

Engaging isolated seniors and reducing caregiver burden

Caroline E. Grammer^{1*}, Terry D'Silva², Christine Gardner³, and Lori Canlas⁴

¹ *Department of Social Service Work Gerontology, Seneca College, Toronto, Canada*

² *Tertec Industries Inc., Markham, Canada*

³ *Department of Social Service Work Gerontology, Seneca College, Toronto, Canada*

⁴ *Department of Social Work, University of Windsor, Windsor, Canada*

* *Corresponding author (caroline.grammer@senecacollege.ca)*

Purpose The purpose of this project is to demonstrate the market viability of Mon Ami™ technology to support and maintain the elderly population living independently in the community, ensuring both social engagement and security for the individual and their family caregivers. It should also improve job performance and increase effective contact with seniors in a healthcare setting. It may provide a cost-effective tool to close the gap between what is provided formally, and what seniors and family caregivers require. Measuring the relationship between the user and the care unit presents as an essential issue in both preference towards the care unit and purchase. **Method** We used an anti-oppressive, structuralist approach with a parallel (QUAN+QUAL and QUAL+QUAN) equivalent status design. Themes will emerge from the data collected rather than a priori. From CHATS (Community & Home Assistance to Seniors, a municipally funded seniors' support service) 14 independently living participants were recruited, aged 60-95, and were engaged over a three-month period. Recruitment, training and implementation of the Mon Ami™ service was monitored and assessed by four student research assistants from Seneca College using structured quantitative forms and reflective qualitative interviews with open-ended questions focused on: ease of use of the technology for seniors, feedback from users to improve the unit's overall system and function, and the optimum target market for sales of this product. Due to the limits of project time and funding, no internal validity could be established; however, a standard Quality of Life form was used as the baseline and terminal measure which had internal validity within the form itself. **Results & Discussion** The Mon Ami™ technology may reduce the caregiver burden for seniors from 66 to 70 years old. Seniors (i) build relationships in an effort to maintain meaning of life, and to stabilize an ever-changing personal world, (ii) are naturally curious about the world and enthusiastic about the process of learning new things, and (iii) want to be connecting to the social world in a meaningful and purposeful way. The company needs to hire additional skilled employees in marketing and distribution and social service worker with gerontological expertise to provide training for seniors, and engage community funding partners such as the LHINs (Local Health Integration Network) in subsidizing and purchasing these units for low-income seniors.

Keywords: *gerotechnology, electronic companion, aging, caregivers, ambient assistive living*

INTRODUCTION

The research that follows was an effort to evaluate an "electronic companion" entitled Mon Ami™, which is intended to be an "easy to use innovative product that allows caregivers, friends and family to look after and assist people in their care both locally and remotely."¹ Mon Ami™ was intended to facilitate the independent living of seniors and to bring structure to daily life, thereby enhancing their quality of life. It comprises a variety of services and features intended to enable easy communication with family and friends. Examples of these features are: email and video chats, notification of caregivers if action is required, and provision of reminders to seniors for such things as medications, appointments, events, etc. The unit is also capable of activating and deactivating electronic devices such as lights and stove elements. It can attach any electronic device which

measures sugar levels, heart rates or additional medical equipment that has a USB attachment. The information in Mon Ami can be accessed by friends, family and professional caregivers, and the seniors themselves. It uses a touch screen mechanism and is internet based.

The research reported on was conducted on a group of 14 seniors aged 60-92yrs in conjunction with Seneca College's Social Service Worker's Gerontology (SSWG) Dept, Tertec Enterprises (industry partner), Community Home Assistance and Transportation Services for Seniors (CHATS). The project was funded by the Federal Economic Development Agency for Southern Ontario, Canada. Participating seniors were members of and recruited by CHATS. Participating seniors living independently in a non-institutional community setting with strong cognitive

abilities and some compromised physical functioning i.e. vision or hearing impaired, mild cognitive impairment, concurrent diseases etc. The goal of the process was to determine the marketability and viability of Mon Ami™.

The research project was designed and supervised by SSWG faculty and carried out by 3 SSWG students and one Windsor University MSW student, research assistants (RAs). The research team noted that the seniors varied in their cognitive skills (memory, concentration etc), their familiarity with computers and the internet, and their willingness and ability to acquire new skills. The seniors' responses to the electronic companion were measured quantitatively and qualitatively over an 11 week period. The researchers were interested in how easily and effectively the seniors could be trained to use Mon Ami™. They were also interested in the barriers and problems that arose in training, learning, and using the software, the reactions of the seniors, their impressions of the "usefulness" of the Mon Ami, and the effectiveness of using Mon Ami™ in enhancing the day-to-day lives of the participants.

Researchers conducted three training sessions lasting one hour each session over the first 5 weeks of the project. In addition, 24 hour, 7 day a week online support was provided. Variables recorded by the researchers included: speed and ease of learning, frustration levels, retention of learned material. We also noted the degree to which participants independently explored the features of Mon Ami™ that had not been specifically taught. The data gathered included baseline, midline and final quantitative and qualitative evaluations, which allowed us to compare the initial status of the participants with post training results with the use of Mon Ami™.

RESEARCH METHODOLOGY AND DATA ANALYSIS

The methodology employed is a "mixed methodology,"² gathering both qualitative and quantitative data. We used a parallel (quan+qual and qual+quan) equivalent status design, where qualitative and quantitative data are collected at the same time and analysed in a complimentary manner³. This pilot project is more of an exploratory investigation rather than a confirmatory investigation. In this approach, themes emerged from the data collected rather than *a priori*, consistent with the design model and contextual framework discussed. Data were collected on a 24 hour 7 days per week basis for any Mon Ami™ service activated i.e. email, music, alerts etc. We also administered a consumer satisfaction survey⁴ and a second 'reflections' questionnaire⁵ at the end of the data collection process.

Our findings were informative and sometimes surprising. We discovered that our participants enjoyed the social aspects of Mon Ami™. They particularly liked video chats and used them extensively with their family and friends throughout the world, although they did not use Mon Ami™ as much to interact with their caregivers as we had expected and still preferred to see their caregivers on-site. On the other hand, we found that caregivers used Mon Ami™ extensively to communicate with these seniors for such issues as medication administration, activities of daily living, cuing and prompting for dressing bathing medication and eating, checking-in with participants for updates on their well-being, and arranging remotely for appointments, transportation and food deliveries. We were pleasantly surprised to discover that areas of personal well-being, such as exercise, nutrition, information about new technology, good mental health, were considered very important by most participating seniors.

Because we gathered data at different stages of the 11 week project, we were able to compare changes in a number of variables across that time span. We found that the rate of improvement of participants' skills depended upon a number of interrelated factors, for example, those who had computer and internet familiarity improved their skills at a far greater pace than those with less familiarity. Similarly, those from a higher socioeconomic status and or higher educational backgrounds, improved their learning of the unit more than others. The original report provides definitions and a preliminary language of sub-categories in an attempt to discuss learner abilities when referring to gerotechnology such as; innovators, early adaptors, late majority adaptors, laggards, naive users and experts⁶. While the early definitions created and adapted here are crude they provide a common lexicon with which to speak.

From the qualitative data three themes emerged to dispel ageist myths that continue to be perpetuated in a youth-phillic society: 1. Seniors build relationships in an effort to maintain meaning and stabilise an ever-changing personal world, 2. Seniors are naturally curious about the world and enthusiastic about the process of learning new technologies, 3. Seniors of all cultures, all ages, all levels of education and economic brackets want to be connecting to the social world in a meaningful and purposeful way, These themes emerged through a process of chunking text into small bytes and identifying patterns of word usage such as, "play", "interactive", "easy", "useful" and phrases like; "I enjoyed the music", "loved the video chat", "streaming Indian videos from back home was wonderful" etc. We also used the RAs observations of behaviours such as, increasing desire for them to stay and train participants on more

features, stories participants shared regarding increased social access with Mon Ami™ which matched the quantitative data we collected over the 11 week period.

Though these observations comprise general trends and, because of the small number of subjects, did not quite reach statistical significance, one large and statistically significant finding was that seniors aged 66-70 expressed extremely high satisfaction with Mon Ami™, and this level of satisfaction decreased with increasing age. To our surprise those in the 60-66 age group reported less satisfaction than their slightly older counterparts, reporting that they were “too young” to benefit from the features of Mon Ami™:

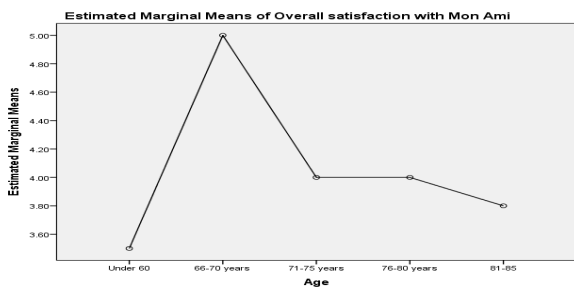


Fig 1. Overall Satisfaction with Mon Ami™, $F=5.74$, $p=0.19$, seniors aged 66-70 most satisfaction of unit

We found the results of our study were highly encouraging, but because of the small number of study participants and other difficulties encountered, the study requires replication. Difficulties encountered include:

- Early exits due to seasonal travel and illness
- Inability to measure professional caregivers responses to the unit due to funding and time constraints
- Resistance to new technology by “laggards”
- Variable cognitive abilities and functioning in learning new information and skills
- Response to avatar/equipment costs for seniors
- Adequate training of students research assistants
- Portability of electronic equipment for seniors
- Barriers for individuals who are significantly visually impaired or hearing impaired

RECOMMENDATIONS AND NEXT STEPS

Our recommendations fall into 4 categories: technical and unit features, target marketing, sales, replication and extension of our study. Among the technical and unit features recommendations are provided in the tables below.

Table 1. Feedback Table of Services Available on the Mon Ami™ Unit

Service	Usage and reported experience	Recommendations
Weather	Very popular	High priority
Assist	Half n/a; half satisfied	See qualitative for details
Date	Very popular	High priority
Time	Very popular	High priority
Attempts	No interest	Low priority
Quick Timer	No interest	Low priority
Info Icon	Mixed between satisfied and unsatisfied	See qualitative data for details
Trail	Half n/a; half satisfied	See qualitative data
Home Icon	Most very satisfied	Medium priority
Next/Previous	Mixed results	See qualitative
Volume	Half n/a or unsat; half sat	See qualitative
Recordings 1	popular	High priority
Recordings 2	popular	High priority
Recordings 3	popular	High priority
Calendar	Very popular	High priority
Photo	popular	High priority
Reminders	popular	High priority
Caregiver Reporting	Not used except with one caregiver	Unable to assess
Prompt	Popular with those who used it	Unable to assess adequately
Files	Not popular, many didn't try it	Unable to assess adequately
Routines	Not used	Unable to assess
Music	Very popular	High priority
Books	Mixed satisfied and unsat	Medium priority see qual data
Radio	Mostly satisfied, some not	Medium priority
Games	Very popular	High priority
Jokes and Inspiration	Mixed reports	Medium to low priority
Movies	Not popular, not used	Low priority
Email	Very popular	High priority
Videochat	Very popular with those trained on it	High priority
Import Files	Mixed reports	Medium priority
Web Link	Very popular	High priority

Table 2. Frequency of Services Used Over the 11 week period of the project

Service	Prior to Homework	After homework	Recommendations
Caregiver Report	Not used	n/a	More study with caregiver market needed
Inspiration	Not used	Rarely used	remove
Jokes	Not used	Rarely used	remove
File	Not used	Attempted rarely	Low priority
Books	Not used	Rarely used	remove
Music	Used frequently	Very popular	High priority
Video Chat	Used only by I-In users	Very popular where introduced with all user types	High priority; intergenerational and social feature
Calendar	Not used	Only the caregiver used it +++; participants low usage	More study on caregivers' use
Prompt Recorder	Not used	Rarely used	More study with caregiver market needed
Email	Used frequently	Very popular	High priority; intergenerational feature
Games	Used frequently	Very popular, most heavily used service with weblinks	High priority, games must be appropriate and challenging; an intergenerational feature
Web links	Used by I-In and EAs	Very popular, most heavily used service with Games	More variety requested and training on uploading preferred sites to stream news and entertainment in culturally preferred languages
Radio	Not used	Moderate interest	Training required to upload users preferred stations
Photos	Not used	Most popular with L-Ns	This is an intergenerational feature and should be marketed this way
Reminders	Not used	Used moderately by all; heavily with caregivers in multigenerational households	A feature that probably requires more 1:1 training time with seniors and caregivers
Recordings	Not used	Used moderately as a result of RA requests and homework challenges	Unless prompted to use this feature by RAs or a caregiver not generally used though potential use as a intergenerational tool could see a market
Routines	Tried by caregivers and I-Ins	Used mostly by I-Ins, EAs and caregivers of participants	Market for caregivers use ties into caregiver reporting and prompting features; could be used as a multigenerational household tool

It was noted that the present Avatar, "Amber," was met with mixed reviews by seniors. Males tended to enjoy her while females' responses ranged from disinterest to offense. Therefore, a strong recommendation to provide the user with options to create and control their own Avatar was suggested by many of the participants. Having the avatar greet or prompt and cue the user would likely establish the relationship between unit and user at a quicker rate according to the qualitative data. One of the first observations we found was that the Mon Ami™ needs to be simplified. For example, there were too many icons, too many choices, too many steps for the seniors to learn and use Mon Ami™ optimally. We would recommend that someone start with a basic feature package and several training sessions limited to one hour each visit. Once learned, the user could purchase or utilize additional features as desired. We learned that a hard copy manual would be crucial as a reference guide. Seniors also wanted to take the unit with them when travelling or in hospital, and so a portable unit in addition to the current standing unit is recommended.

Target Market recommendations

There appear to be two target market groups. The first group appears to be isolated seniors with post-secondary education and a healthy pension/income between the ages of 60-70 who also have either some comfort with using computers or a higher level of expertise. Laggard learners will eventually learn the unit but, it was noted by RA observations, only if another stronger user is present, regular practice and use are undertaken, and they are provided with a greater level of on-site support on a more regular and consistent basis. It was noted by the RA observations that having the same support person come in to the home was crucial to this cohort. Seniors do not like a sequence of strangers entering their home but, always welcome a familiar and friendly face. The second market group appears to be the family caregiver. It was noted that caregivers who engaged in the project with their loved ones were using the unit daily and sometimes frequently throughout the day. Ultimately, the caregivers were the purchasers of the units during this study. To date, three units were purchased.

Sales Recommendations

We found that all seniors, even those in higher in-

come brackets, were greatly concerned with their financial situation. As a result there will likely be resistance to acquiring the necessary equipment without leasing options or subsidies. Different jurisdictions may have different subsidies available.

If Tertec were able to create an infrastructure where a Mon Ami™ “community” existed and Mon Ami™ users could chat virtually, arrange to meet socially at local community centres for seniors where workshops on learning more about Mon Ami™ and social activities were involved there would be a further level of commitment to the concept and units. Mon Ami™ Book clubs, Movie Nights, Chat sites, Date sites, Discussion and Learning Centres, Caregiver Support sites, and Travel groups may provide a strong infrastructure to stabilize the sales of the units and monthly rental of the portal and support.

This is a legacy tool which has the potential of being passed on from one senior to the next which each user developing an more intuitive relationship with the unit so that as they may deteriorate, the memory paths for using the unit are slower to degrade. This would maintain seniors in their home longer and reduce the stress that caregivers experience which drives them to demand more from the system which has insufficient financial resources to support them.

Extension of Study

Further research will be able to investigate at a number of potentially important variables we were unable to address within the constraints current pilot

project. These include, evaluating Mon Ami with the population of cognitively impaired seniors, seniors in institutional settings, and professional caregivers such as, doctors, nurses, social workers, case managers and personal care workers etc. Further research should also employ larger numbers of subjects over a longer period of time to document their learning characteristics in order to determine whether there will be a change in the shape of the learning curve

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