

# Family Channel: Accessible Social Media for Older Adults

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**Abstract.** Isolation is a well-known problem amongst the elderly. This isolation might be ameliorated by engaging the elderly in social media. Unfortunately, the devices most commonly used to access social media (PCs, tablets, and phones) might not be the most appropriate for this demographic. A more appropriate device might be television. Using modern technology, it is possible to aggregate specially tagged social media posts from friends and family and narrow-cast it to other family members. Our research involves creating a television-based social media channel that is appropriate for the elderly. We present our initial work which involves developing a proof-of-concept for the Family Channel and identifying user profiles for the 65+ demographic with respect to technology use.

**Keywords:** Human computer interaction · Aging · Social media

## 1 Introduction

There is rich literature showing that visual and temporal processing abilities decline with age [1]. Concurrently, real-time sources of online information (such as social network data feeds or news sites) are sharing increasingly large amounts of information, often in small, space- and time-delimited screens or windows. As a result, the user interface currently employed by the majority of web-based real-time information services may not be suitable for older adults.

Our research has explored the ways in which older adults (65+) relate to web-based technologies, focusing specifically on how their capacity for comprehension, recall and engagement is affected by two main elements: the physical features of the device and the way in which the information is presented, in terms of type, variation, frequency, and interval. This investigation into elder-focused usability resulted in the design and implementation of the Sheridan Family Channel. Using TV, a familiar technology for this age demographic, the Family Channel delivers content by aggregating feeds from social networks and news sites and presenting them on-screen in a manner that is more

comfortable and accessible for older adults. Consequently, this paper further investigates the need and effectiveness of employing traditional devices, including television, for new purposes, such as web-based technologies. Additionally, this paper determines how the presentation of content critically affects usability for older adults. Through our Family Channel system, subjects were presented with simulated data feeds using a number of different interface designs. Accordingly, this paper presents the results of this controlled evaluation and offers new research ideas for enhancing usability for older adults. The rest of the paper is organized as follows. In Sect. 2 we discuss the background and motivation behind our research. Section 3 the implementation of the family channel followed by our pilot testing in Sect. 4. Finally, we conclude the paper in Sect. 5.

## 2 Background and Motivation

The Family Channel is a traditional television channel that displays a feed aggregated from social media. Designed with older adults in mind, this platform allows us to investigate several key issues relating to aging, HCI and real-time information systems.

Population aging is a defining characteristic of the times in which we live. In 2011, an estimated five million Canadians were 65+; that number is expected to more than double to 10.4 million by 2036. By 2051, about one in four Canadians is expected to be 65+ [2]. This demographic shift will have implications for many service delivery platforms, especially those that are technological in nature. Research has shown that the quality of life of older adults may be positively impacted by Information and Communications Technology (ICT) use [3], potentially through improved social support and psycho-social well-being [4–6]. Other research indicates that many older adults remain somewhat reluctant to adopt some new technology [7]. Blaschke and colleagues [8] identified the following barriers to technology use: age-related issues (health, mobility, and cognitive changes), characteristics of existing technologies, attitudinal issues, financial issues, and training and support issues. As of 2006 [9] 33 % of Canadians 65+ actively lived with a mobility related disability. The Family Channel as a platform was designed to be a passive interface. Currently access to social media site including Facebook or Twitter is gained through interfaces which require user actions such as scrolling or typing, this can present significant problems for persons with disabilities.

Older adults experience a number of significant changes in their lives that can also impact their level of engagement with technology, and by extension, with their peers. Retirement, changes in health or marital status or financial stresses may impact active engagement in the community and can lead to loneliness. Research has shown that loneliness can be as harmful to our health and quality of life as smoking 15 cigarettes a day [10].

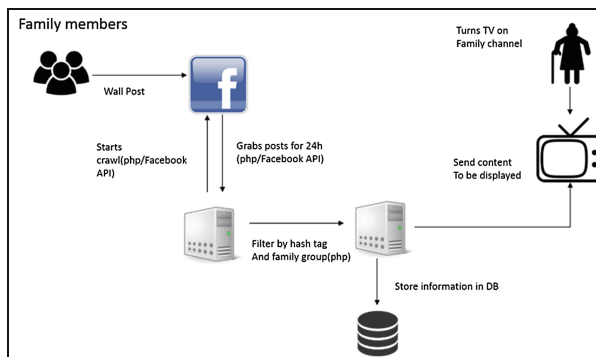
Social isolation can be defined as “a state in which the individual lacks a sense of belonging socially, lacks engagement with others, has a minimal number of social contacts and they are deficient in fulfilling and quality relationships” [11]. Simon et al. [12] also suggest that intense feelings of emptiness, loneliness, abandonment, and forlornness are linked to an insufficient quality or quantity of an individual’s network of

social relationships. Studies of the prevalence of social isolation in community-dwelling older adults indicate that it could be as high as 43 %, [13, 14]. While connecting to social networks may alleviate loneliness and social isolation, the need to access them through the most common technologies may present a barrier. By circumventing the need to actively engage with technologies that may be difficult, unpleasant or impossible to learn, the Family Channel can still provide a way for older adults to combat loneliness and social isolation.

In the 2013–2014 Report on the Social Isolation of Seniors released by the National Seniors Council (NSC) [15], the NSC recommended that the federal government encourage a culture of social innovation by building the capacity of organizations to address isolation of older adults through social innovation. What better way to achieve this goal than to leverage one of the most ubiquitous and well-understood technologies available – the television?

### 3 Implementation

The Family Channel is built as a television channel optimized for delivery on set-top boxes. The Channel crawls posts generated from varied social media sites and curates them in a manner appropriate for our target audience and delivery platform. The crawling process searches social media accounts of a specific group or “Family”. Posts that are tagged with specific hashtags for example #forgrandfather are captured and stored for later display (Fig. 1).



**Fig. 1.** The high level overview of the family channel process

Two distinct interfaces were designed. One interface closely modeled the conditions found on any number of social media websites including Facebook and Twitter. Multiple content types including, text, images, lengthy and short posts would be presented at seemingly random intervals in two separate on-screen windows and new content would generate asynchronously (Fig. 2). This would mimic the type of environment one might find on a Facebook news feed or a Twitter feed. The second interface is modeled after a more traditional medium, the television (Fig. 3).

This interface would place content in a more traditional display environment with controlled expected re-generation rates (30 s) and a singular focus (i.e. only one piece of information at a time).



**Fig. 2.** User interface with multiple content



**Fig. 3.** User interface with single content

## 4 Pilot Testing

As a first step in evaluating the utility and effectiveness of the Family Channel, we recruited 12 older adults between the ages of 70 and 86 (mean age 77.67; 8 females) to complete a pilot test of the Channel. We were interested in both gaining feedback about the Channel from the anticipated user group and also exploring how other factors (including cognition, dexterity, levels of technology use and perceived loneliness) might interact with perceptions about the utility of the Channel and inform improvements to the interface.

After providing informed consent (this study was approved by the Sheridan Research Ethics Board), participants completed a battery of surveys and assessments that included the following: a Participant History questionnaire (demographic information and self-reported levels of television use); the Purdue Pegboard Test (manual dexterity) [16]; the Trail Making Test (visual attention and task switching) [17];

a modified online Stroop test (measuring selective attention [18]); the UCLA Loneliness Scale (Version 3, measuring feelings of loneliness [19]); and lastly, a ‘Technology Use’ survey we designed that asked participants to rate how frequently they used various technology products and applications (ranging from TV, to digital cameras, various social media platforms and online sharing tools such as DropBox). Scores on this ‘Technology Use’ survey were totaled with higher numbers suggesting higher levels of ‘tech savviness’.

Following this battery of surveys and tests, participants took time to sit and passively view the Family Channel, alternating between the two different interfaces described above. They were asked to share their feedback about the interface designs, the types of content presented and the feelings of connectedness that the Channel might inspire in them if the content were from their friends and family.

Demographically, this was a highly-educated, well-connected group of participants. They all reported using the internet for 5–10 years or more, and as a group, they were very interested in learning about (or adopting) new technologies. In general, they were relatively ‘tech savvy’, but we did notice a reduction in ‘tech savviness’ with increasing age; this coincided with an increase in loneliness scores with increasing age, as one would expect from the literature. Their feedback after viewing the interfaces shows good support for the Family Channel, with the majority of participants saying that this was an ‘excellent’ or ‘great’ idea that they could see themselves using, particularly if they were house-bound or living alone. This aligns with the original goal of the Family Channel, confirming its utility. The group was split between preferring the single or multiple-content interfaces, but some suggested that while they enjoyed the multiple content now, they would likely only want the single content in the future, or would want to be able to choose depending on how they felt. This could be because they believe family would become more important to them as they age, or, they are predicting cognitive changes in their ability to divide their attention effectively between the two rotating displays. Interestingly, we found a trend suggesting a relationship between participants’ scores on the modified Stroop test and on our ‘Technology Use’ Survey; participants with greater difference scores on the Stroop Test (suggesting reduced selective attention skills) tended to be less ‘tech savvy’. While we do not have the statistical power to make this claim definitively, it is interesting to speculate that in otherwise healthy older adults there may be a pre-clinical marker of cognitive decline, namely, rates of technology use.

## 5 Conclusion

The Family Channel was designed as a television-based alternative for viewing social media content from family and friends. Preliminary testing with the target group suggests that there is indeed interest in this idea, and that the single-content interface (which most closely mimics a traditional television channel) would be the most desired, particularly as the users age. Future work will more directly investigate the different parameters of the display itself (story refresh rate, font/image size, length of content, etc.) to determine the optimal settings for this demographic.

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