Part 4 – Research Report
T.I.P - Technology Integration for PSWs

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CDEV4005 – Senior Level Thesis Seminar

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April 9th, 2021

Abstract

Background

Integration of iPads and tablets has been growing amongst for-profit business, and now also amongst non-governmental and not for profit humanitarian organizations in response to the COVID-19 pandemic. This research was conducted to aid in the integration of iPads and tablets at Richview Community Care Services, a community to help older adults age in place in Ontario Canada. Older adults aging in place and living in long term care facilities are becoming more isolated as the pandemic continues having negative impacts their physical, social, and mental health. This research and paper aims to identify how the different levels of governance at Richview Community Care Services, made up of Personal Support Workers, an Administration Team, and Board of Directors, perceived any benefits and impacts through the integration of iPad and Tablet technology.

Method

To understand if there is any resistance to iPad and tablet integration amongst individual groups or across the organization, a survey was provided to each member of the Richview Community Care Services community governance. The survey was duplicated across all levels to ensure responses were comparable. Responses were analyzed through a cross comparative analysis approach reviewing the similarities and differences amongst the three levels of governance and for any variances amongst members in each group to understand strengths, weaknesses, and opportunities for recommendations of a successful integration.

Conclusion

The results show minimal resistance amongst all tiers of governance to the integrate the use of iPads and Tablets in the care model for older adults with the exception of perception of willingness and ability of clients. This paper provides suggestions for a successful integration and further recommendations for education.

Acknowledgements

The researchers would like to thank the following for their support, without their dedication and time this research would not have been possible.

Lisa Mudie, Executive Director at Richview Community Care Services Incorporated, and the community partner for this research. Her guidance, knowledge, and trust have allowed this team to grow and successfully move this project forward. Her passion for the organization, teammates, and clients was felt throughout every encounter and encouraged us to excel.

Linda Hill, Program Coordinator and Professor at Humber College, her encouragement and dedication to both this project and researchers has provided room for growth as individuals and a team. Her assistance and support throughout this process has been invaluable.

This project could not have been completed without the expertise and feedback provided by the survey participants. The researchers would like to show appreciation to the hardworking and dedicated team at RCCSC, the Personal Support Workers, Board of Directors, and Administration Team for their honest and thoughtful insights to this research and project.

A special thank you to Soni Thapa Oli, PhD, professor at Humber College for taking her personal time to review and help the researchers finalize the thesis statement and research questions.

A special thank you to graduating colleagues at Humber College Community Development Degree for their evaluation, critical assessment, and support. It provided essential information on the scope of the project and best practices.

Introduction

A technology gap in the client care model at Richview Community Care Services Corporation (RCCSC), was recognized in summer of 2020, when the agency sought to transition the Adults Coming Together in Various Activities program (ACTIVA), to a technology-based program structure that would conform to COVID-19 restrictions. The pandemic revealed the agency was ill equipped to assist clients with a transition to both online programming and maintaining community connections. To combat these challenges, the agency began to investigate the potential for technology advancements and integration. Since then, the pandemic response raised awareness of various technology advancements available to clients, including the increased availability of virtual health care, online resources for mental health, and opportunities for connection to others via applications such as Zoom, to alleviate social isolation.

The isolating conditions resulting from COVID-19 pandemic, and the associated physical distancing requirements, have had a severely negative impact on the entire population, this has been especially hard with vulnerable populations such as older adults living in care. In effort to reduce the likelihood of contracting COVID-19, their social, physical, and mental health have

been jeopardized. These conditions have also impacted the daily lives and workload of front-line care providers such as PSWs and Care Managers. As the COVID-19 pandemic continues, the older adult population in assisted living care such as RCCSC, will continue to remain isolated. It is recognized that both flu season and winter weather conditions pose a similar restriction on older adults' lives, resulting in a long-term resolution to reduce isolation. In response to the pandemic many businesses have reduced their hours of operation and medical services have limited availability to stagger patients, this poses an issue leaving older adults limited access to the supplies and care they require.

Once the need for technology integration within the RCCSC model of care had been identified, the agency applied for and received funding for technology and non-clinical PSWs hours from the Local Health Integration Network (LHIN). The intention of this funding is to develop a program that will see PSWs interacting with their clients using technology. RCCSC has indicated that their current challenge is how to train and support the PSWs use of technology in order to support their clients. For the RCCSC to achieve their overarching project goals, they require assistance to identify any resistance or acceptance from the staff towards this project, perceived benefits, and impacts of integrating technology into the regular care of older adults.

Research Context

Community Partner: Richview Community Care Services Corporation (RCCSC)

Location: The administrative office is located inside Richview Residences, at 1540 Kipling Avenue, Toronto, ON, M9R 4C6.

Population:

Populations by Sub-Groups	# of Respondents	Total working at RCCSC	% of respondents
Board of Directors	5	7	71%
Administration	5	5	100%
Personal Support Workers	28	40	70%
Total Population	***38***	***52***	***73%***

ORGANIZATION MISSION STATEMENT

Richview Community Care Services Corporation strives to enable people in the Richview Residence/Community with complex health and social needs to continue to live in their apartment/home for as long as possible through the provision of community support services.

Project Focus

The aim of this study was to reveal what members of the RCCSC community thought about iPad and tablet style technology integration within the agency with the support of the PSWs as the frontline workers. This study examined all tiers of governance at RCCSC for their perceptions on personal technology usage, integrating technology, and their beliefs regarding older adults and technology use. Our community partner, the Executive Director of RCCSC, plans to launch this technology pilot project in the near future and would like participants responses to ensure a successful launch. To answer this, a holistic lens was used to gather empirical data, gauge resistance and barriers to PSWs using technology with their clients from all tiers of governance. This will provide the community partner with the RCCSC community perspectives of technology use and incorporating it within the client care model. The primary objective was to work with the community to allow all members of the agency an opportunity to

express their opinions about technology use and advise on the best ways to incorporate technology into their daily tasks. Therefore, we have gathered research on theoretical knowledge and insights regarding technology adaptation in a health care setting. Second, we have used this research to construct a study that will allow the community partner to better understand the comfortability of technology use amongst the PSW, Board of Directors, and Administrative staff. In order to proceed with PSW best practices to finalize the implementation of technology within the care model this study was designed to also provide guidelines on where further research is needed, and if there is any resistance to the upgrade at RSSCS. The community partner is seeking this knowledge to work within the agency and ensure staff satisfaction is of central importance to moving forward with the project.

Situating yourself as a researcher

Chantal

Chantal identifies as a Caucasian, CIS gendered female who is first generation educated, and acknowledges her social location puts her at a potential power bias towards her research, by understanding her location she has taken all steps necessary to limit any power biases. As a researcher within this context Chantal is considered an outsider conducting a participatory action research project with a community, she has had minimal active engagement with. She has prior experience practicing anti-oppressive and inclusivity approaches, working with at-risk and marginalized individuals. While she has working involvement with all age groups her primary education and work has been specializing in child and youth. She has a background of over ten

years of work managing and educating people in the health and wellness industry. She is an emerging researcher with this being her first research piece participating from start to finish in her eight years post-secondary education in social services and community development.

Lisa

The researcher acknowledges that there is privilege and power associated with her social location. She is a Caucasian, educated, lesbian, disabled, female, and mother. This has potentially predisposed her work to researcher bias. However, past education, work and lived experiences that challenge and inform her contributions to the field of community development are anti-oppressive by nature. Through this lens she has attempted to engage with this research from a non-biased position. Her work for the community partner and investments in the solicitation of participant engagement effectively used skills that were acquired in post-secondary education such as intercultural competence, sociological inquiry, and participatory action research. Upon completion of this academic year, Lisa will have successfully completed two undergraduate degrees. She also has a long standing and reputable work history in teaching, coaching, customer service, and the non-profit sector working with vulnerable and marginalized populations.

Jen

As a researcher, Jennifer recognizes her race, age, career, history, experiences, and previous education creates a limit and the potential biases. As an educated, middle-class, white,

straight, cisgender female, Jennifer understands her privilege working with varied communities and these intersections of experience are that of power. Although an outsider with respect to working with the Richview Community Care Services organization, she has worked with older adults in both retirement and long-term care settings. Jennifer has worked in different settings working with vulnerable individuals and such, relies on the strengths approach and working with objectivity, mindfulness through an anti-oppressive lens. In the field of community development, Jennifer's research identity would be considered an emerging researcher, although in previous careers, would be considered a facilitator or a continuing researcher. She has contributed to three white papers in her career, working with pharmaceutical organizations to access funding for studies throughout North America.

Research Question(s)

1. What resistance to the integration of technology exists amongst the governance (BoD), administration and PSW level at RCCSC?

2. What benefits to the integration of technology exist amongst the governance (BoD), administration, care team, and PSW level at RCCSC?

3. What are the perceived impacts of the integration of technology into the current client care model at the governance, administrative and PSW level?

4. Is there a necessity for a new technologically based care model to improve health outcomes for older adults aging in place in response to the pandemic?

Literature Review

Introduction

Personal Support Workers (PSW) make up 80% of direct care for older adults, whether it be in a long-term care facility, nursing home, assisted living, or supporting someone ageing in place (Berta, Laporte, Deber, Baumann, & Gamble, 2013). Their roles are ever evolving and with the pandemic, many of their daily duties have shifted from rigid daily tasks such as toileting, bathing, feeding, cooking, cleaning, and laundry, and have become more supportive and based around mental health, cognitive function, and reduction of isolating conditions. Technology integration in healthcare already exists in daily care routines when working with older adults through electronic health records (EHR), medication administration, and tracking of medical concerns. An understanding of the role that Personal Support Workers play in the implementation of technology in recreational, cognitive, and physical daily care with client's interactions is important for review of the current model of care as well as their acceptance of new models.

Looking at the areas of concern for technology use by Personal Support workers yielded three main topics for further research in the literature review: "barriers to technology implementation," "adoption and acceptance of technology in client care interactions," and "implementation of new models of care". The goal of this literature review is to further examine and compare current research to the need for implementing new models of care surrounding technology. Research was conducted through two electronic databases, Google Scholar and Humber Library Database. Search strings used were, "Model of Care," "Personal Support

Worker AND tasks" "Acceptance of Technology," "Ageing in Place," "Community AND Assisted Living," "Barriers to Technology Integration," "Acceptance of Technology," "Technology AND Daily Care AND healthcare," and "technology adaptation AND healthcare."

Theme A – Barriers to Technology Implementation

Understanding the barriers to technology varied based on where research was conducted, and the population studied. The implementation of technology in clients' daily care in an assisted living home or long-term care facility will require support from a third party to ensure the ability to use it. Where some individuals will be able to use technology quite autonomously immediately, especially after they have been acclimated and taught basic skills, others will have special assistive considerations. Knowledge about how to accommodate older adults with hearing loss and visual impairment for example will have to be included in PSW training. Still others will require additional accommodations to interact with both the care worker and technology and may not be able to use it independently. With barriers facing the aging population and a concern for the shortage of primary care providers an important factor supporting nurse led intervention programs delivered through telepresence which provides two-way video communication (Bakas, et al., 2018). Staff members such as Personal Support Workers are key mentors and a major support system to older adults, as they often spend the most time with clients and are so heavily relied upon for care.

Vulnerable populations are at far greater risk for health concerns related to social isolation as well as against the use of internet-based technologies for health-related services (Gordon & Hornbook, 2016). The use of the internet is becoming an important tool to ensure

patients are informed about the healthcare, yet it is clear there are inequalities amongst users (Gordon & Hornbook, 2016) Recognizing how demographics play a role in the use of healthcare related technology is an important factor during implementation of technology driven models of care. Since PSWs work with such a diverse community of older adults, further research is required to assess their attitudes, behavioural intentions, and perception about the usefulness of technology upgrades in daily care activities (Strudwick, 2015). Attitudes towards such implementation can be hindered by factors such as personal history and demographics. A study, regarding the adaptation to technology use through a portal platform for personal healthcare, was conducted in the United States to such differences and disparities. The findings noted that the use of technology increased based on the person's health literacy as well as access to technology that had been acquired through employment, education, and personal usage (Gordon & Hornbook, 2016). Where there was an uptake to the use of the portal, it was demonstrated that those individuals had previous working knowledge of computers or the internet (Gordon & Hornbook, 2016).

Adoption of technology amongst health care professionals varies by field and most end users are not using the technology available to them or using it to its fullest potential. Studies have found that the use of technology in the healthcare field, specifically by nurses, was said to be impersonal and found that a lack of digital literacy and proper training were the main cause of stress related concerns (De Leeuw, Woltjer & Kool, 2020). The Technology Acceptance Model (TAM) is a theoretical model created to understand these types behaviours and intentions of employees in the business and computer sciences fields when new technology was being

introduced (Strudwick, 2015). The intention of this model is to predict the perceived ease of use and perceived usefulness of technology through the end user's attitude. Predicting how technology would be perceived, supporting new technological integration and the adoption of new programs within the healthcare fields (Strudwick, 2015). Frustration and avoidance of technology is linked to the lack of use and education amongst health care professionals and those considered behind often had "insufficient and ineffective digital training" (De Leeuw, Woltjer & Kool, 2020). Supports from family members and friends that are involved in care for older adults plays a key role in adaptation of technology use and the engagement of PSWs in the integration of technology in the workplace with clients has been shown to not only improve health care for clients, but also improve work satisfaction amongst PSWs (Huijbregts et al, 2012).

If attitudes and behaviours towards such integration could be predicted, and this information used to offset resistance to the acceptance and usefulness of any technology-based integration, this would provide quality outcomes to daily practices and care. It would also assist with predicting much or how little effort will be required to integrate technological solutions to the improvement in care for older adults. Along with a potentially negative perception regarding usefulness and ease of use, other potential barriers found in another study included whether technology could support patient safety and improve communication amongst staff, especially regarding the potential for errors and lack of administration staff support of use (Strudwick, 2015). Since the TAM model can be used within a healthcare setting through the lens of nurses, the outcome of patient safety and client care culture can easily be adapted for use with Personal high levels of technology acceptance.

Theme B – Adoption and Acceptance of Technology in Client Care Interactions

Finding predictors to acceptance of technology supports the implementation of health care technologies among nurses. Accordingly, these studies can be used as an evidence-based practice models to support efforts that seek to integrate technology between Personal Support Workers and older adults. Few studies have provided concrete evidence on factors of acceptance, however those that do, use predictive methods based on specific criteria provided by research and interviews conducted on nurses. The major factor leading to the adoption and acceptance of technology integration was the change of perception in how technology can be applied within the organizational structure and patient care (Gagnon et al, 2010). How the system was considered useful to daily practices, along with the ease of use, changed perceptions and created a system of technology adoption by individuals. Lack of time and familiarity still created some barriers to acceptance. However, where participants found technology being used in a useful and meaningful way, acceptance rates increased (Gagnon et al, 2010). Gaps in demographic characteristics were found throughout the research studies and results focused mainly on organizational structures.

Many participants in studies of technology in healthcare, especially those that did not use it outside of work, felt that technology was ever changing and was difficult to keep up with (De Leeuw, Woltjer & Kool, 2020). There was also a general understanding that healthcare would change drastically in the future and they would need to stay caught up with these developments. Understanding that colleagues had also been struggling with technology adaptation and grasping these skills was important as it created a sense of facilitation amongst the staff (De Leeuw, Woltjer & Kool, 2020). Attitudes towards the usefulness of technology in daily care shifted when

organizations accepted and defined the skill levels of employees and provided training and support in digital literacy. Predictive studies showed this leading to a cohesive workplace in which employees felt that they could share their experiences and concerns in an open and safe environment including safety speaking to administration and management teams (De Leeuw, Woltjer & Kool, 2020). Building a training program that familiarizes the end user with the technology is important, though ensuring that features and benefits support the understanding and feeling of usefulness remains essential.

Behavioural intentions were also a significant indicator of the likeliness of a successful transition and use of healthcare technologies. Nurses who were discovered to have a positive personality trait, and though being unsure of the usefulness of technology, viewed the integration with an optimistic lens and believed technology to be useful and found it easy to use (Strudwick, 2015). Being optimistic also leads to an individual's self-belief in the use of technology and their ability to use computers in an effective manner, especially in a work environment. Though the concept of "computer anxiety" does not predict actual acceptance, but rather that they have the confidence and are willing to work through areas of concern to achieve their expected outcomes (Strudwick, 2015).

Theme C – Implementation of New Models of Care

Many businesses, including the healthcare system, are implementing the use of technology as a mandatory requirement. With mental health concerns and isolating factors due to the pandemic, it is clear that the field is moving in the right direction with technology-based practices in patient care models. Social influences greatly impacted the perceptions and attitudes

towards adaptations (Strudwick, 2015). The Technology Acceptance Model was used most in research and is considered as the most common model for technology acceptance. The model itself has been effective in explaining the differences in behavioural intentions and attitudes when it comes to influencing individual acceptance (Garavand et al, 2016).

The Technology Acceptance Model predicted key benefits and factors that influenced individuals' direct behavioural intentions and their perceptions on the program, whereas the FITT-framework (fit between the Individual, Task, and Technology) provided identity factors which described how some nurses slower to adapt to technology at work (De Leeuw, Woltjer & Kool, 2020). Reflective practice in the workplace should also be considered when implementing support models within the workplace (Faller, Lundgren & Marsick, 2020). Users of technology in the workforce were found to face multiple barriers in facilitating effective practice and because of perceptions and lack of formal training or personal use, attitudes and behaviours were required to be challenged (De Leeuw, Woltjer & Kool, 2020). Whereas the TAM program mainly looks at perceptions and attitudes, the FITT-framework considers how the daily work tasks will be integrated with technology as well as the individual as a learner. Learnings from both studies allow for the adoption and acceptance of technology in daily care activities amongst Personal Support Workers through the suggestion of responding to perceived barriers, training and technology literacy from the onset rather than the perspective of “sink or swim”, leading to frustration amongst healthcare workers.

Conclusion

Contributions of this research in the field present models of care that address the changing role of Personal Support Workers as they become more supportive in clients care surrounding mental health, cognitive function, and reduction of isolating conditions. It provides solid evidence to suggest how to remove barriers and move to acceptance and adaptation of technology to improve health outcomes. Frameworks for technology integration outlined in the research allows for facilitation of further research and initial stages of implementation of technology in daily care with older adults.

Overall Strengths of this research indicates a positive reception of the program models and implementation. Different scenarios in the healthcare field, though with nurses, has been reviewed and outlined providing well thought out transitions for acceptance and adaptations. The different models of care share similar responses and therefore provide a solid foundation for technology implementation models.

These studies do not specifically note the use of technology by Personal Support Workers in the field of assisted living or long-term care but provide insight on some barriers and attitudes towards the potential use based on specific personal demographic history. Due to the fact most respondents across all studies found their personal use, or lack thereof, affected how they perceived their ability to use technology, additional research is required.

Further research into how these models can work in community care settings for older adults ageing in place or living in assisted care homes is necessary. Completing similar research with Personal Support Workers as primary users of healthcare technology requires consideration

along with investigation into how demographics affect the outcomes and acceptance of technology integration.

Project Design

Working with the community partner it was determined that the best approach to this research was a design which involved survey distribution to all levels of governance at RCCSC. This being the introduction to the pilot project was introduced with videos, posters and takeaway information pamphlets for the members followed with a structured survey geared towards all three tiers of governance within the RCCSC community roles. The aims of this study is to determine RCCSC perception of iPad and Tablet technology integration to the care model by using the experts, the community, to ensure smooth transitions. At the end of this study guidance on further data collection may be recommended based on the findings. The approach to the RCCSC population was using empirical research method to better understand the RCCSC community's perception of their own technological abilities, and of older adult's use of technology, this gave insights towards adapting the PSWs client care model at a pace of ease for the staff. The research team worked to support the agency in gaining a holistic understanding of their populations' perceptions of technology use by conducting a cross-sectional study of the population based on job titles. Three sub-groups of the population, the Board of Directors, Administration and PSWs, was measured using this survey.

A quantitative approach was used to gather data in the beginning stage of the research and gathered data about the population's perceptions of technology use. A comparative analysis of the results was then completed to determine if there were any underlying barriers associated to

either of the three tiers. The data was analyzed using cross tabulation comparison, and the collected data was bucketed into themes and interpreted.

Ethical Considerations

This study will adhere to the basic principle of TCPS 2 (2014) - Tri –Council Policy Ethical Conduct for Research Involving Humans and the Humber's Ethic Policy. As per these boards of ethics, the following considerations have been thoughtfully discussed and planned for;

1. The participants will not be placed under any potential harm. Their identities will be protected at all costs by changing and/or removing their information that may reveal their identity, should the participant respond with any revealing comments. The researchers will not request any identifying information. Researchers have considered any potential psychological distress, participants will be reminded they are at no financial risk, and there are no risks to their current job related to this study. Participants will be provided services related to Human Resources or Counselling should they request.

2. Participation of all RCSSC Community is requested by the ED for the initial survey, but at no time will the participants' jobs be in jeopardy due to refusal of participation.

3. All consent forms will include and recap the intentions and purposes of this study, how information will be stored, and what information will be shared and how.

4. The community is made up of eight BoD members, four admin members, and 42 PSWs. We will ensure the ED will not know who responds to further research after the preliminary survey.

5. Ethical considerations for accessibility are in place to ensure everyone has a voice. Researchers will set aside time to assist participants who want it, to answer any questions or concerns they may have in regard to any of the steps via phone or email.

6. Introducing ourselves ahead of time to build rapport with the PSWs to learn from them

7. All aims and intentions of research will be disclosed upfront. Consent forms for survey and all research will be read to and given to participants to read for themselves before singing.

8. Participants will be informed they will be held to the confidentiality standards of RCSSC and Social Work code of conduct policies.

9. Consent will inform participants that all research is being done for the purpose of providing feedback to ED at RCCSC to implement a new model of care using technology.

10. Disclosure due to the anonymity of the study, your responses cannot be pulled from surveys because we cannot disconnect personal responses.

11. Work integrity disclosure, at no time will the participants be penalized for their participation or response to any questions.

12. Any knowledge given outside the scope of information and how we will deal with it will be disclosed in the consent form, everything will remain anonymous excluding any information divulged related to harm or potential harm to any human.

13. Champions will be requested to come forward to support continued research or project building; at no time will the ED or researchers request specific staff to participate.

14. Surveys will be distributed through hardcopy and electronically, all emails containing participant information will be downloaded and stored in an encrypted file for two years before being destroyed. The original email will be deleted once downloaded. All hard copies will be shredded. No defining information will be on these surveys.

15. Data will be collected and saved on a password locked Humber shared file only accessible to the three researchers.

Key Findings

- 89% of all respondents are willing to learn about the use of technology.
- 74% shared they were interested in learning about technology to support RCCSC.
- 81% of respondents supported clients connecting with their personal community (i.e. family and friends).
- 71% of PSWs believed that technology would help clients age in place longer.
- 50% of PSWs describe themselves as sometimes using new technology and only 25% noted that they always use new technology.
- 74% of all respondents feel that it would be helpful for clients to be connected through technology.
- Over a quarter (29%) of PSWs are unsure or are falling behind in their personal use of technology.
- Only 37% of all respondents have used iPads or tablets, although 82% have used similar devices, such as smartphones.
- 92% of overall respondents perceived ease of use was the main reason for older adults to not use technology.
- The response to agreeing or disagreeing to clients wanting to learn to connect to the community with technology, on average, 69% of respondents fell on the side of agreeing with this statement.
- Majority of responses - 74%, were in favour of technology integration at RCCSC.

- 85% of all respondents have access to technology.
- PSWs were more likely to use email and communication platforms (86%), as well as social networking and audio/video multimedia ranking at 54% and 50% respectively.
- 72% of all respondents agreed they believe they can easily use technology.
- Overall, 63% participants believe that nothing prevents them personally from using technology.
- 88% of all three levels see that technology will help older adults age in place longer.
- Overall, 77% of participants noted that they could see technology, mental and physical health support for clients at RCCSC.
- When asked what programs and technology is most used amongst the governance, email (89%), communication platforms (77%) and audio video sites or platforms (54%) ranked the highest.
- The BoD and Admin team ranked Money (100%), not wanting to try (~80%), and lack of support (70%) as their top reasons for prevention of technology use amongst clients.

Analysis of Findings

Research was conducted and analyzed based on our research questions presented to the group by Lisa Mudie, the Executive Director at Richview Community Care Services. The analysis looked at real or perceived potential resistance, benefits, impacts, amongst the governance the three levels of governance (PSWs, Board members, and Administration staff).

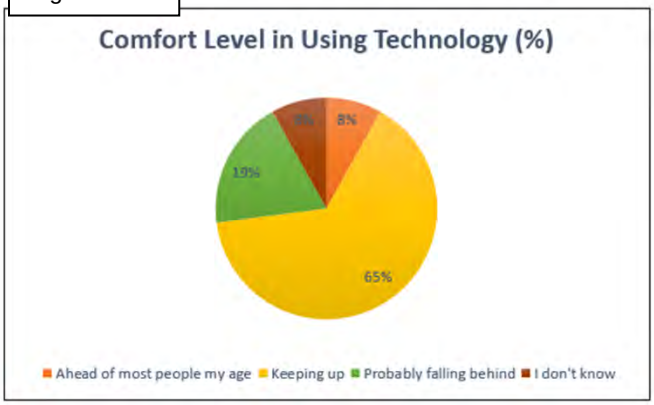
Responses were received from 5 members of the Board of Directors, 5 of the Administration Staff and 28 Personal Support Workers.

Initial assumptions of the researchers were there could be a divide amongst the three levels of participants with possible resistance and acceptance based on what would benefit the specific group. As an example, the Personal Support Workers may consider this additional work which they could begrudge. This perception may have limited honest responses to the data. However, after gathering and reviewing the data, results presented an interest in technology

integration to support clients and a willingness to learn how technology can better support RCCSC as an organization and respondents individually.

Questions regarding comfort and interest levels of personal technology use was key to the group understanding if there would be any resistance amongst the groups. When asked about their personal use of technology, 84% of all respondents felt they were otherwise 'keeping up' or 'ahead of others their age' (see figure 1.0), of which 79% of PSWs indicated they were at minimum, 'keeping up'. This is one indicator that there will be little resistance with integration.

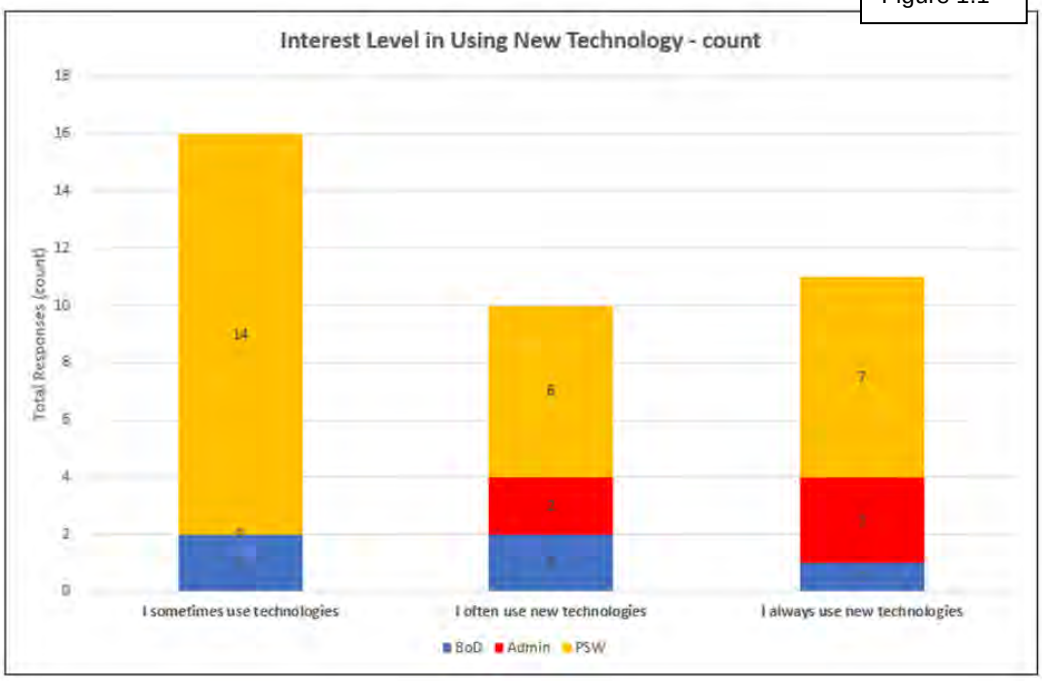
Figure 1.0



The Administration Team and Board of Directors are also showing a positive perspective regarding their personal use of technology. Though 2 of the Board members noted they are likely falling behind, none indicated that they never use new technologies or technologies in general.

No responses were recorded in 'I never use technologies' data across any level of governance. There may be some resistance amongst the PSW team accepting new technology as majority of the group (38%) were more likely to only 'sometimes' use new technologies in their personal life. This may be an impact on training or willingness that should be considered during launch of integration.

Figure 1.1



Results from the personal interest level amongst the Administration staff would be considered a benefit as they would likely take on a supportive role for the technology integration launch. Figure 1.1 indicated that all 5 of the Admin team 'often' or 'always' used new technologies, though overall only 65.7% of respondents felt that they were patient with technology. Lack of patience when using technology indicates that there is a need for training and support from the admin team. One major impact on where support may be a hinderance is both the BoD and Admin teams indicated they were less likely to be patient when it came to technology, each only having 20% of the group's population

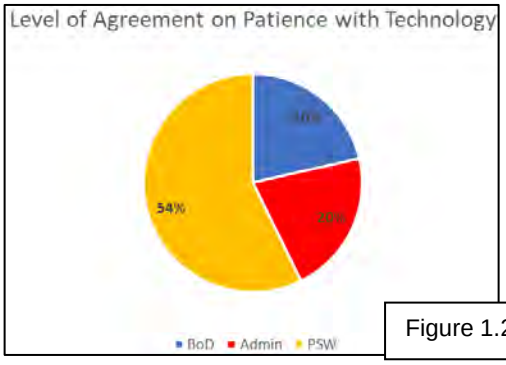
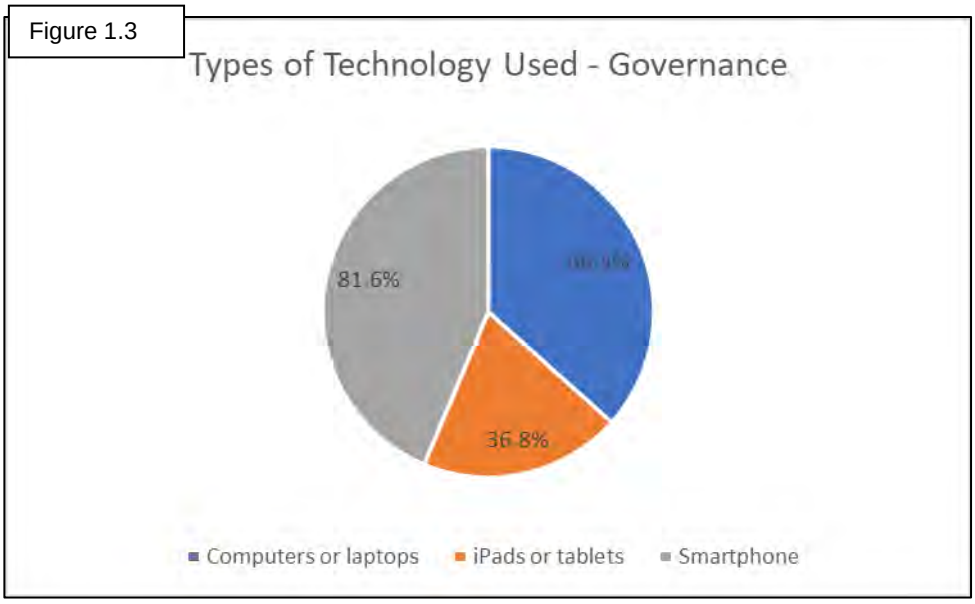


Figure 1.2

responding that they agree, however, this is somewhat still a benefit as just over half (54%) of the PSW team felt they had patience with technology (See figure 1.2).

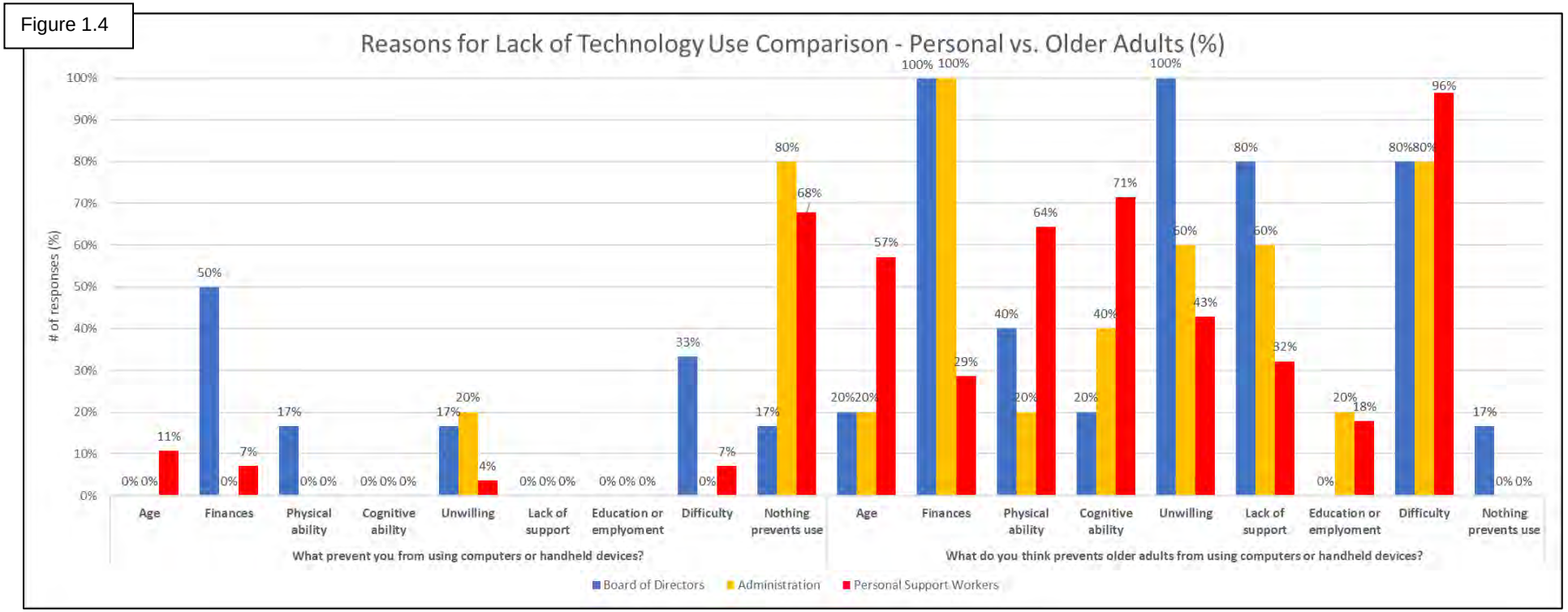
Types of technology was also considered amongst the groups to understand if there was any resistance. During initial review of the data, only 37% of the respondents indicated that they had used and iPad or tablet. This was considered a potential resistance or negative impact on the integration project as the funding was obtained for these types of devices. Upon further review, 82% of all participants had used a smartphone and 68% had used a computer or laptop, providing a base for understanding how to shift over to the pilot devices if iPads and tablets. It was found that 100% of the administration staff and 82% of the PSWs had or are currently using smart phones, and on those devices, email (85%), communication platforms (77%), audio video platforms (54%), and social networks (44%) made up the majority of program types being used. Understanding both the types of devices and programs/applications used by the populations is a benefit to the technology integration process by allowing the community partner a way of connecting current and future uses seamlessly.

Figure 1.3



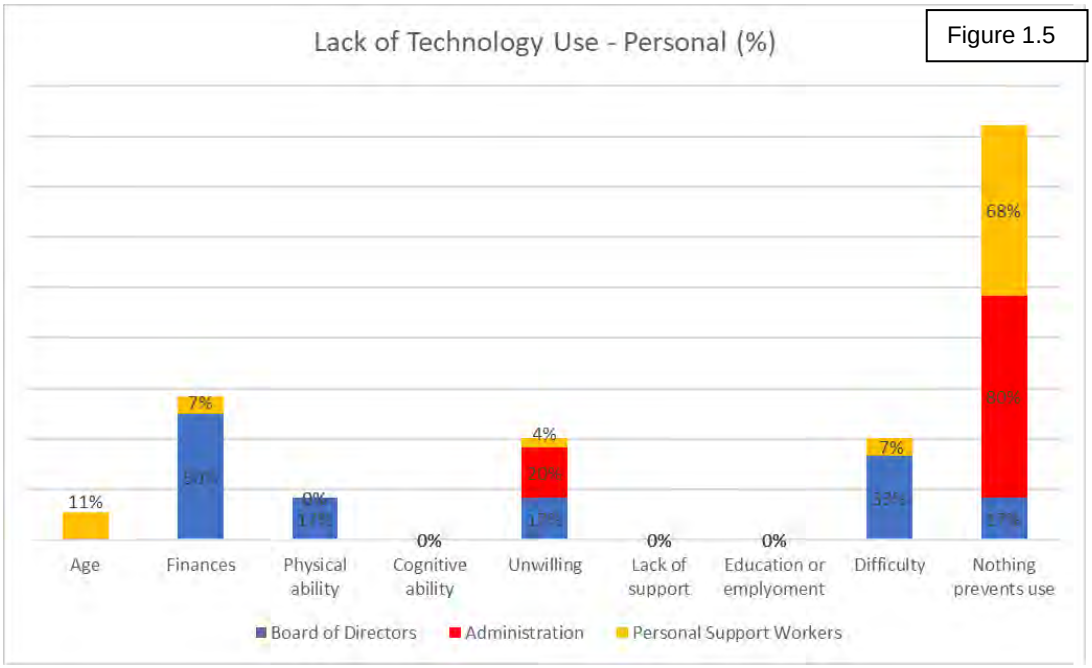
Another key indicator the research was aiming to discover was if there were any comparisons between what perceived prevention of technology use in older adults as well as on a personal level. Figure 1.4 is a visual comparison of the how each level of governance responded to the questions “what prevents you from using computers/handheld devices” as well as “what prevents older adults from using computers/handheld devices”. Figures 1.5 and 1.6 are the responses broken down individually and governance is compared accordingly.

Figure 1.4



The first data set did not show an overwhelming response for why respondents did not use technology, such as why from figure 1.1 we saw just over 50% of PSWs only agreeing that they sometimes use technologies. This does however provide information that can prevent resistance amongst the PSWs and Admin staff regarding integration. In fact, both the Administration staff and PSWs both indicated that nothing was stopping them from using technology in their personal life. The BoD did vary slightly which may have been due to who the versatility of the members. There are not only outside members, some of which are older adults, but also clients of RCCSC to make up the Board of Directors. Acknowledging that their responses weighed more on the side of ability (17% physical), difficulty of use (33%) and financial aspects (50%), may be swayed based on these variances in group formation.

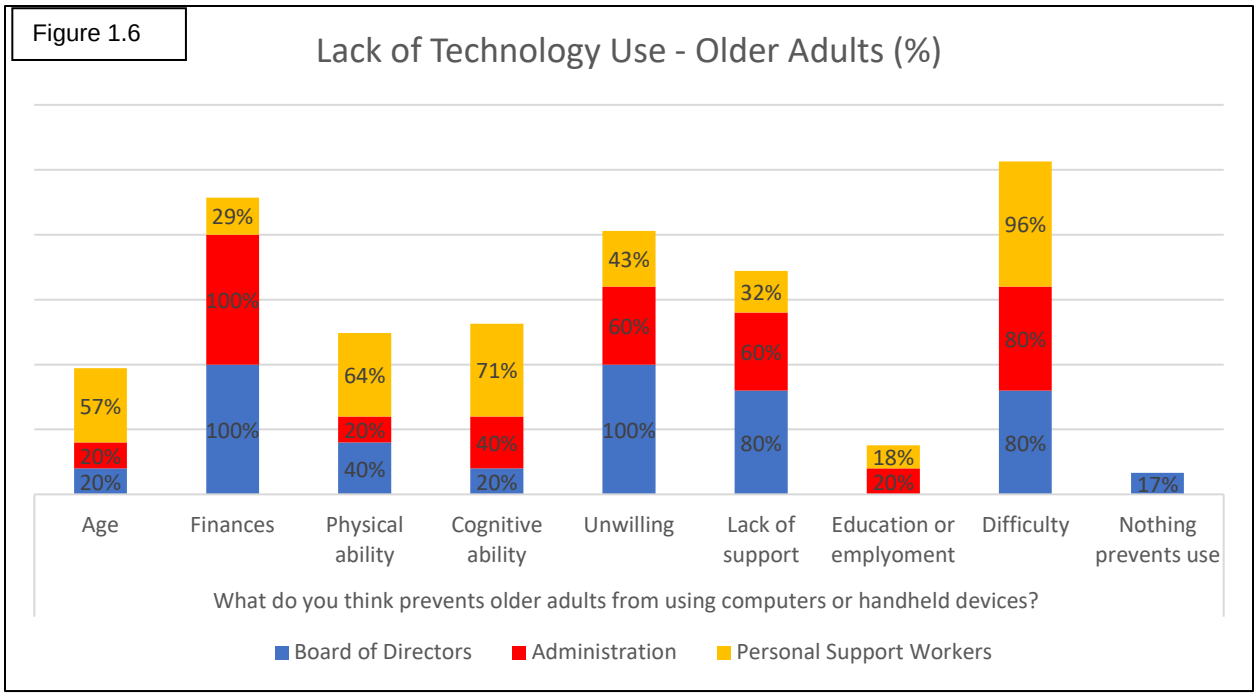
Figure 1.5



Age, finances, willingness and difficulty made little to no impact on the results from the Admin team as well as the PSWs. No impact was found in cognitive ability, support, or education/employment on any level of personal use of technology.

This data varied amongst all 3 levels of governance when it came to perceptions of why older adults are not using technology. There were 2 exceptions; majority of participants indicated that older adults think technology is too hard to use, and on the opposite end of the spectrum, minimal responded with employment or education not impacting their use.

Figure 1.6

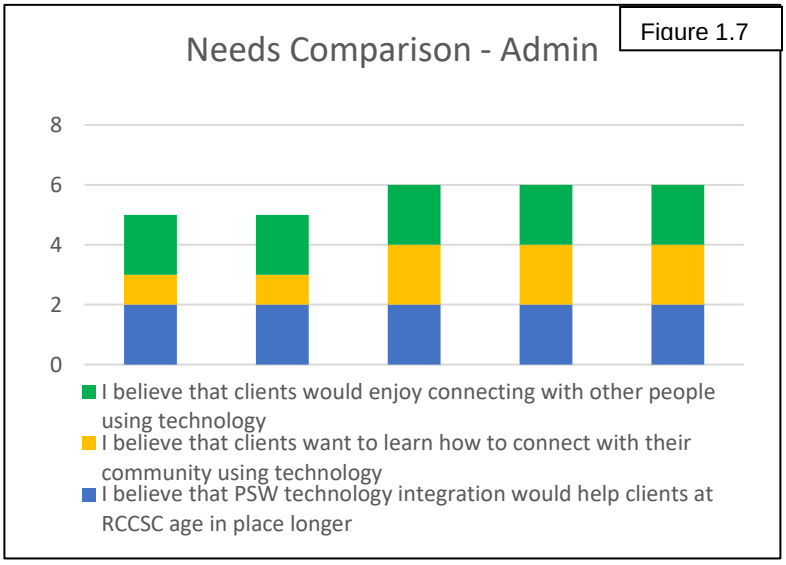


100% of all respondents from both the Admin team and BoD indicated that the cost of technology would hinder the use of technology yet the PSWs response suggests that this is a low concern, with only 29% considering it a potential resistance. The Admin team and BoD each noted that older adults were also more unwilling to try to use technology and they likely had a lack of support to do so. Personal support workers indicated both areas to be a lesser concern, likely thinking that they are able to support their clients in the RCCSC setting, but age (57%), physical ability (64%), and cognitive ability (71%) were stronger factors for not using technology amongst older adults. A significant benefit to this research and to the integration process is the PSWs are working one-on-one with clients on a daily basis, which provides that

variance simply because each client's needs are different. This may end up becoming a resistance or impact for technology implementation as the decision makers and those working with clients have a varied opinion on perceptions of the older adults within the RCCSC community. This may also include some impacts to programs or difficulties amongst the groups in understanding needs of clients and that of the funding body.

Research also led the team to understand that there was a perception of a need for the use of technology at RCCSC. There were multiple data points that provided the research results that indicated that all three levels of the governance viewed technology integration as an important aspect. The administration staff appeared to find that all categories of need surrounding connection to family, friends, and their community as well as how it could support aging in place longer. Regarding Figure 1.7, each line within the chart is considered a response by one person within the categorized. Overall, the Administration team appeared to recognize the importance of these needs of clients. The Board of Directors had similar responses with the exception of one respondent only noting that technology integration will help clients age in place longer.

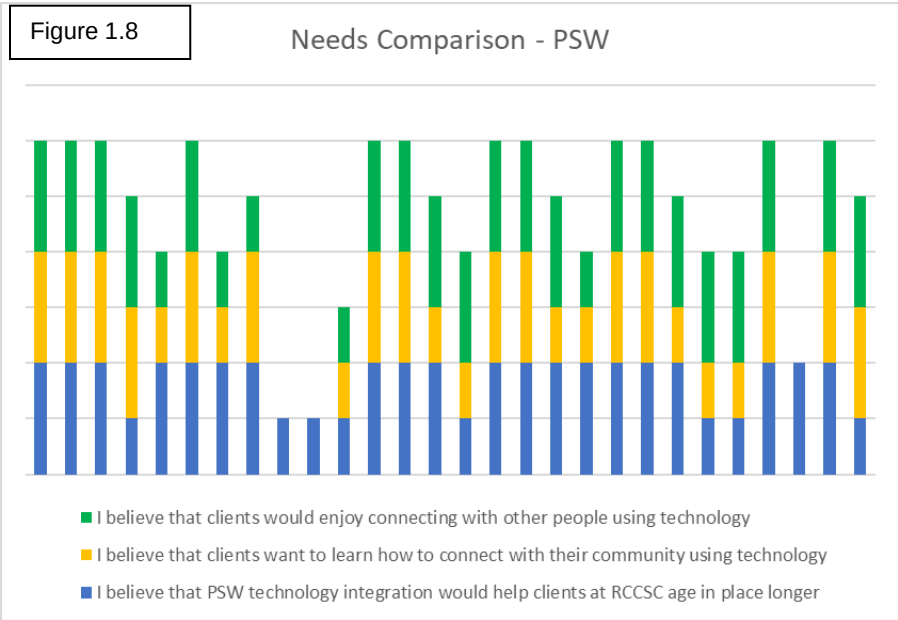
Figure 1.7



Data for the PSWs suggests that connection to community and family as well as supporting clients age in place longer is an important aspect to this group. The PSWs are

working daily with the clients and responses indicate that many of the clients would find this helpful. An important note for this chart is that some of the PSWs are working with older adults that are not capable of using technology due to physical (64%) or cognitive (74%) barriers (as outlined in figure 1.6) or are more familiar with personal details of a client's life (i.e., no children) and therefore may not consider these important for their specific client community.

Figure 1.8



Research also indicates that 74.4% of all respondents agreed that the use of handheld devices when working with clients at RCCSC for physical, cognitive, and social health as well as 93.4% shared that they would like to grow their own knowledge of technology and 74.4% showed interest in learning more about technology skills to improve their own brain health.

Willingness can also be seen amongst all levels of governance in wanting to learn new technology skills for working within RCCSC (89.7%) of which 82% of PWs agreed.

Learning style results provided some details for next steps for our community partner. 75% of PSWs shared that someone teaching

them was the best way they learned, followed by 68% by seeing something, 54% by doing, 50% self-teaching, and lastly, 39% through social or group exercises.

We recognize that within this research survey the Likert scale style questions provided a limited range of data as this type is ordinal and therefore interval.

Contributions and Recommendations of this Research

The significance and main contributions of this research, both within this agency and in the field of assisted living care, derive from quantitative results that indicate there is receptiveness to technology integration amongst the health care delivery team and Board of Directors, in an assisted living care setting. All of the PSWs in this research answered that they are familiar with using some form of a personal technological device and software application. Their interest and willingness to adapt to a new mode of client-centered care, through the use of technology support for the clients' improved opportunity to age in place longer, may be influenced by the recent shift in PSW and client care experiences due to the Covid-19 global pandemic. However, our preliminary literary research review has been supported by our findings. The evolving role of PSWs must progress alongside the evolution of modern health care practices. Increased use and incorporation of technology to positively impact the overall health and wellness of older adults is not only inevitable, it is anticipated.

Where the gap in past research on PSWs work in older adult assisted living care agencies exists, the increasingly important role and versatility of PSWs and their future work with older adult populations has been recognized and acknowledged by our research. Furthermore, past

research typically focuses their studies on care providers like nurses and PSWs but fails to expose the benefits of integrating research strategies that focus on stimulating their confidence to contribute to the designing of new and improved health care practices. Our research also explored the different roles within the circle of care, particularly where governance and power are concerned, while at the same time empowering the PSWs by validating their role and direct relationships with the clients, in line with Ontario's goals of a holistic health care approach in these settings. Our community partner agency's governance and administrative bodies demonstrated no significant statistical findings that would suggest any resistance to, or lack of support for a technology integration program in the future. Data was gathered from the administrative staff and Board Directors because these groups may have indicated a potential resistance and barrier to the larger project moving ahead.

Our survey design and questions were structured to gain valuable insights into the RCCSC community's perceptions about technology use. We successfully captured empirical data through identical survey questions from all three sub-populations. Perceptions about personal use and usefulness, and perceptions about older adult use and usefulness are subjective by nature. Though, we were able to objectively control for this variable by asking participants additional contextualizing questions. In our analysis of key findings, we interpreted each data point about perceptions independently. We then looked at how actual use correlated and added depth of meaning and significance to these findings. This approach to data collection and analysis can now be used as a focal starting point for additional future research and training, both within this community and in similar health care settings. Additionally, our research design is a

highly accessible and replicable tool for other agencies, since we have used a simple quantitative transverse design, and we were also able to conduct it virtually due to Covid-19 restrictions.

The results of this research demonstrates that there is very little resistance in the RCCSC community. They are receptive to a shift towards integration of technology for PSWs to engage with clients. We have identified themes in our findings that answer our research questions and can now be used by our community partner to aid in the development of the larger technology integration project. We have determined that there is a certain and optimistic outlook for this agency to carve out a new path towards technological advancement of the client care model currently in use. The following recommendations are based on our findings.

First, the agency should use the findings from this research as a tool to develop strategies to implement technology training for PSWs. All results offer a foundational opportunity to design informed and focused adaptive technology training and programs in the future. Second, we believe that there is ample opportunity, interest in learning and willingness, to improve technology knowledge and skills of all community members. Third, increased knowledge and confidence about technology use and integration can be enhanced by creating motivating and empowering training modules. Training modules would best achieve this by offering the RCCSC community, and specifically the PSWs, simple pathways that allow continued opportunities to voice their ideas and opinions about the larger project before, during and after rollout.

Technology device integration offers all of the agency members, particularly the PSWs, an opportunity to develop new transferable skills and knowledge that will have a direct positive impact on the health and wellbeing of older adults in their care. Finally, our work with this

agency, key findings, and the success of our research approach, indicates that an incorporation of parallel cooperative training programs that includes both the PSWs and the administrative team, could effectively build on the apparent cohesion and positive reception of technology device integration in this agency. We believe that the larger project will also benefit from transparency and communication of research findings, future plans for staff training and programming, and the development of upcoming policy objectives with all stakeholders including clients.

Limitations of research

Due to COVID-19 restrictions all steps of this study were completed virtually, or with assistance from the community partner working onsite at RCCSC. A standard participatory action research (PAR) procedure would allow for researchers to enter the community and build a bond from within, however due to pandemic guidelines and the safety of everyone involved these researchers attempted to enter the community in alternative ways. All trust building and education on this research was done at a distance via virtual meetings, posters, and emails. This may have resulted in misunderstandings of what the researcher's intended purpose of the study was. Participants may have not felt as supported and connected to the research from not having a standard rapport built with researchers required for a successful PAR approach.

This preliminary stage of the final project to integrate handheld technologies into the model of care for PSWs and older adults provided limited data by asking closed ended questions and keeping the survey to a limited number of questions as to keep participants interested and to me mindful of their time. Not asking any open-ended questions limited the data to quantitative results which were then bucketed based on question intentions to quantify the data for analysis.

The researchers were able to present their plans for this study at the BoD first yearly board meeting in January 2021. The researchers were able to introduce themselves and explain their aspirations with live questions from the BoD. This can be considered a bias within the research as this was not provided for the Admin or PSWs, who were provided with a short video of the researchers introducing themselves, then asked the participants to direct any questions virtually by email, which none did.

Questions were designed by the researchers, with no room for participants to tell their own story outside of the provided boxes, this could lead to bias on the side of the researchers. To minimize this, the researchers provided Likert scales for many of the questions to measure or completely disagree with questions. Due to limited exposure of the researcher's intentions questions could have been misunderstood by participants. Knowing what technologies were being specified or having an awareness of the full pilot project may have been a barrier for some participants if they were unable to read the posters or watch the video sent out by the researchers. The Executive Director at RCCSC requested that Admin staff and PSWs participate in the study, while the BoD were asked directly by the researchers with a live presentation to engage them, this could lead to limitations within the answers of each group based on their personal interest in the results and reasoning. This may have also disproportionately swayed the BoD over the PSWs and Admin by having direct live contact with the researchers.

Directions for future research

This research has provided a foundational base of information for the technology integration project for PSWs to use during daily care with older adults. Use of this foundational

knowledge has brought forward a comparative analysis amongst the governance with the goal of raising any preliminary flags before moving into the next steps of integration. The researchers, however, concluded further research is advised to our community partner to ensure a smooth transition and effective training for all participants within the RCCSC. Gathering a working understanding of perception is difficult with the use of a survey and requires a rich collection of open-ended questions and qualitative data. To better understand any potential resistance, benefits and perceived impacts of this new model of care for the PSWs the researchers suggest a brainstorming session, or a focus group.

The benefits of the preliminary survey provided an introduction to the technology integration program and allowed for all members of the RCCSC governance to participate. A focus group or brainstorming session will not allow all voices to be heard but can lead towards finding champions from within the groups who would like to take a leader position within the integration project to guide and teach their peers. Focus group or brainstorming session with open ended questions on how the staff see the roll out of this project, and how they foresee the impacts will lead to rich qualitative data to determine the received impacts this will have for the older adults, and what the staff need to ensure the project is integrated smoothly.

While the majority (88%) of the population responded with the belief that technology integration would help older adults age in place, there is still more knowledge that could be drawn out by the PSWs experiences working directly with the older adults to conclude if overall there is a necessity for technological integration in the care model. Further research to gather qualitative data is recommended to further prove the need for a new technological based care

model to improve health outcomes for older adults aging in place as a direct response to the current pandemic.

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