can use technology to reach services that are closed to in-person contact, such as utilizing telehealth options and online support groups.

Methods

Study Population

The study population will be older adults (age 65+) living in the Metro Vancouver, Canada. This population is at high risk of the negative effects of social isolation, and has lower access, uptake, and use of technologies that can be used to mitigate these effects. The materials used in this study will be available in English, Cantonese, and Punjabi, as these languages are the most common in British Columbia (BC) (*Visual Census – Population and dwelling counts, Canada*, 2019). The study population will include 36 older adults participants, with 12 participants, 6 males and 6 females, from each of the three language groups. This study will oversample by 6, 2 participants from each of the language groups, to allow for incomplete surveys or interviews.

Method 1 – Stricter Regulations

Stricter regulations are defined as Province-Wide Restrictions by the order of the Provincial Health Officer (*COVID-19 province-wide restrictions*, 2020).

With the current strict COVID-19 regulations in BC, this study will take the form of mailed and drop off survey packages. These surveys will consist of two parts – the first part will be quantitative and the second part will be qualitative. The first part of the survey will serve as a baseline of understanding and comfort with using technology, and how socially connected the participants are currently. The second part of the survey will consist of open-ended questions about fear related to learning new technologies, opinions on digital literacy and programs, and accessibility. The content of the surveys is outlined in the below section – *Surveys and Interviews*. Participants will be able to choose the method of data collection that they would prefer, between writing their answers in the provided surveys or having a one-on-on, phone interview with an interviewer.

Recruitment will be done through mailing and dropping off the survey packages. Prospective participants will be identified through the Consolidation File via Population Data BC, and will be mailed the packages. Retainment of participants will not be a major issue, as the study will only consist of one survey package for each participant. Informed consent forms will be included in the survey packages. The survey packages and informed consent forms are to be mailed back to or picked up by the researcher.

Method 2 – Lighter Regulations

Lighter regulations are defined as Phase 2 and onwards in the phased approach of BC's Restart Plan (*BC's Restart Plan*, 2020).

With possible future light COVID-19 regulations in BC, this study will take the form of a quantitative survey followed by semi-structured, one-on-one, in person interviews with the participants. The quantitative survey will be the same as in Method 1, to be used as a baseline to help with generalizability of the study results. The interviews will follow the same content as the qualitative surveys in Method 1. The interviewer will ask the participants open-ended questions about digital literacy, the digital divide, and engagement with technology. The content of the survey and interview are outlined in the below section – *Surveys and Interviews*. As well, the interviews will not have a time limit for the participants. As with Method 1, participants have the option of a phone interview, rather than in-person.

Recruitment will be done using non-probability sampling methods to obtain diverse voices for this study. Recruitment will be done at seniors' centres, community centres, libraries, and care facilities, as these are places often frequented by older adults. Older adults in Metro Vancouver are a diverse population, and so this study aims to capture diverse perspectives and experiences. Retainment of participants will not be a major issue, as the study will only consist of one interview for each participant. Informed consent forms will be provided prior to the interviews, and the ability of the participant to refuse to answer or to end the interview will be reminded throughout.

Surveys and Interviews

The quantitative survey will consist of two main sections. The first section will ask about social connectedness. These questions will be about how socially connected the participant is currently, during the COVID-19 pandemic, and prior to the pandemic. The second section will ask about participants about their access, uptake, and use of technology. This includes the type, duration, and frequency of use of technology in their daily lives prior to and during the pandemic.

The qualitative surveys and interviews will consist of three main sections. The first section will ask open-ended questions about how participants socially connect with friends and family prior to the pandemic, as well as currently. The second section will ask about digital

literacy. These questions will ask about how participants engage with and experience technology, how comfortable they are with technology and why, and about what they want and need out of technology. The third section will ask about the participants' opinions on how to improve their own and their peers' digital literacy and comfort with engaging with technology. These questions will ask about the best ways to improve digital literacy, the types of programs most needed, and issues surrounding accessibility.

Discussion

Older adults often face more barriers to the access, uptake, and use of technologies than younger people (Wong et al., 2013). This study aims to gain a deeper understanding of the fear experienced by some older adults with regards to the uptake and use of technology, while also determining the best ways to improve digital literacy per the experiences and opinions of older adults. This study can be used as a launching point for the development and modification of programs aimed to improved digital literacy among older adults.

This study has some limitations. One type of risk that may arise in my project is limited generalizability. My project will be using smaller sample sizes and non-probability, purposeful sampling techniques, such as convenience and judgement sampling. This will gather data about this specific context, but the data may be biased (participant and researcher) and unable to be generalized to the greater population. As well, older adult non-speakers of English, Mandarin, and Punjabi will not be included. The use of a quantitative survey to gain a baseline for the qualitative portion will help to mitigate the effects of limited generalizability. For both methods, there is some physical risk associated with completing a study during a pandemic. For Method 1, there is some risk to the participant with mailed surveys. For Method 2, there is risk as interviews will be complete in-person with a researcher. This may cause exposure to the COVID-19 virus through contact with the public during travel. The study mitigates this with the choice of phone interviews available for both study methods.

Some strengths include a lack of bias due to loss to follow up, as participants will only engage in one qualitative survey for Method 1 or one semi-structured interview for Method 2. Despite the limitation of limited generalizability, a strength of this study is the purposeful recruitment of diverse voices. As older adults are not just one homogenous group, this study will not exclude historically marginalized or oppressed populations. Diverse experiences will lead to

diverse perspectives on digital literacy and the digital divide. As well, as a qualitative study, this study will be able to examine the issues surrounding older adults and digital literacy in depth, with less restriction from quantitative questions.

Conclusion

With the ongoing COVID-19 pandemic, social isolation has become a much more significant issue than previously. For younger people, social connectedness can be bolstered by the use of technologies, such as video conferencing applications, messaging platforms, and access to a wide variety of online communities. With the digital divide, older adults are less able to access these supports. As the digital divide continues to widen, more and more older adults will fall through the cracks of an increasingly technology driven society. This study is important because it aims to address aspects of the digital divide from the perspective of older adults. The knowledge gained from this project can inform future research on the digital divide, looking at the psychological aspects of the digital divide, as well as program evaluations with older adult perspectives. The knowledge can also inform the development and implementation of programs and services to improve digital literacy among older adults.

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