Understanding Digital and Material Social Communications for Older Adults

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ABSTRACT

Online technologies are promising for helping older adults maintain social connectedness, particularly with younger people, yet many older adults resist or participate minimally in the mainstream technologies used by younger members of their social network. We present results from an interview study involving 22 older adults (age 71-92) to understand communication preferences and values related to social media. Seniors articulate many concerns with online social media, including the time required for legitimate participation, the loss of deeper communication, content irrelevance, and privacy. Additionally, older adults engage in social practices that could be supported by online social technologies, but they rarely use such tools. The theme of material social communications emerges from our data, and we examine this in context of online social media. We conclude with design considerations for the development of social media for older adults, and as part of this we describe the notion of bridging technologies as a framework for intergenerational communication design.

Author Keywords

Older adults, social media, social network sites, materiality.

ACM Classification Keywords

H.5.m. Information Interfaces and Presentation (e.g. HCI): Miscellaneous

INTRODUCTION

People age 65 and older are one of the fastest growing groups of Internet users in the United States [44], and this demographic is beginning to use social media more and more [15, 30]. However, Internet and social media use drops off significantly for people age 75 and older [44]. Only 34% of people in the *G.I. Generation* (born in 1936 or earlier) [43] use the Internet and 21% have home broadband [44]. For members of the G.I. Generation who are online, fewer than 20% use social network sites, play games online, rate things online, read blogs, listen to podcasts, or use instant messenger [43].

While younger seniors are embracing online social technologies [2], their parents, many of whom are still living, are neglected in this trend. Because the strength of social support networks in late life is related, both positively and negatively, to health [29], it is important to support the needs and social goals of members of the G.I. Generation. Unfortunately, people in late older adulthood who stand to benefit most from online social interaction are precisely the individuals who are least likely to adopt such technology.

This paper examines the current generational divide in online social media and social network site (SNS) adoption, focusing on the needs and preferences of people in late life. The reasons for this divide are complex, and issues of technology access and skill are important. However, there are many older adults with sufficient technology access and ability who do not use online social media. Why do older adults resist using mainstream social media sites or only participate minimally, particularly when many younger members of their social network are active on such sites? Which communication channels and social media forms are most meaningful to people in late life?

The contribution of this paper is a qualitative analysis of older adults' perceptions and usage of social media. We present results from an interview study with 22 older adults age 71 to 92 years old, 17 of whom are members of the G.I. Generation. Study participants are well-educated, active in their communities, have access to computers and the Internet, and express an interest in improving communication with their social network. Even among this exceptional population, only eight of the 22 participants use social media. While social media plays an important role in how young people form and maintain social capital [16], we find that it is far less important to older adults. Instead, as prior work indicates [12, 28], phone calls, e-mails, and letters serve older adults' needs. Seniors articulate many concerns with online social media, including the time required for participation, expectations of reciprocity, content irrelevance, and privacy. These are recurring themes that have been presented throughout the literature on older adults, but here we put them in context of social media, providing new insights into how and why seniors use and abstain from online social technologies. For example, older adults report helping people in their social network by researching, disseminating, and archiving information, but they rarely use social media sites that could assist with these activities. A central theme in our data involves the importance of material communications, and we describe the ways in which so-

cial communications for older adults span digital and physical spaces. We conclude with design considerations for the development of future social communication technologies that stand to engage members of the G.I. Generation, and as part of this we discuss the notion of bridging technologies as a framework for intergenerational communication design.

RELATED WORK

It is well documented that people in old age interact with others far less than in youth [19, 21]. Socioemotional selectivity theory asserts that the social and emotional goals of older adults differ from younger populations [6]. Older adults value self-achievement and the development of self-concept less than younger populations, but they place higher value on regulation of emotion. Older adults are motivated to stay connected with people in their social network with whom they already have a strong connection [6], and a perception that the end of life is near shifts one's social and emotional goals towards strengthening existing emotionally fulfilling relationships rather than pursing novel social partners. In contrast, mainstream SNSs may help people form and maintain "weak ties" [14], or loose connections between individuals [20]. Compared to younger adults, older adults are less concerned with the goal of information seeking, in which novel social partners are often the best sources and are especially valuable in fulfilling this goal. Contact with family, particularly siblings, takes on new importance in old age and a disruption of those bonds may be related to depression [9]. Older adults are generally more satisfied with interpersonal relationships and their lives overall [13].

Intergenerational family communication is often asymmetrical, where older adults put more effort into communication than their children and grandchildren [27, 28, 33]. Even if communication is reciprocal, grandparents may do more work to structure the interaction [11]. Lindley et al. [26, 28] discuss the notion of "heavyweight" and "lightweight" communications, with older adults seeking heavyweight communications that are personalized, human, and require a commitment of time. They state that older adults "want to feel that real contact has been made with someone, that a level of intimacy has been reached, and that they have put something of themselves into the act, or indeed the art, of communication," [28]. Our findings suggest that materiality is important in the heavyweight communications older adults seek.

Related work shows that face-to-face contact is the most frequently used means of communication between grandparents and grandchildren followed by landline telephone, mobile phones, and then occasional letters or cards [35], yet there is much to learn about intergenerational communication practices in context of social media. Those with mobile phones were more likely to use SMS and e-mail to stay in contact as well. Grandparents also do not use traditional forms of contact (e.g., face-to-face communication, telephone calls) in a compensatory way [8]. That is, grandparents who meet with their grandchildren more often face-to-face also call them more frequently. Older adults may prefer communication in a written form as it gives them more time to construct and think about what they want to write [22]. Similarly, older

generations may value material artifacts that represent social connectedness over analogous digital objects. Older adults are part of the "Kodak Culture" [7], or the generation of people who grew up with and value printed photos, and this plays a role in the importance of material social communications.

Studying online interactions and aging has been an important research topic for several years. Greater use of the Internet as a communication tool has been associated with lower levels of late life social loneliness [37] and enhanced quality of life and well-being [41]. Online activity also allows seniors to regain control over their personal and social life, which may have become compromised due to age-related changes, by connecting with others and seeking information online [32]. Analysis of a newsgroup for older people had higher numbers of replies to messages and therefore showed a higher degree of responsiveness and reciprocity compared to a newsgroup with younger users [42], leading to positive social experiences. Even with potentially positive outcomes, motivating and encouraging seniors to engage in online social interaction is challenging. Selwyn [36] reports that older adults tend to perceive the Internet as a functional tool and may be ambivalent about its use for social interaction. Older adults also have privacy concerns and are afraid of identity theft [17].

SNSs designed specifically for older adults (e.g., Eldr, Senior-FriendFinder) are typically aimed at helping seniors establish intragenerational social contacts. However, the younger generations with whom older adults want to connect use different tools (e.g., Facebook) [1]. The seniors who use SNSs such as Facebook tend to be younger [2], use it to stay connected with family, and joined because of the influence or help of a family member or friend [38]. While older adults may have fewer friends on an SNS than younger users, their friend groups have a wider distribution of ages [34], indicating that they are using such services for intergenerational communication. Prior work indicates that the perceived usefulness of SNSs, trust in SNSs, and frequency of Internet use are indicators of an older adult's willingness to join an SNS [5].

BUILDING ON AND EXTENDING PRIOR WORK

The present study replicates previous research on technology and social media use among seniors but also offers new, nuanced findings to further expand our collective knowledge of the social communication practices of older adults. Several large-scale quantitative studies on social media use (e.g., [2, 44]) provide a foundation for understanding the behaviors of older adults who are active online, but these studies do not provide a deeper analysis of reasons for non-use or minimal use. Moreover, these larger studies tend to group seniors (people over age 65) together into a single demographic instead of understanding individual cohorts, such as the G.I. Generation, which the present paper examines.

Our study confirms and extends findings from several recent studies. For instance, older adults who do not use SNSs most commonly cite lack of interest rather than lack of knowledge or skill [38], and our research unpacks reasons for this disinterest that are not articulated in prior work. We also confirm older adults' concerns about privacy [17], perceptions of social media as a forum to seek attention and publicity [17,

25] and dislike of the public nature of SNSs [25]. Building on this, we provide details of older adults' attitudes regarding how and which content should be shared via online social media (i.e., conditions under which one should share medical, political, or religious information).

This paper also replicates and extends findings by Lindley et al. [28], who five years ago examined the communication practices of older adults (age 55-81) through a focus group study, and work by Dickinson and Hill [12], who also studied older adults' (age 70-90) communication practices involving technology through focus groups and interviews. These studies examine seniors' practices of "keeping in touch" more broadly, whereas this paper focuses specifically on the role of social media in how older adults maintain communications. Importantly, these qualitative studies should be considered together to reach saturation and enable formulation of theory [18]. Our research provides converging evidence and support for earlier themes such as the role of "heavyweight" communications [26, 28], but we also extend this by analyzing the importance of paper-based and hand-written communications in light of the growing presence of digital social media.

Our analysis provides new insights into what is social media for older adults and how digital social media does not directly support older adults' communication preferences. We found that some social relationships are based in letter writing and seniors intentionally avoid using electronic media because of this history. Other seniors regularly share (through postal mail) printed newspaper articles and crossword puzzle clippings with their social contacts. These physical artifacts are important social media for this generation, and we learned of instances where seniors have performed this ritual of paper social media exchange for over 60 years. Others perform the social work of filling communication gaps by printing off e-mails to share with their peers who do not use computers. Still others create original articles and publications in which they distribute to their social contacts in printed form. Themes such as the importance of personalized correspondence and letter writing have been noted in prior work [12, 26, 28], but our contribution is to examine these practices through the lens of social media, enabling an exploration of the intertwined nature of media form and meaning [31] and an analysis of how digital social communications marginalize the values of older demographics.

METHOD
We conducted semi-structured in-home interviews with 22 older adults (age 71-92; mean age=80.9, stdev=5.8; 15 females) to understand attitudes towards social media as well as how they communicate with members of their social network given the presence of online technologies. We recruited older adult participants by sending a paper letter in the mail to members of a university database of people interested in research opportunities. The recruitment letter focused on attracting participants with an interest in improving communication with family and friends. Our initial plan was to recruit older adults who are social media users, but early conversations with participants indicated resistance to social media that in and of itself merited further exploration. For that reason, we did not screen participants for technology ownership or use but rather recruited participants based on an interest in improving communication with one's social network.

While we targeted people in the G.I. Generation (age 77 and older), we allowed participants to include other family members age 70 or older in the interview. Thirteen participants were interviewed with a family member (usually a spouse) and nine participants were interviewed on their own. Participants who were interviewed on their own typically described their own life history and social networks, whereas participants interviewed in dyads described shared histories and friendships. Interviews lasted approximately one hour. Except for one participant, all interviews were conducted in participants' homes, allowing us to better understand the contexts in which they lived. As part of the interview, some participants showed us artifacts (e.g. handwritten letters) to aid discussion or demonstrate their broader interests and personalities.

The older adult population we recruited is exceptional in that they are well-educated (several people have a graduate degree) and either own or have communal access to a computer and the Internet. All older adults we interviewed are retired, but they are active in their communities and selective in the activities they pursue. Study participants are involved with what we call "serious hobbies," including conducting research for oneself or others, starting and managing a medical foundation, journalism, discovering a family's genealogy, participation in the League of Women Voters, and political activism.

All interviews were audio recorded and transcribed. Interview transcripts and photographs of supporting materials collected during interviews were analyzed using a thematic approach [18]. Through inductive analysis we iteratively identified themes in the data. We treat informant language with care and unpack the meaning behind the ways in which participants describe their needs, values, and preferences for technology and non-technology based communication.

FINDINGS
We describe participants' access to and use of computers as well as the ways in which older adults communicate with people in their social network, including a few examples of social media. All participants articulated concerns with mainstream social media, which we explore in detail. Interestingly, older adults manage and provide valuable resources to members of their social networks in ways that could be supported by online technologies, yet they rarely use such systems. While many older adults use e-mail, material social communications are of central importance to the older adults we study.

Technology Access and Ability
Using the computer is a dedicated activity for older adults, and some participants describe computer use as a hobby. All participants except two have at least one household computer, and all but five participants use a computer daily. As with the broader population of older adults, our participants are diverse in technical ability and amount of experience with computers. OH (age 83, male) explained, *"I use the computer all*

the time but I don't operate it. I look over her shoulder. I don't press the keys or operate the mouse." JK (89+[1], M) and JD (83, F) described no interest in using a computer, even though they are available for use at nearby libraries for free. MD (75, F) was the only participant who said that she would like to use the family computer but lacked the skill to do so. On the other extreme, RO (87, M) has owned and used multiple computers since the early 1980s, LL (81, F) described first using a computer in 1987, and KW (81, F) writes her own programs in Visual Basic for bookkeeping.

Participants describe having one person as the primary owner and operator of the household computer. For households with multiple computers, each family member claimed ownership over a particular computer. A single e-mail account that is shared between a couple is common, but one person is typically responsible for this e-mail account, resulting in interesting sharing practices that we describe below.

Communications Landscape

To understand opportunities for improving social communications of older adults, we first examine the ways in which seniors currently communicate. This section echos prior work [12, 28, 33, 39], so we briefly summarize our results in order to characterize our interview participants.

While eight of 22 older adults report using social media, they prefer to communicate through telephone calls, emails and written letters. Participants described tailoring both the message content and channel to the recipient's availability and preferences while considering the perceived affordances of each mode of communication [28]. In agreement with earlier work [12, 28, 33], our data also show a preference for telephone calls because of their dynamic nature that better approximates a "real conversation." E-mail, the "bedrock of communication" for older adults [44], was used by 17 of our 22 participants. Many participants valued email for utilitarian purposes, using it to schedule events but noting its structured, less conversational nature. Participants contrasted e-mail with the material practice of letter writing, which affords a personal touch [28]. Our findings suggest that letter writing is an art, a hobby, and a social practice for the generation of adults in our study. Letter writing allows older adults to communicate with strong ties and reconnect with ties that have become weak while affording varying degrees of formality depending on the content, tone, and even the choice of paper used. The older adults in our study mostly eschewed text messaging and video chat. Three participants used text messaging to communicate with younger generations:

> *"The only way I can communicate with [my grandson] is by texting. If I call him, he won't pick up and I'll leave a message. But, right away– like two seconds later, if I text him, he'll answer the text within seconds. He just won't pick up the phone." (KB 71, F)*

Two participants (a husband-wife pair, age 82 & 83) described using video chat for communication, as a scheduled event to "see the new babies" in the family.

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[1]University IRB prevents disclosure of individual ages for people over age 89. Participants over 89 are reported more generally as age 89+.

Usage of Online Social Media

We expected social media to play a more central role in this group of older adults' communication practices, yet fewer than half of participants (8 of 22) report using social media. Study participants use Facebook (n=7), Twitter (n=1), LinkedIn (n=1), Words With Friends (n=1), JewishGen (n=1), and a news station blog (n=1). Five participants use Facebook daily, and one participant reported using Twitter daily. Only three participants said they post messages to Facebook.

> *"We engage in some repartee with people on Facebook... I will do a lot of kibitzing or teasing, or agreeing or disagreeing, the random remarks of three words a piece... but I don't spend a lot of time doing that..." (TW 83, M)*

Two other participants mentioned "lurking" on Facebook, or watching what people are doing without posting content.

> *"I follow them [her children] on Facebook because they always put pictures of the babies... I always check Facebook to see who's posted what during the day, and I don't necessarily respond to it. In fact my daughter accuses me of stalking because she says, 'You don't write anything, you just check,' and I say, 'Yes, that's right, I just check.' ((laughter))" (MW 82, F)*

A few participants used social media sites beyond Facebook and described the benefits of these sites. RO (87, M) said, *"LinkedIn is entirely different from Facebook. It's really professionally oriented."* Regarding her nightly routine, MW (82, F) explained, *"Every night before I go to bed, I try to get caught up with my Words With Friends games, but I've got, I think 18 of them going now so it that takes a little while..."* LL (81, F) has connected with family members online via JewishGen. One participant (KB 71, F) enjoys Twitter *"'cause it's quick. It's 120 characters, and you can follow people and see what different people are doing, like celebrities or music artists."*

The majority of participants asserted that not using social media was a choice rather than something they would like to use but cannot because of reasons such as technology access or skill [38]. Indeed, many participants explicitly said they could learn to use Facebook, for example, if they wanted.

> *"I don't mind learning things... I just don't feel the need to learn Twitter and Facebook. I like computers and the more they can do with them the better. I'm not against learning new things, but I just don't want to get out there in the public with every Tom, Dick, and Harry." (SK 89+, F)*

Concerns with Online Social Media

All participants, even social media users, expressed concerns with mainstream social media. Participants mentioned a range of issues, including limited time, lack of privacy, and irrelevance of information. Interestingly, when we first brought up the term social media, many participants responded with the phrase, "I'm not interested."

Social media is for younger people

While we probed for use of social media sites that are designed for seniors, participants regularly referenced mainstream websites where the majority of users are younger. Naturally, older adults commented on this aspect, stating that one

reason for not using websites such as Facebook and Twitter is that they are for younger people and not people their age. DH (76, F) stated, *"I'm the age group that doesn't use it... I really do think partly as function of age, you know, we didn't grow up with it."* More broadly, participants are aware of intergenerational differences in communication. LL (81, F) explained, *"[My children and grandchildren] use forms of communication that I don't use. They don't write letters."* One participant offered a contrary opinion and believes that older adults are missing out by not using social media. This participant described how she uses social media, specifically Twitter, to connect with younger family members:

"I think it's a bonding thing. I think it's wonderful... So many grandmas and grandpas of [granddaughter's] friends, they don't even know what Twitter is... They're missing out on experiencing what their grandkids [use], which is, social media." (KB 71, F)

Social media requires a time commitment and reciprocity
Although all of our participants are retired, they are discriminating in how they choose to spend their time. E-mail and other forms of communication occupy seniors' time, and the perceived time required for social media participation may be a deterrent. JO (85, F) commented, *"[Facebook is] not even something I think about that much... I have so much e-mail to do, and I go down the e-mail and you see Facebook and you just go [delete]."* Seniors anticipate that SNS participation requires a great time investment because it may open up new social relationships, most likely with weak ties, that require maintenance. JO continued, *"There are some [Facebook messages] that say...'Do you know these people?' Well, I don't even open it because if I did know those people, I don't want to know them any better now."* RO (87, M) elaborated, *"[Facebook is] trying to entice you to make more friends and we have enough friends."* Another participant, LH (80, F), explained, *"I haven't wanted to get involved [with Facebook] 'cause it takes...a couple hours a day. I don't wanna spend that much time on a computer."* KB (71, F) said, *"Facebook is too much work to really get into it... 'Cause if I let 150 cousins follow me, then I'd always have to be commenting on things, and, it's just too much work."* Similar expectations of reciprocity in communication have been reported related to time pressures of responding to e-mail [28].

The content is unimportant and trivial
Many participants described the content on social media sites as unimportant and trivial. DH (76, F) said, *"I also don't like the trivial nature of it... It's too much information on stuff that's not important. I'm not interested in that."* Several examples seniors gave about the content they perceive as trivial involved postings about where or what one is eating.

Information about weak ties or social contacts who are seen infrequently may also be perceived as unimportant. For example, JO (85, F) explained, *"I'll look at a Facebook [post] and it'll say, [Sue], who I know, has put on a new picture."* She continued, *"Well, [Sue] lives out in San Diego and I don't see her from one year to the next. I don't care if she puts a new picture. That doesn't grab me so I don't open it."*

The perception of unimportant content is coupled with a view of the immediacy of information resulting in postings that are not well thought out. LL (81, F) explained, *"It's meaningless....nothing to write home about, just kind of instantaneous 'this popped into my mind.'"* KW (81, F) commented, *"These [Twitter and Facebook] strike me as totally useless. Why not just use the telephone?... For one thing you don't...stop and think ahead of time what you're going to be doing."* Participants contrasted the "trivial" nature of online interactions with the depth and thoughtfulness of letters.

"I look upon my letters as compositions... When I do a letter I work maybe three or four hours. It's not a work of art but it's something like that. It's a well-written piece. I can go back and look at stuff I've written and it's self-satisfying... Condensing a message to 140 characters, which I know you have to do on one of them, it ruins the language." (LL 81, F)

Analyzing letter writing practices helps reveal what seniors consider to be important and non-trivial communications. Several seniors describe the time commitment and gratification associated with letter writing, which we discuss in detail below, and this stands in stark contrast to the lightweight digital interactions provided by social media. Writing letters and e-mails enables not only immediate reflection on communication [28] but also provides self-satisfaction to older adults who revisit correspondence at a later date.

Privacy on social media is limited and unclear
In agreement with prior work [17], many participants mentioned privacy concerns and the potential negative results of putting personal information online. OH (83, M) stated, *"They know what your buying habits are, what your interests are, and who your friends are and that's enough for me not to get in to those programs."* Older adults mentioned privacy issues regarding their own information but also the information that younger family members put online. They raised concerns that photos of their grandchildren "not in very flattering situations" might influence future employment.

Understanding which information is public and which is private is a challenge for older adults. TW (83, M) said, *"Facebook has changed its rules about five times...and it's never possible to judge whether or not something is going to be private on Facebook."* KW (81, F) said she goes as far as not having an Internet connection to protect files on her computer. She explained, *"I don't want people getting into my database, and I don't believe all this garbage about how you can protect files. I don't think there is any sure protection."* Providing seniors with a private network may address this concern [40].

Related to privacy, several older adults mentioned that social media is not a place to discuss religious or political views. However, many of our participants discuss political and religious views outside of social media, at in-person discussion groups, for example. KB (71, F) commented, *"I don't like to put it out there... On social media, I would never talk about religion, politics..."* This attitude is in contrast with the way younger populations use social media to voice one's beliefs.

Lack of credibility and negative influence
Older adults expressed concerns about the credibility of information on social media and the influence it has. One participant, AD (79, M), stated, *"We don't use it [Facebook]... The*

reason is because there's filth in it... We don't get involved with all that junk." Other participants described content on social media as "inaccurate", "gossip", and "rumors". Older adults in our study want news from venerated sources, most often from a printed newspaper. RO (87, M) said, *"The current events that I'm interested in I want from the New York Times or the Washington Post... I like to make sure it's reliable when I read it and pass it along."*

While social media is a powerful platform for sharing official news stories, older adults in our study did not perceive this as a benefit. Interestingly, the fact that people can comment on news stories shared via social media was perceived as slanting the article and negatively influencing others' thoughts. When we described the ability to share news via social media, RO, a former journalist, explained, *"But then as it gets passed around and people comment, it gets totally distorted and unreliable."* Several participants identified social media as a persuasive tool, and believed that those using it may have sinister intentions. These participants were concerned with information sources, credibility, and whether they can trust it. SK (89+, F) said, *"I think they're [people on social media] trying to change people's minds, or at least infiltrate them... I think a lot of them are trying to win others to their thought... I wouldn't ever put anything like that on Facebook or Twitter..."* Here again we see that due to concerns about manipulation and inaccuracy, social media is not considered an appropriate place to discuss political or religious views.

Social media engenders constant communication
Older adults do not want constant communication and may withdraw from locations that promote connectivity or purposefully avoid technology for this reason [3]. A few participants echoed this sentiment, mentioning that they disliked social media because of the constant stimulation and communication it provides. Older adults may use SNSs minimally or sporadically to maintain limited connectivity [23], or as in our data, resist SNSs altogether as a way of avoiding constant contact with others. While mobile phones have been cited by older adults as the culprit for "always on" behavior [28], older adults in our study suggested social media more broadly was the source of constant communication behaviors. LL (81, F) said, *"It's a need to be in touch with people all the time. It's constantly having to be connected to another person. It's like the umbilical cord."* There is a time and place for communication for older adults [28], and they purposefully structure their lives and home environments to support this goal [3].

> *"I consider television an inappropriate device for the home. I also consider the Internet inappropriate for the home... The purpose of the home is, you come home at the end of the day to rest, relax, and cut off contact with the outside world. So I consider these things not helping me to cut off contact." (KW 81, F)*

The act of not communicating is an important way in which older adults may indicate their wellbeing to family. JK (89+, M) rarely calls his sons and waits for them to contact him. He said, *"I usually don't call them for two reasons. First of all, how can I select what's a convenient time for them? And second is, if I call them, they might feel that I'm being neglected or that I need help...and that's not the case."* Here we see that
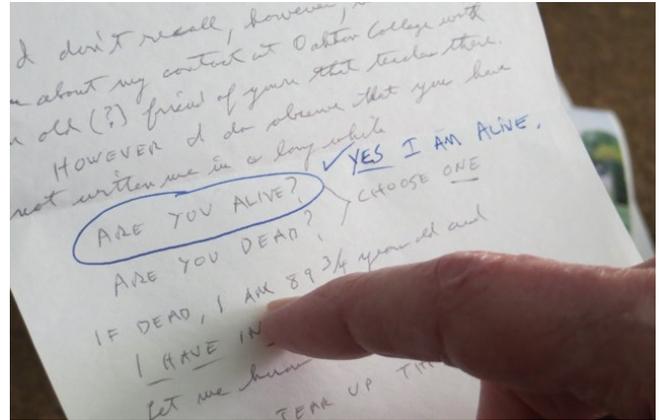

Figure 1. Letter sent to inquire as to whether a friend was still alive.

by not calling his sons, JK communicates his wellbeing and independence.

Managing and Contributing to One's Social Network
Older adults manage and contribute to their social networks in many ways, yet the majority of seniors do so without modern online technologies. Part of growing older is dealing with more frequent deaths of people within one's social network [19, 21, 6, 26], and several participants mentioned this challenge. KW (81, F) said, *"My friends keep dying. ((laughs)) Very annoying."* JK (89+, M) explained that he no longer writes as many letters because so many of them have been returned to him as undeliverable. He showed us a letter he sent to one of his friends, in which he playfully inquired whether or not his friend was alive (see Figure 1). This letter was returned by his (living) friend, along with a response letter. For JK (89+, M), letter writing was often an attempt to find out whether or not the recipient had passed away. He explained, *"I'm sorry to say that the last two letters I wrote to my old boss, who I stayed in touch with, it looks like he's dead... There again, I've lost communication."* While reconnecting with "people from long ago" is a goal, older adults are cautious about this. LL (81, F) described sending paper photos to clarify and verify a relationship with a relative found from a genealogy website.

Seniors may help fill gaps in communication. We learned of many instances where they print and share e-mail correspondence, particularly for a spouse who does not use the computer or e-mail. AD (79, M) explained, *"If they [daughters] say something interesting [via e-mail] about people we know, I'll print it out and give it to her [wife] and some other people at church who don't have computers. I usually distribute about six or seven..."* This social communication support is typically intragenerational as seniors are filling communication gaps for people their age who do not use a computer.

Several older adults described doing research for other people in their social network, typically for younger family members. LL (81, F) said, *"I'm a very good resource person. I enjoy that. It makes me feel good."* The act of doing research for another person contributes to the older adult's identity and self-worth [26]. Interestingly, older adults described printing and mailing content to the recipient. Some did this
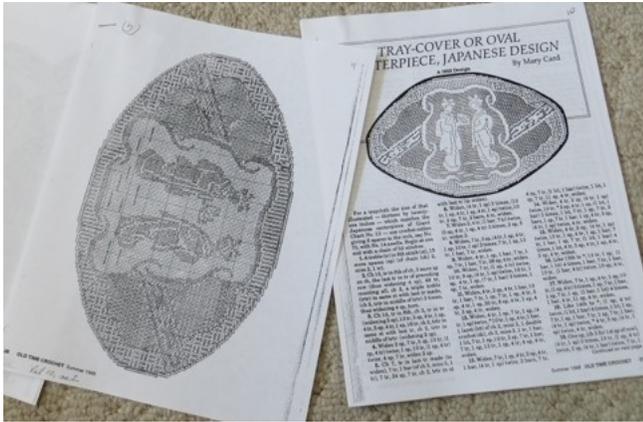
Figure 2. Crochet newsletter created by one participant.

even when the recipient was a younger relative who uses e-mail. A related activity involves generating and distributing new content to social contacts. RO (87, M), a former journalist, showed us an article about a political issue that he wrote and distributed to fellow retirement community residents. KW (81, F), a former librarian, worked for multiple years on one of several crochet newsletters where she interweaves history with a how-to guide (see Fig. 2). She calls it a "zine" and distributes it in paper form.

Overall older adults are more interested in one-on-one communication [28], but we learned of instances when they performed mass communication to their social network, often to an extended family group concerning a family member's illness. This provides an opportunity for online social technology support. LK (74, F) described using e-mail to avoid "getting a million phone calls" when updating family on her mother's illness. The asynchronous nature of e-mail allowed LK to manage communications, particularly during an emotional time where telephone calls do not disguise such feelings [12]. TW's (83, M) son was in an accident and his other son set up *"a communication circuit that was really rather privatized. It was a utilization of the Facebook routine as best we could make it... It became a news posting, day-by-day, for the family."* Several participants noted the importance of keeping this information private when shared online. In general, seniors seem willing to use social media or SNSs to communicate such issues if they can ensure privacy.

Older adults also contribute to their social networks by assembling and preserving genealogical archives (e.g., [33]). This work typically occurs within an extended family group and includes gathering, storing, and distributing photos [39]; yet seniors did not describe using online services to support this work. Uniquely, TW (83, M) distributed his collection of 40,000 digital family photos to his children via portable hard drives. More commonly, older adults maintained physical albums for children and grandchildren to view as entertainment [39].

Importance of Paper-Based Social Communications
A recurring theme involves material social communications. Paper-based artifacts play a particularly important role in the correspondence practices of older adults in our study. Participants described the "art" or "poetry" of writing letters. Older adults perceive letter writing to be more personal than electronic communication [12, 28], and our participants described handwritten letters as "more thoughtful" as the time spent writing a letter conveys care towards the recipient. Several other themes around paper-based social communications emerged from our data and provide a more nuanced understanding of letter writing and exchanging paper artifacts.

Participants described having a different mindset when they compose a handwritten letter versus an e-mail, and multiple people compared letter writing to poetry. LK (74, F) said, *"I know I have a totally different thought process when I'm sending an e-mail versus writing a letter... I guess it's [like] writing a poem..."* While the formality and cultural conventions of writing letters is viewed negatively by some seniors [12], our study participants as a whole valued writing letters. However, participants noted that composing a letter on a computer has advantages. Older adults appreciate being able to revise their letters using a word processing program and several mentioned using the computer because they have illegible handwriting in old age. Several older adults described printing out typed letters and sending them in the mail. LL (81, F) said, *"I would print it out and mail it Pony Express because I find it a lot more satisfying."* Others, like LR (89+, F) for example, print and archive e-mails that are important to her.

Multiple participants used the word "correspondence" to describe communications that are long-term, composed, well thought out, and often, but not always, hand-written. Even if not hand-written, correspondence is most often sent through the mail and only occasionally through e-mail. TW (83, M) uses e-mail if a quick or short response can be made. In contrast, he says, *"I am very laborious about putting a letter together...unless it looks right and sounds right, and is really well constructed, I don't want to send it out..."*

The social practice of writing letters is important to some participants despite its apparent anachronism. MW (82, F) said she *"grew up in a tradition where...Sunday afternoon you sat there and you wrote your letters, you wrote your correspondence for the week, and that's how you got caught up with everybody."* JD (83, F) described being mocked for writing letters when it is "out of style." What was interesting is that some of the most tech savvy study participants, who are also social media users, were the strongest advocates of letter writing. We learned of social relationships that are based in the media form of hand-written letters. This was most common between older adults and their intragenerational contacts. JD has been corresponding with a pen pal for twenty years, and hand-written letters are of central importance to their relationship. LL mentioned a 12 year letter-writing relationship. LK described a similar pen pal and her preference for physical letters over e-mail. She said *"Our whole history's writing letters back and forth. We've avoided purposely e-mailing unless it's something really important that we had to tell each other."* She continued, *"Usually nothing is that critical."*

We learned of many examples in which the medium itself influences how the message is perceived [31]. The selection of

paper on which a letter is written, for example, is important. MW (82, F) explained, *"I still have friends in my generation who like to sit down and read the letter, and furthermore they like it on carefully selected paper..."* Participants mentioned using embossed stationery, notecards, or home-made cards depending on the occasion. The act of correspondence may also include sharing material artifacts that demonstrate an understanding of the recipient's interests [28] as a way of showing care and thoughtfulness. In turn, they felt cared for when someone else sent them material communication artifacts. KW (81, F), for example, has clipped newspaper crossword puzzles for a friend since they roomed together in college, and she has continued this tradition over the years, sending her friend a weekly batch of puzzles. Occasionally her friend reciprocates with newspaper clippings of interest from the local paper. LK (74, F) said she uses *"commemorative stamps... I try to choose stamps that are relevant to that particular person."* LL (81, F) explained, *"I'm always clipping things, clipping articles. I will save them until I write to the person."*

DISCUSSION

This paper presents an analysis of older adults' communication values and preferences related to social media. While extensive prior work reports older adults' attitudes and behaviors around keeping in touch as well as social media usage, our unique contribution is an in-depth qualitative analysis of late life social communication practices through the lens of social media. By analyzing older adults' practices of keeping in touch in context of mainstream social media, we examine how existing online sites and services could better support seniors' social communication needs and goals. Our analysis provides a foundation for designing more inclusive social communication technologies for the current oldest generation, the G.I. Generation, but also provides a long-term view of designing communication systems for seniors given the rapidly changing landscape of digital social media.

Design Considerations

Designing for older adults is a challenge, as the population is heterogeneous and perpetually changing. Older adults have idiosyncratic needs related to computer accessibility and technical skill, but there is also great variation among each generation of older adults. Age is only one dimension used to understand this population. As described earlier, our participants are active in their communities, well-educated, and have access to a computer and the Internet. We study this elite population of older adults to understand their concerns with social media, given that they have the means and resources to use such sites if desired. Based on our analysis, we highlight key issues to consider when designing social media primarily for members of the G.I. Generation, approximately 18 million older adults in the United States, the vast majority of whom currently do not use social media.

Social media for older adults should foster strong tie relationships. Older adults may avoid using social media if they perceive joining a site as an obligation to maintain communications, particularly with weak ties. Promoting weak tie

relationships may actually deter use. Indeed, several participants intentionally limited the number of weak ties that they had (e.g., by restricting the number of friends on Facebook or by removing people from a newsletter distribution list) in order to focus on strong ties in their network.

Existing social media is considered lightweight by many older adults, and this stands in contrast to their desire to engage in thoughtful communication that often requires an investment of time and attention to composition [26, 28]. For example, many of our participants who use social media also engage in letter writing, a practice which they describe as time-consuming. Lightweight communication through social media (e.g., Words With Friends, terse humorous replies on Facebook) has a place, but it is a supplement to, rather than a replacement for, deep and thoughtful communication.

Older adults often want to connect with younger family members, who are active on mainstream social media sites. Many of our participants recognize that younger family members are active users of sites such as Facebook. New sites or systems that are created should integrate with existing mainstream platforms in seamless ways to encourage participation by younger family members.

Older adults find value in doing research for members of their social network and may play an important role in the social question and answer behavior of younger people. Currently this interaction is likely to occur offline or through e-mail. Seniors described the work of sending paper newspaper articles and e-mails pertaining to grandchildren's research projects.

Older adults are more interested in one-on-one communication than mass communication to a broader audience [28]*, but certain situations are exceptions to this.* For example, the ability to share family medical updates via a private social media forum is valuable to older adults. Seniors emphasized that the most important qualities of this are privacy of information and knowing with whom information is shared.

Older adults want news from venerated sources and do not feel that political and religious views should be shared on social media. Reading the news from a printed newspaper is common and was stated as a preference by the vast majority of participants. The ability to add comments to new stories on social media is viewed negatively as it may "distort" the news story.

For older adults, material social communications afford expression of thoughtfulness and concern, and the medium and meaning of social media are intertwined. An opportunity to integrate paper-based or hand-written artifacts into an online experience may resonate well with this generation. Similarly, the ability to give digital social media artifacts a physical dimension (i.e., by printing) may be received positively.

Towards Inclusive Social Media Design for Older Adults

A short-term view of inclusive social media design considers the needs of specific cohorts of older adults, as we describe above. A long-term view, however, considers a rapidly changing communications landscape, where the technologies of today will be replaced by new interaction paradigms of

tomorrow, which will again displace the oldest generation. This trend is visible in younger generations of older adults. Consider the Baby Boomers[2] who are active on sites such as Facebook, but who are less likely to use sites and services that are popular with Millennials[3] (see [43] for a full analysis).

A long-term research program aimed at supporting late life communication involves designing *bridging technologies* that meet the needs of different generations, who each prefer different interaction styles and user interfaces. Systems such as Wayve [26] and Tlatoque [10] act as intergenerational bridges for communication. Studying this broader class of bridging communication technologies is important, and designers must deeply understand age-related needs pertaining to accessibility as well as cultural practices and preferences of different generational cohorts, as we describe in this paper. For example, a bridging system that is tailored to the G.I. Generation may incorporate paper interfaces, penmanship, or other media that enable depth of thought, reflection, and personalization desired by these seniors.

The overarching theme of this and related work is that seniors want to connect with their strong ties and they put considerable effort into crafting well thought out, meaningful communications. Analyzing the communication practices of seniors in context of digital social media highlights that the oldest generation's social communication needs and values are marginalized: older adults lament that the forms of expression afforded by material social communications are lost with online social media. For older adults, social media "ruins the language" and such lightweight interactions pale in comparison to the letter-based compositions on which they work. Although some seniors exploit digital social media, indeed we learned of instances of communicating with grandchildren over Facebook and Words With Friends, we argue that technology should better support older adults' communication needs and preferences, enabling depth of thought, careful and reflective composition, and personalization. These are qualities that are valued by older adults [28] but not often supported by existing digital social media.

Examining late life communication practices through the lens of social media also reveals a need to reconsider how we evaluate meaningful use of online social media by seniors. Current theories of how people use online social media, form identities, and maintain relationships in online spaces focus on younger populations. The signifiers of online social status for a young adult, such as content of one's profile or number of friends on a SNS [24, 4], are likely to manifest in far different ways with older adults. Older adult social status is better understood by examining the strength or closeness of relationships rather than quantity, the quality and credibility of information shared on one's profile, and the presence of both digital and paper-based media that represent social relationships (e.g., printed photo albums, hand-written letters). A more holistic view of *what is social media* for seniors is required.

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[2]U.S. population born between 1946-1964
[3]U.S. population born between 1977-1992

CONCLUSION

This paper explores older adults' attitudes and uses of online social media. We studied older adults who are interested in improving communication with their family and friends, yet these seniors rarely use social media to connect with members of their social networks. As a whole, older adults value deeper, well thought out, carefully crafted social communications that are achieved through telephone calls, e-mails, and written letters. Issues of privacy, information credibility, and content relevance are key reasons for not using social media. Participation on social media sites requires a time commitment and there are expectations of reciprocity. Encouraging seniors to connect with weak ties may deter use. While older adults perform many social functions that could be supported by online technologies, few seniors use such systems. We hope that understanding seniors' concerns with social media and the ways in which they manage and interact with their social networks will inform the design of more inclusive online technologies as well as additional research into technologies that serve as a bridge for intergenerational communication.

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