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## What do they like? Communication preferences and patterns of older adults in the United States: The role of technology

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### ABSTRACT

With the development of information and communication technologies (ICTs), there are increasingly more Internet-based communication methods available for older adults besides traditional methods (e.g., in-person or landline phone). However, older adults' preferred communication methods remain under-investigated. The purpose of this study is to explore the communication preferences and patterns of older adults in the United States, with emphasis on technologically-mediated environments. In this study, 17 semistructured interviews were conducted with participants from a midwestern state in the United States. The goal was to examine older adults' communication patterns and preferences with family members and friends, as well as their views about the impacts of modern technology on communication. Three themes (communication preferences and reasons, communication barriers, and the impacts of technology) were generated from the interviews. The findings showed that although face-to-face communication is the most preferred method, telephone communication is the most commonly adopted method. Interviewees also shared different opinions regarding Internet-based communication. The current study illustrated the importance of understanding the preferences and patterns of older adults' communication needs and desires.

A significant activity in older adults' lives after retirement is staying in touch with their friends and family members. Pew Research Center (2013) reports that older adults in the United States (U.S.) think that being able to communicate is an extremely important (49%) or very important (44%) characteristic of a quality life in older age. Therefore, improving communication and the quality of communication for older adults may have a profound impact on their general quality of life and well-being.

As the use of information and communication technologies (ICTs) has proliferated in the U.S., as well as in many other societies, changes in communication patterns and preferences have emerged. Whether it is through texting, e-mailing, mobile phone calling, or communicating via Skype or Facetime with friends and family members, the range of ways to communicate is more extensive than it has been in the past. ICTs offer unique opportunities for older adults to stay in contact with friends and family, irrespective of geographic distance and limited mobility.

Although older adults are increasingly using ICTs for a variety of purposes, little is known about their communication patterns and preferences in today's age of new communication methods. To fill this gap, using a qualitative approach, this study explores the communication patterns and preferences of older adults with specific emphasis on technology.

## Literature review

Older adults grew up in a time when options for communication were more limited than they are in today's society. Face-to-face contact, communication via written documents (i.e., typically letters), and talking on landline telephones were the predominate modes of communication prior to the advent of the Internet and mobile phones (Dickinson & Hill, 2007). With the development of mobile and digital technologies, there is now a range of additional options for communicating with social ties. However, older adults face specific challenges that can affect their communication patterns and preferences.

The communication patterns of older adults are driven by many age related complications such as mobility, vision, and hearing issues (Coughlin, 2005). For example, older adults with less physical mobility find it particularly difficult to maintain active social life and stay in contact with friends and family (McMellon & Schiffman, 2000). The consequences of physical impairment, as well as lack of social support, have also been linked with increased loneliness and dissatisfaction towards life (Mellor & Edelmann, 1988). ICTs have been found to be helpful for older adults with limited mobility (Erickson, 2011).

These health declines affect how older adults interact with others and the time they spend socializing. However, advances in ICTs can help to negate the negative impacts to some extent. The emergence of ICTs has been found particularly useful for older adults to stay in touch with friends and family members (Coughlin, 2005). Long-distance communication through e-mail or phone has been found to be particularly helpful in sustaining relationship closeness for older adults. For instance, many older adults living geographically distant from their grandchildren had more phone and e-mail communication, with high levels of satisfaction, compared with individuals communicating in-person only (Holladay & Seipke, 2007). However, older adults also perceive e-mail communication to be lacking the personal touch they experience using phone calls or letters (Dickinson & Hill, 2007; Lindley, Harper, & Sellen, 2009).

Although phone calls are a very important method of communication for older adults (Dickinson & Hill, 2007), this method of communication is not without its challenges. For example, older adults experience reduced cognitive capabilities, which impact their ability to respond instantly (Ryan, Anas, Hummert, & Laver-Ingram, 1998). Chronic pain or other health conditions may limit the ability to hold phones or the length of time they can be held (Benjamin, Birnholtz, Baecker, Gromala, & Furlan, 2012).

Video communication has been shown to be particularly instrumental in bringing together geographically dispersed grandparents and grandchildren (Ames, Go, Kaye, & Spasojevic, 2010; Judge, Neustaedter, & Kurtz, 2010). It has also been used by older adults to keep in touch with family both at home (Kirk, Sellen, & Cao, 2010) and during travel (O'Hara, Black, & Lipson, 2009). Facebook is also increasingly becoming a part of older adults' communication. It has been estimated that 7% of Facebook's one billion users are 55 years and older (Johnson, 2012). Facebook's membership grew by 80% among older adults (55+), which is faster than growth seen in any other age group (Neal, 2014). Prior research examining social and digital exclusion has found that conversations on Social Network Sites (SNS) can be a way to reduce isolation and loneliness as well as increase involvement in family life among older people (Bell et al., 2013). In addition, SNS usage aids in maintaining intergenerational communication (i.e., between older adults and children or grandchildren) (Harwood, 2000; Nef, Ganea, Müri, & Mosimann, 2013).

Although research is increasingly illustrating the beneficial impacts of ICT use for older adults, older adults still lag behind other groups in using ICTs. Fifty nine percent of individuals aged 65 and older report using the Internet (compared to 86% of all adults), with 77% reporting use of cell phones (versus 91% of all adults) in the U.S. (Smith, 2014a). However, among older adult Internet users in the U.S., 71% of them go online daily and an additional 11% go online three-to-five times per week in the U.S. (Smith, 2014a).

Poor health conditions, disabilities, skepticism towards technology, lack of perceived usefulness, and difficulty in learning how to use technologies are key challenges faced by older adults in

adopting technologies (Berkowsky, Cotten, Yost, & Winstead, 2013; Czaja & Sharit, 2012; Smith, 2014a; Winstead, Anderson, Yost, Cotten, Warr, & Berkowsky, 2013). Other research shows that older adults may not fully realize the benefits of investing time and energy into learning ICTs such as computers or cellphones (Laguna & Babcock, 1997; Zimmer & Chappell, 1999).

The studies discussed above have investigated older adults' communication behaviors as well as their technology adoption. Although most of the studies focused on how perceptions or behaviors of older adults are changed as a result of technology use, less research has focused on older adults' communication needs and preferences. The current study aims to fill this void by exploring older adults' existing communication patterns and preferences with specific emphasis on ICTs. In order to understand the rationale of older adults' communication preferences, we utilize Media Richness Theory as a theoretical framework grounding this research.

### **Conceptual framework**

Relevant analytical frameworks for this study are derived from a collection of views labeled the cues-filtered-out perspectives (Culnan & Markus, 1987). Such perspectives highlight the existence and impacts of reduced cues (e.g., gestures, facial expressions, intonation, and body language) when interacting through computer-mediated communication (CMC). For example, Social Presence Theory (Short, Williams, & Christie, 1976) indicates that as a result of the reduced cues experienced through CMC, there is also a reduction in the ability to convey and experience interpersonal impressions and warmth.

In addition, Media Richness Theory (Daft & Lengel, 1984, 1986; Daft, Lengel, & Trevino, 1987) posits that while in-person interactions are rich, text-based channels are lean. The richest medium is the channel that affords the most cues and the leanest is the channel that supports the least amount of cues. As a result, media richness theorists argue that richer channels are better suited for tasks that are more complex and require extensive back-and-forth (e.g., discussing emotions); text-based channels are better suited for interactions that are more straight forward (e.g., confirming an arrival time). Therefore, this theory also argues that in-person interactions are better suited for maintaining interpersonal relationships.

Because of the reduction of cues experienced through mediated channels, many scholars have questioned the ability for individuals to experience meaningful bonding and maintain quality relationships through CMC (Magnusson, Hanson, & Borg, 2004; Selwyn, 2004; Selwyn, Gorad, Furlong, & Madden, 2003). However, in some instances, communicating via mediated channels is the only option the majority of the time (e.g., geographically distant relationships). This notion of reduced cues and distance is especially relevant for older adults as these individuals may experience several physical limitations that prevent their ability to experience in-person interactions more frequently (e.g., loss of mobility) or successfully participate in CMC interactions (e.g., loss of vision/hearing).

### **Research questions**

This study explored U.S. older adults' communication patterns and preferences in close interpersonal relationships (e.g., families and friends) and the role of ICTs in these processes. As such, four research questions were raised:

- RQ1:** What communication methods do older adults use and how?
- RQ2:** What communication methods do older adults prefer and why?
- RQ3:** How do older adults perceive technology use for interpersonal communication?
- RQ4:** What barriers exist for older adults to use communication technology to communicate with family and friends?

## Method

In order to examine these issues, 17 semistructured interviews were conducted to gather information on the general patterns, preferences, and issues regarding older adults' communication. Interviewees were primarily female ( $N = 12$ ) and White ( $N = 13$ ), with age ranging from 66 to 96 ( $M = 77$ ). About half of the interviewees lived alone ( $N = 8$ ), with the rest of them having more than one person in their household. Interviewees were recruited from a local senior center in the midwest region of the United States. An informational session was held at the senior center to recruit subjects, information was distributed through the senior center's membership newsletter, and flyers were posted on an information board. Interviews were conducted in-person at the senior center, the interviewees' homes, the interviewer's office, and local coffee shops. At the beginning of each interview, the interviewee was asked to sign a consent form and complete a one-page demographics survey. At the end of the interview, interviewees received \$20 each as an incentive for participation in the study.

### *Interview questions*

The interview questionnaire consisted of three sections: (a) communication preferences with family members, (b) communication preferences with friends, and (c) perceptions of the impact of current ICT advancement on their lives and the lives of others. Questions also explored communication frequency and preferred methods of communication, as well as the level of satisfaction with existing communication methods.

### *Data collection and analysis*

All interviews were recorded, transcribed, and coded separately by two-to-four researchers. The inductive thematic analysis technique was used for data analysis (Braun & Clarke, 2006). The codebook was developed using the first four interviews and the general research questions of interest. The codes were discussed by the research team in order to generate a set of themes capturing the main essences of the interviews. Finally, the research team refined the theme labels and definitions by merging, adding, or removing redundant codes. Emergent themes and representative quotations are discussed in the results section. Pseudonyms are used in reporting to protect interviewees' privacy.

## Results

In the following sections, three themes from the interviews will be explored: communication preference and reasons, communication barriers, and impacts of technology.

### *Communication preference and reasons*

Participants' communication preferences and frequencies varied due to several social factors including location of social ties, availability of social ties, and access to technology. However, following this variability, several clear patterns emerged from the data.

### *In-person communication*

Of the older adults interviewed, the vast majority of them indicated that they preferred in-person communication with their social ties. In-person interactions allowed them to be in the presence of the other person, see their expressions, and experience more engaging interaction. Some interviewees

were also cognizant of being older and having a reduced lifespan, which influenced their preferences for communication. For example, Lily indicated the following:

I wish I could do it face-to-face with them more. Yes. Because I am older you know, I think, gee, I don't have a lot longer to live, I want to see my kids. I want my kids to be . . . You know, it is much better to be face-to-face than anything (Lily, 68).

Unfortunately, however, in-person interactions were not often an option. Many respondents noted that they did not communicate with some of their contacts face-to-face as often as they desired because of the geographic distance. For example, a female interviewee indicated the following:

I would rather see them face-to-face, but one of my daughters lives four hours away from my house, so it is impossible. So you cannot see them face-to-face very often, and the one in Howard is super busy (Susan, 71).

### **Phone communication**

When faced with other options for communication, many older adults noted the phone as a primary conduit for communication. Talking on the phone was the next best option because it afforded the opportunity to hear the voices and vocal cues of social ties that often aid in communication. Many interviewees noted talking on landlines or cell phones from several times a week to once a week or less depending on the social tie.

In general, phone communication was seen as allowing emotions and impressions to be conveyed.

So, you see if I can't see them, I need to be able to communicate in some way. That's why I use the phone . . . Oh yea, I can tell when they are mad, or upset, yes. And they can feel when I cry (laugh) (Lily, 68).

However, a few older adults noted that their habits or lifestyles impacted their preference for landlines or cellphones. For example, Liz also expressed that "I don't like them to call me on the cell phone. Because I don't carry it all the time. I prefer that they call me on the landline. Because we'll always hear it." (Liz, 66). Similarly, Bob said, "As long as I'm working, I didn't want a cell phone, 'cause I didn't want people to call me when I'm working" (Bob, 82).

Related to cell phones, a few respondents noted texting as one way that they stayed in contact with their friends and family members. Most interviewees who reported texting noted that they used it because their family members used it more than e-mail or phone calls. This was especially the case when they were talking about younger family members, like grandchildren, who utilize texting as a main mode of communication. However, many noted that only a few of their friends used text messaging:

I don't know that I would necessarily text my friends, because frankly, a lot of my friends are like I am. They don't text or, if they do text they don't text as much as other people. I think that the older generation . . . there could be exceptions, but my friends don't text that much. Even the ones that have the smartphones don't do it (Linda, 77).

Moreover, texting helps to overcome issues, such as physical disability (e.g., loss of voice or hearing): "Because she can't talk, at least when I text, I can text something to her and she is able to respond, not have to have her husband, you know, respond for her" (Lily, 68).

### **E-mail communication**

E-mail was the next most frequently used mode of communication. While only a few of the older adults reported using e-mail for communication, the ones that did use it enjoyed the convenience and the written experience. Interviewees reported e-mailing to eliminate the feeling of being bothersome to their family or friends. In other words, due to the asynchronicity of e-mail, their loved ones could receive and respond to their e-mailed message when time permitted without it interfering. In addition, it was sometimes more convenient for the older adults as well:

[A phone call] just takes longer. And, because our hours are so different from West Coast to here, I have to do more finagling to figure out when to do it. Whereas e-mail, I can just get up in the middle of the night if I want to and send 'em an e-mail. They'll get it ... whenever (Amber, 82).

### **Skype communication**

Although Skype is a feature that offers verbal as well as visual communication, few older adults reported using it. Some reported not using it because they had no one to use it with: "I know it's in my computer, but I don't know anybody that has Skype on the other end, so it doesn't do me any good to have it. [laughs]" (Amber, 81). Others believed Skype to be an irrelevant communication method: "No, it's not that important to me. I, I have a visual ... image of them, all, don't need that" (Megan, 72). However, of the few who did report using it, they noted that it was great seeing someone face-to-face as well as hearing their voice:

[Skype] could be almost as good as the direct because you can see the person. And you can see that, if they're talking to you ... You can't reach and hug somebody on Skype, but you can get pretty close, you know, to that kind of reaction (Linda, 77).

### **Social media communication**

In terms of other social media sites, openness to, and preference for, using them varied; some older adults were very skeptical about adopting these relatively new communication methods, while others were very open to using them. However, social media are still not the dominant or preferred methods of communication for older adults. Emily confirms this by noting the following: "Twitter, I never can do that too well, I tend to get too talkative, it's like "Really? I can't send the whole thing?" So ... uh, probably not Twitter" (Emily, 70).

Among the few older adults who reported using Facebook, most of them were merely lurkers, keeping watch over what their friends and family members posted: "I look at what they post, the daughter-in-law posts things on Facebook, I look at, that's how I get some of the pictures they haven't sent me that they promised. I'll go and see what she's put on Facebook" (Emily, 70).

As these results illustrate, older adults reported a range of ways that they communicated and stayed in contact with their social ties. In-person interactions were, by far, the most preferred method of communication, followed closely by phone communication. Few respondents reported using Skype, e-mail, or texting, but those who did varied in their preferences. The frequency of communication with social ties also varied depending upon a range of factors.

### **Communication barriers for older adults**

Older adults face various barriers when it comes to maintaining communication with their family members and friends; they experience greater difficulty when those interactions involve technology. There were five overarching themes that emerged related to barriers older adults face when communicating with their family members and friends: availability, access, lifestyle, physical limitations, and privacy.

One of the biggest barriers for older adults to communicate was the limited availability of family members. Many interviewees indicated that, because their children are very busy with their work or family, it becomes difficult for them to spare time to communicate with the older adults more often. For instance, Laura explained her daughter's family situation:

You know, uh... she's very busy. Um ... she's got three children, I have three grandchildren there. So ... she's so busy, it's sometimes hard to get- so I do, I will e-mail her. But I'd say that's maybe once a week (Laura, 79).



And Janice shared similar experiences with her daughter: “They’re very, very busy. She is an accountant. She walks to the ... train, takes the train into Chicago ... Train back from Chicago. So, you know ... they’re busy.”

Meanwhile, when it comes to communication with grandchildren, interviewees indicated that their grandchildren might want to spend more time with their friends rather than their grandparents. For example, Laura mentioned that “they like to be with their friends more ... she has tons of friends, and a lot of her time is taken up communicating.”

Having access to people and communication technologies was one of the barriers that emerged. For example, Lily (female, 68) expressed interest in communicating using Skype and text messaging but was unable to because her interaction partners do not use these communication methods. In addition, Amber (female, 81) wanted to communicate via Facebook but did not have access to her friends’ private profile pages. However, not all access issues revolved around the other person’s use of technology. For example, John (male, 80) indicated an inability to use Skype for lack of a camera-enabled computer as well as not text messaging due to ignorance about texting “vocabulary.” John added to this notion of access by expressing openness to using computer but lacking the technology to use it: “It’s (laptop) getting old now, so the battery’s not very dependable ...”(John, 80).

Lacking access to these technologies, in combination with one’s lifestyle, also hindered the ability to communicate frequently with others. For example, Lily indicated the following regarding how frequently she communicates with friends:

I think it will help if I am at home more often. You know, now because of my work I am home more often and the weather is horrible, so you don’t get outside. I guess it is probably it. When summer comes, it gets warmer, I will be able to visit them more. Right now, by the time I am out of work, I am tired, several times it is just late, so I don’t get to (Lily, 68).

An additional lifestyle theme emerged with an emphasis on time. Several interviewees noted “busyness” as a limitation. Instances of busyness involved situations like the interaction partner’s travel schedule, job responsibilities, family obligations, and interaction preferences. For example, when discussing her grandchildren, Linda (female, 77) noted, “They like to be with their friends more. And, it’s not that they reject me; they’re very nice and kind to me. But, I just wish I had more time and they had more time.” Peggy (female, 96) noted something similar: “Oh, I’d like to talk to my son more often. [laughs] But he’s a busy motorcycle guy. [laughs] With- he’s divorced, girlfriends. [laughs] So he’s pretty busy.”

Besides the barriers that occur due to lifestyle, other communication barriers may result from unavoidable circumstances, such as physical limitations of older age. John highlighted one such barrier:

It’s a little bit difficult for me to hear on the phone; certainly more difficult than it used to be anyway. And, um. ... so, I live... in a world that’s kind of separated from the rest of the world, simply because I don’t hear as well (John, 80).

Moreover, physical limitations were present for communication partners as well. For example, Lily explained why she could not communicate with her friend very often:

She is not able to talk, so she has to have a, like an iPad thing in front of her, so I can message her, or go visit her. But, that’s the way we kind of communicate ... when I call her, usually her husband will answer, and so he passes the message to her, so she will go back. Like I said, I don’t call her as often as I do (Lily, 68).

Another common concern from older adults, which also resulted in a barrier to adopt modern ICTs, was a lack of desired privacy. This concept was echoed by several interviewees, like Steve, who noted, “I don’t wanna have any ... personal information on Facebook, and so, I don’t use Facebook. Although I have an account, but I don’t use it. It’s confusing. For me” (Steve, 70). Additionally, Emily added that this potential lack of privacy could become a security issue:



I'm not too sure about how safe Facebook is, 'cause you keep hearing all kinds of bad things about how open it is to- I know that I'll be looking for something, and all these people's pictures will pop up I don't know, and I'm going I don't really want all these strange people to see pictures of, you know, my family, my house, anything like that necessarily (female, 70).

Video conferences communication methods provoked privacy concerns as well. Susan shared the following about Skype:

I think Skype is the great thing. But I don't want to be on camera. If my son were overseas, we would not be Skyping ... There are incidents that people forgot to turn off the camera, and you see them in Dr. Phil. Bad things like that happen. I don't want to (Susan, 71).

### ***Roles of technologies and their impact***

As discussed in the literature review, ICT usage has the potential to impact the quality of communication. Interviewees were asked to share their viewpoints about ICTs in terms of the impact on communication quality. The resulting views support much of the previous findings.

Generally, all interviewees reported overall positive views about the advancements in technology:

I think technology has certainly... given us a lot of opportunities ... they just have to be used properly. ... they do give you more chances to ... communicate when you can't be there. When you don't feel like writing a whole letter and mailing it (Emily, 70).

Using these technologies brings convenience and comfort to older adults in various ways. For example, some interviewees mentioned that texting could be considered an alternative solution when voice communication is a challenge: "Because she can't talk, at least when I text, I can text something to her and she is able to respond, not have to have her husband, you know, respond for her" (Lily, 68).

In addition, older adults appreciated the availability of technologies like Bluetooth-enabled cars to make phone calls while on the road:

If I get a message on my phone at home, that one of my sisters has called, then when I'm going somewhere, and I know I'm gonna be in the car for 10, 15 minutes, I can call her (Susan, 71).

Some interviewees indicated that, although technology does provide convenience for people's lives, it requires the positive engagement and willingness from older adults: "There's so many apps out there now, that can really help you, to communicate with people you wanna communicate with. But you have to make an effort" (Steve, 70).

Despite interviewees acknowledging the positive impacts of ICT use on communication quality, they also emphasized the need for in-person communication:

I am glad for the phones that at least we are able to talk to somebody, but I think, the face to face, is what you need, you can express yourself better by face to face. And over phones, texting, or messaging or whatever (Lily, 68).

However, when the interviewees were evaluating these modern ICTs, they also highlighted some of the resulting disadvantages. Although the initial goal of many ICTs is to bring convenience to people's lives, some interviewees indicated that to keep up with the technology they need to constantly update the software, which is very inconvenient:

I wish things can keep at 80s ... I don't want to update anymore, I want my computer to stay this way, I want my smartphone to stay in this way. I am tired of trying to keep up with you. But the problem is, technology goes up, and what you have doesn't work, and then you lose what you have, that's the part I don't like (Susan, 71).

Other than the advantage of technology, interviewees also expressed their concern about the influence of technology in people's lives. For example, Emily talked about the excessive use of technology, such as multitasking while driving:

Very few people can multitask. They might think they can, but people are just not capable of . . . looking at a picture, or thinking of what they're going to write next, and, uh, or say next even, very well, and drive, or do whatever (Emily, 70).

Many interviewees discussed the positive and negative effects of ICT use on their communication patterns with both friends and family. For example, several interviewees admitted that Facebook provided an easy way to keep updated on the life events of their friends or family members. For example, Linda (female, 77) indicated that "I read Facebook from my daughter, who's in Okemos here, but I don't, I rarely make a comment. I like to be informed, but I don't respond as much." However, interviewees also shared their concern about the negative impact of Facebook on isolating people from offline social life:

Twittering . . . and Facebook, they have allowed people to become so, so isolated, physically, from one another, that our society is deteriorating, in its ability to coalesce around a common problem, common solutions, and so forth. Everybody is thinking mentally of me, me, me, me, me (John, 80).

## Discussion

Our results indicate that older adults interviewed in this study from the midwest region of the U.S. prefer to communicate in-person rather than via mediated communication. The findings of this study helped us to better understand the preference of older adults and may help ICT developers to better customize communication tools to meet the needs and desires of older adults. This preference can be explained in several ways. First, communicating in-person is conventionally the most frequently used and familiar method for older adults (Dickinson & Hill, 2007). Second, in-person communication is the richest form of communication offering the most interaction cues, as indicated by the cues-filtered-out perspectives (Daft & Lengel, 1984, 1986; Daft, Lengel, & Trevino, 1987). However, our findings indicate that there is another level to these cues-filtered-out perspectives.

Following in-person interactions as the overarching preference for communication by older adults, there was no clear-cut runner up in terms of communication preference. The reason for this may be that preference is not only about the availability of cues, but also about individuals' ability to experience these cues. For example, based on the cues-filtered-out perspectives, one might think that second to in-person interactions would be video calls. However, some interviewees disliked this method due to the technical difficulties they experienced (e.g., delayed speech and choppy video). One might also think that phone calls would come in as a close second for older adults. However, for those individuals who were hearing impaired, this was not the case; their preference was for written communication, such as text messaging. Therefore, there is seemingly another dimension to the cues-filtered-out perspective that has not been examined to date; the richness of the medium must be examined in conjunction with the users' ability to experience what the medium offers. It will be important for future research to examine the effects of these potential moderators of older adults' communication preferences.

In terms of social media, the way older adults utilize Facebook is very different from other generational groups who use it. The majority of the population uses Facebook to interact with friends (e.g., sharing photos, receiving support from people in your network, talking with friends) (Smith, 2014b). Older adults seem to use Facebook for a much simpler purpose: to stay informed of what their family members and friends are doing by reading their posts or lurking. This behavior can be explained by their level of trust with the Internet and the privacy concerns they reported. Future research might explore whether older adults perceive communication on social media differently from other generations.

While multimodal connectedness is dominant in our society, with most people utilizing various modes for communication, older adults appear to be less multimodal than other age groups due to their lack of technological access and use. However, many interviewees also admitted the positive

impacts of modern communication technology in aiding their communication quality and social life, which is consistent with findings from prior research (Chan, 2015). Research on individuals in assisted and independent living communities found that using the Internet allowed older adults to overcome both social and spatial barriers (Winstead et al., 2013). However, it can also jeopardize the existing communication preferences of older adults.

This study was conducted in the U.S with the advanced ICTs as background. It should be noticed that in other areas, especially those developing countries, the popularization of Internet and ICTs might not be the same. However, the findings in the current study could still be valuable for researchers or practitioners regarding understanding the challenges (i.e., learning obstacles, physical abilities, etc.) and desires (i.e., face-to-face communication, voice expression, etc.) of older adults in the rest of the world.

### **Study limitations and future research**

This study is not without its limitations. The sample size was small ( $N=17$ ) and relatively homogenous (e.g., predominantly Caucasian). As such, future researchers should further investigate this topic with larger and more diverse samples. The sample was derived from only one senior center in the midwest region of the United States. It may be that older adults in other regions of the U.S. and the world have different communication patterns and preferences; they may also use ICTs differently than the interviewees in this study.

Ideally, it would have been helpful to see how the older adults in this study actually used their ICTs over an extended period of time and analyze communications that were conveyed by the different modes. However, this was beyond the scope of the present study. Future researchers may find it useful to examine the patterns, as well as the barriers, identified in this study. This will aid them in conducting larger, more extensive studies examining the roles of ICTs in communication for older adults. In addition, future researchers should investigate the identified factors that seemingly influence each barrier identified in the current study to provide more specific aid for older adults. For example, future researchers should explore more about the privacy and trust concern with social media as well as older adults' physical limitations such as hearing and mobility issues.

In terms of practical implication, the findings of this study may help ICT developers to better customize communication tools to meet the needs and desires of older adults. Designers should also take older adults' physical and psychological characteristics into consideration. For example, developers should critically consider how often software updates are needed to minimize the challenges with learning curves among older adults. Being cognizant of privacy concerns might also inform ICT development and policies regarding who can gain access to information placed on SNSs.

Future intervention efforts with older adults could utilize the results of our study to suggest specific modes of communication that may appeal to older adults, particularly in relation to ICTs. However, as our results suggest, there are multiple factors that affect whether older adults embrace the use of ICTs: self-efficacy (whether they have the capability to adopt the technology); beliefs (older adults' perceptions of the technology); evaluation of difficulty (the expected effort involved in using the technology); social influence (whether friends and family members use the technology or think the older adult should use the technology); past experiences (their previous experience that influences their current technology adoption behavior; Barnard, Hodgson, & Lloyd, 2013); and attitudes toward learning a new technology (Berkowsky et al., 2013).

### **Conclusion**

Using a qualitative approach, the current study expanded the limited research on older adults' communication patterns and preferences as well as their use of ICTs. Results suggest that older

adults' communication preferences are impacted by several factors including media richness as well as lifestyle and social circumstances. As ICTs continue to evolve and proliferate society, additional studies with larger and more diverse samples are needed to further elucidate the patterns for communication and to determine whether these patterns hold across regions, demographic groups, and communication methods.

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