

# Concepts, Terms, and Mental Models: Everyday Challenges to Older Adult Social Media Adoption

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**Abstract.** Social connection and social support are strong predictors of well-being, but maintaining social relations often becomes more difficult at older ages. Because social media enhance feelings of connectedness and reduce feelings of loneliness, they may present accessible and relatively low cost mechanisms to enhance life quality at older ages. Using data gathered from two focus groups of potential older adult social media learners, we explored the physical and cognitive challenges to social media use, perceptions of social media benefits, and conceptual barriers to use. Findings support earlier studies that identify perceived benefit as important to social media adoption at older ages, and extend these by identifying that a lack in conceptual knowledge of these technologies is an additional barrier to use. We then discuss the cognitive implications of gaining this knowledge.

**Keywords:** Older adults · Social media · Social connection · Social support · Perception of benefit

## 1 Introduction

Social connection and social support are strong predictors of well-being at all ages: individuals with larger and stronger networks are healthier and experience greater social support and reduced levels of cognitive decline [1] than those with lower levels of social connection. Yet, maintaining social relationships often becomes more difficult at older ages due to retirement, bereavement, mobility limitations, and chronic disease. Retirement and the death of spouses and friends make older adults more vulnerable to loneliness and social isolation, factors that are linked to depression and mortality [2, 3].

Newer communication technologies, including social media platforms like Facebook and Twitter, have rapidly gained prominence because they enhance social connection. Preliminary studies indicate that communication through social media enhances feelings of social connectedness [4] and reduces feelings of loneliness [5]. Social media platforms, therefore, may present accessible and relatively low cost mechanisms to enhance social well-being and life quality at older ages.

While popular images in the media portray youth and young adults as the most active users of social media, recent studies indicate that older adults are rapidly adopting these technologies to communicate with friends and family [6]. However, as with other forms of new technology, training support is often necessary to reduce perceived barriers and

stimulate technology use at older ages [7]. Therefore an important first step is to explore training needs and potential obstacles for social media's use. What are prevalent attitudes regarding the use of social media for social connection? What perceived benefits are attributed to social media use? What potential barriers inhibit using these media?

This study represents the initial phase of a larger study that examines how social media technologies might be employed to offset health risk factors and improve health outcomes in an aging population. As an initial step, we address the question, "What are the perceived challenges and benefits of social media use among older adults?" Two focus groups were conducted with potential older adult social media learners to explore the physical and cognitive challenges to social media use, perceptions of social media benefits, and conceptual barriers to use. This paper presents findings from these focus groups. We discuss potential obstacles to social media use and potential cognitive implications that may result from social media skills training.

## 2 Older Adults and Social Media

The internet is increasingly part of everyday life, and it has spawned new communication technologies that have diffused rapidly throughout society [8]. Social media, especially, have become a near universal means of interacting, with platforms such as Facebook and Twitter enabling users to easily share information and maintain connection. These "networked communication platforms" enable users to construct a unique profile that contains identity information, maintain visible lists of connections to other users, and view streams of news, information and comments, along with system-generated content such as birthday reminders and sponsored advertising [9]. In addition, the platforms feature "one-to-many" broadcast capabilities which facilitate the dissemination of information between users. Although social media are most commonly characterized as social network sites such as Facebook and Twitter, social media also include online communities, like SeniorNet and GreyPath, content-sharing sites such as YouTube, and discussion boards such as those on AARP.org.

Today, approximately 60 % of US and UK adults over the age of 65 years report using the internet to look for information and communicate with others [10, 11], a substantial increase from a decade ago. The use of social media is growing rapidly as well; in 2014, for example, more than 56 % of US adults over the age of 65 and more than 30 % of UK adults over the age of 65 reported using these media [12, 13]. However, despite these increasing levels in social media use, levels of engagement lag that of youth and young adults by a considerable degree.

Because of social media's significance to other societal age groups, researchers have attempted to identify reasons for these slower adoption rates and high levels of non-use at older ages, and studies have highlighted two dimensions that may contribute to the disparity: the physical and cognitive changes associated with aging, and attitudinal factors such as concerns about privacy and/or a lack of perceived benefit resulting from technology's use. In addition, deficiencies in digital skills at older ages may play a role, and therefore several studies have highlighted the importance of basic technological training for increasing usage rates.

## 2.1 Physical and Cognitive Challenges

As individuals age, they encounter physical and cognitive changes that impede the ability to interact with technology. Declines in motor response time, coordination, and the ability to maintain continuous movements make using an input device like a keyboard or mouse more challenging [14]. Difficulty with fine motor control impacts the ability to click, drag and locate position on a screen [15], and becomes especially inhibiting as devices become smaller and more tactile. Visual acuity, color perception, and contrast discrimination tend to decrease with age [16] and this impacts how screen-based materials are interpreted. Hearing deficiencies also increase at older ages [31], and impedes the recognition of synthetic speech and reduces sensitivity to pure tones [17]; while a lesser concern in the visually-oriented web environment, hearing deficiencies are increasingly relevant with the proliferation of multimedia content.

Cognitive functioning also plays an instrumental role in social media use. Most adults experience age-related declines in cognitive functioning that are not clinically recognized. Typically, cognitive functioning improves until approximately the mid- to upper-20s, followed by a steady decline throughout adulthood, with the greatest declines occurring around age 80 [18]. This holds true for most critical aspects of cognition including processing speed, reasoning, visuospatial skills, and memory [18], with the exception of crystallized intelligence—that is, learned or acculturated knowledge—which remains relatively stable until late life [18, 19]. Certain behaviors including social engagement and cognitive engagement (i.e., learning) are capable of enhancing or preserving cognitive functioning in late life [20]. What is unknown, however, is whether engagement in social media positively impacts cognitive functioning in late life.

## 2.2 Attitudinal Factors: Privacy and Perception of Benefit

Concerns about privacy and personal security, often fueled by media reports, prompt older adults to be cautious about providing personal information to social media platforms [21]. In addition, concern that individual privacy may be breached leads some older adults to avoid online interactions with other users [21, 22]. The privacy controls embedded within social media platforms, intended to offer users control over privacy management, are often difficult to implement [23], leading some older adults to lack confidence in their own ability to protect themselves during use. As a result, older adults may perceive that social media technologies have more risks than benefits, and therefore are less likely to use them.

Lower levels of social media engagement may also result from a lack of relevance to everyday living. Perceived benefit is a strong motivator for technology adoption at older ages [24], so a failure to understand social media's potential benefits may inhibit its uptake [22, 25]. Social media are often considered a lesser form of interaction than more traditional communication forms [22, 26], so older adults may opt to engage in richer media, such as a telephone, to communicate with others. In addition, social media are sometimes viewed as a forum that is oriented toward youth [23], which potentially deters older users.

Older adults who perceive higher benefits from social media participation are more likely to use it [25]. Connection with family members is an important reason to consider using social media [26]. Social media adoption is dependent on a ‘critical mass’ of one’s friends and acquaintances also using the specific platform [27], which may suggest that having fewer peers with which to connect diminishes the relevance of the medium [22].

### 2.3 Training and Support

Finally, older users often cite a lack of skills, or lack of confidence in their own skills, as reason to not engage in social media [22, 26]. Instructional support engenders social media participation [26], and specifically can address issues related to a perceived lack of benefit of their use [7] and concerns about privacy [21].

Few studies address the learning processes and strategies which older adults utilize to gain technology skills and master technology concepts, despite their importance to technology adoption. One ethnographic study of the learning strategies used to master technologies such as word processing and email found that older learners prefer learning collaboratively and informally. They also place a priority on taking their own notes over reading books or magazines, perhaps to compensate for perceived challenges such as age-related declines in fluid intelligence and memory [24]. Older adults also tend to orient their learning activities toward addressing real-life needs [24], underscoring the importance of perceived benefit in technology use.

In summary, research on the challenges facing older adults in their social media adoption has focused on three primary dimensions: age-related declines physical and cognitive abilities; privacy and perceived benefit of the technologies involved; and the need for user training to address a lack of skills or confidence. However, limited attention has been placed on practical dimensions of social media skills acquisition.

To further explore the everyday challenges and obstacles related to the acquisition of social media skills in a workshop setting, and ultimately to the everyday use of social media, this study attempts to address the question of, “What are the perceived challenges and benefits of social media use among older adults?” Using data gathered from two focus groups, we examine baseline awareness of social media platforms and perceived barriers and motivations for their use.

## 3 Method

Two focus groups were conducted to understand the practical challenges in facilitating social media skills. A moderator guide was developed and administered by the study investigators, covering topics of social media use; sources of social connection and support; loneliness; and barriers to and motivations for social media use. Three popular social media platforms were used as context for the discussion—Facebook, LinkedIn and Twitter. The focus groups were conducted as part of a larger study which explored the cognitive and social effects of social media use by older adults; this paper specifically highlights findings related to the everyday challenges to skills acquisition for using these technologies.

### 3.1 Participants and Recruitment

Two sponsor independent living facilities (ILCs) in the Midwestern United States provided access to a pool of potential participants; these included both residents of the ILCs and older adults living in nearby communities. ILC residents were recruited through newsletter announcements as well as in-person presentations made by the principal investigators. Community-dwelling adults were recruited using a quarterly newsletter announcement which was mailed to older adults living within a 5-mile radius of the facilities.

Participants were screened for inclusion criteria, which included a minimum age of 65 years and being cognitively intact, as determined by the Short Portable Mental Status Questionnaire [28]. The final group consisted of 16 adults, ranging in age from 65 to 72 years. Seven participants were male and four participants were ILC residents, with the remainder residing in nearby communities.

### 3.2 Procedures

Two focus groups were conducted. Each began with a brief description of the three social media platforms of interest, followed by questions involving baseline familiarity, accessibility, and perceptions of each platform. The sessions lasted for approximately 90 min each, and were audio recorded and transcribed for further analysis; transcriptions were verified by research assistants who had attended the sessions.

Focus group data were then analyzed by the investigators to identify themes related to perceptions of social media, challenges inherent in acquiring social media skills, and social isolation. Once these analyses were complete, themes were compared and negotiated until agreement of the findings was reached. These themes were then clustered into an explanatory framework consistent with the focus group texts.

## 4 Findings

Several themes emerged through the analysis of data as significant to the acquisition of social media skills and subsequent use of social media platforms: physical and cognitive factors affecting use; perceptions of social media benefit; and a lack of conceptual knowledge of social media generally, which included the concepts and terminology related to the platforms. The first two of these themes support prior studies of older adult perceptions of social media [7, 25], however the third theme extends previous work by detailing the ways in which gaps in conceptual knowledge of social media may also inhibit the ability to utilize these media. The following subsections will review these findings, and will discuss how conceptual knowledge of social media may enhance the potential cognitive and social benefits of using these technologies.

#### 4.1 Physical and Cognitive Challenges to Social Media Use

As previously noted, past studies have highlighted age-related cognitive and physical factors that challenge internet use [29]. Perhaps unsurprisingly then, participants highlighted similar factors when discussing these platforms, and especially when accessing through mobile technologies. Consistent with prior studies [14], they described decrements in fine motor skills which interfered with the ability to use screen-based technologies: *“I may be old fashioned [but], I still have a laptop. And I have to have a mouse, because I cannot move my finger around. I can’t do it. It won’t work. It doesn’t cooperate.”*

Similarly, cognitive changes due to aging often involve slower information processing [30], which impacts the ability to learn and comprehend new technologies quickly. Participants noted that it took longer to ‘catch on’ to new technologies than their younger family members: *“Um, the kids have tried to teach me to text. I’ve done a little bit of it, but I say I’m still confused. I’m no genius with this technology.”* The challenges in acquiring new skills may impact the willingness to attempt the process [29].

Not owning a smartphone device was also seen as an impediment to social media use, as participants observed that family members gain access through such devices. Moreover, several participants indicated a strongly functional approach to their mobile devices, emphasizing voice communication capabilities over other uses; they did not envision mobile devices as access points to social media use. One participant summarized: *“That’s what cell phones are for, to make telephone calls. You know, I’ve got a cell phone that you can take pictures and you can do all kinds of other things, and all I want to do is make a telephone call with my cell phone, to people that I want to talk to.”*

#### 4.2 Perception of Benefit

Perception of benefit is a major factor in the decision by older adults to adopt technology [25, 31], and social media, particularly, are seen as spaces for unacceptable or irrelevant social behaviors [22]. Some participants questioned the relevance of social media, noting that these platforms *“wasted time,”* were *“senseless,”* or *“unnecessary.”* One participant contextualized the use of social media as information overload, noting *“I get inundated with so much stuff, so many people, that I could care less that Joe Smith went to this affair.”*

Yet, these sentiments were countered by others who noted that mundane details were exactly the information they sought about younger family members. One woman described how she would like to know about her granddaughter’s wedding plans: *“We’re going to have the first wedding next summer. I think it’d be nice to, because they’re all over the country, to connect with [younger family members]... But I would like to see pictures. I’d like to see her dress that she picks out.”*

Another noted that he would like to connect with his grandsons by using the technologies they used: *“I think I would like to connect with them the way that they do. And that’s something I suppose I would have to ask. Because and I’d like to be knowledgeable about that and be funny too, you know.”* It was evident that the ability to

connect with younger family members is a clear and powerful benefit of using social media technologies.

Another benefit recognized by these participants is the ability to overcome age-related deficits, such as reduced mobility. One woman noted that social media might preserve her ability to socialize with more distant friends: *“We used to be quite active in different groups... And so we used to socialize quite a bit by going out, traveling often to [major city] or you know, even [another district], quite a ways up. And that way we would connect. As we’ve gotten older, we are not that eager to drive to [nearby town] at night and then come back late, so we have cut back on some of the wonderful things that we used to do. And because that comes with age. And that is one of the reasons why I would like to get interested in possibly now reaching out to some of those people through the media, because I like to keep in touch with people.”*

Though sociality is a potential benefit sought by participants, some were also quick to note potential cognitive benefits that learning something new might hold. A desire to maintain cognitive health was expressed by several, and one participant noted that change, as in adopting new ways of doing something, may be an important benefit to using technology: *“That’s why I think even though the, you know, older adults sort of take some time to change. But change is a must. Because, well, I think you’re younger when you change. You know, it’s just ‘go past the fear and jump into it.’”*

As previous research has noted, educational strategies can alter perceptions of the benefits that social media provide and reduce concerns about using these technologies [7]. The participants in this study reinforced these findings, by indicating that a training workshop is a way for them to understand social media’s benefits. As one participant noted: *“I think we need to know about Facebook, before we, before we can tell you how it’s going to help us.”*

### 4.3 Conceptual Understanding of Social Media

Throughout the sessions, questions and comments of participants seemed to indicate an interest in gaining a conceptual understanding of social media more generally. Participants indicated they had very broad questions regarding social media, such as: *“Okay, since I know nothing about this, could you explain all three of them [Facebook, Twitter, LinkedIn]? What’s the purpose of each one?”* and *“Twitter, I have no idea what Twitter does.”* One participant, who had some limited experience with a social network site, expressed confusion about platform interoperability and how different information providers might work in tandem to deliver content: *“And a new thing that I’ve been getting now on Facebook. And I don’t know how I got this, something News Link... And it’s a news story if I want to click on it I can read it.”*

Distinctions among social media technologies and their differences from other, more familiar, technologies were often unclear to participants. One individual asked, *“How is it [Twitter] really different than from Facebook?”* Another asked, *“Why can’t you just use e-mail? Because to me it’s the same thing.”*

One person described his attempts at using the internet as: *“I just don’t have the sense of how to, you know, how to describe what I’m even trying to do. Yeah, I can plug along a little bit. But as I say it’s, I find it difficult because they use a different language.”*

Often, acquiring a new vocabulary goes along with gaining new skills. Unfamiliarity with social media terminology hindered participant's understanding of how various platforms worked. As one participant noted: *"I think one of the biggest problems is the words they use in all this stuff are not in the dictionary yet. So if you go into Facebook, you know, and it says you have notification. How is that different from a message? And unless you understand what the language is you can't function."*

Social media platforms each have their own terminology associated with different concepts and functions, and frequently the same concept is referred to by different terms within and among platforms. For example, the concept of a content stream differs depending on whether it is generated by the user (a "timeline" in Facebook) or aggregated by the platform (a "newsfeed" in Facebook or a "timeline" in Twitter). Learning each platform's associated language can be a challenge to older adults who may have limited exposure to the internet. It demands conscious cognitive processing, requiring learners to process at the semantic and conceptual levels and pay attention to the form-meaning connection [32]. Learning and integrating the language of social media may be one way that social media engagement can facilitate maintenance or improvement of cognitive functioning in later life [20].

These questions also highlight the importance of helping older adults to establish mental models when developing social media skills. Mental models are cognitive representations that form the basis for an individual's reasoning, decision making, and behavior [33]; they facilitate learning by helping individuals to simplify and visualize various phenomena [34]. Mastery of internet skills involves the construction of mental models which enables learners to reason about problems, predict probable events, and discover solutions [35]. When learning to use a new technology, mental models of previous versions of such technology are important to understanding and adaptation [36]. Because social media differ functionally from predecessor technologies such as email and telephone, it is important to assist older learners in bridging differences and developing new mental models for their use.

## 5 Discussion and Conclusion

What are the everyday challenges to older adult social media adoption? Several strong themes emerged from the two focus groups that are relevant to the everyday challenges facing older adults as they contemplate engaging with social media.

First, physical and cognitive factors impact older adults' willingness to engage in social media use. Many participants indicated that their lack of general knowledge of social media platforms held them back from experimenting with their use and, importantly, they expressed a desire for adequate training and support as they initiated use. They were aware that it may take them longer to gain social media skills than their younger counterparts, perhaps due to declines associated with cognitive aging, and there was agreement that staying current with these rapidly changing technologies presents a continuing challenge. It was evident that participants not only require skills training, but also some form of ongoing support to stay abreast of new developments and answer

questions that arise as they expand use of these media. This ongoing support may be critical to maintaining continued social media participation.

Second, while many participants acknowledged that use of social media technologies might be a good way to keep in touch with younger relatives, several indicated that they did not see a clear benefit to using these media. In particular, participants had difficulty understanding the benefit of maintaining connection with weaker social relationships. For most of this generation's existence, maintenance of weaker connections was done through more traditional communication technologies such as personal letters and telephone; this process was resource intensive, requiring time, effort, and attention and held little discernible benefit. Over time, the value of these weak relationships may have been discounted due to their high maintenance cost. Yet, weak connections hold considerable value for individuals, providing distinct functions for social support: extending access to information, good and services; promoting social comparison with dissimilar others; facilitating low-risk discussions of high-risk topics; and fostering a sense of community [37]. Weak connections are maintained at a much lower cost through social media; yet, a lack of familiarity with these technologies made the reduced costs in maintaining these ties less perceptible to participants. Additional concerns about privacy made participants doubt whether weak ties could be maintained without undue disclosures. It is important to communicate the benefits of weaker connections when training older adults to use social media, along with guidelines on appropriate privacy controls and disclosure levels. This additional information might encourage continued use.

Third, developing adequate mental models may help older adults understand social media more readily. An important conceptual distinction in learning and development lies in procedural and conceptual knowledge: procedural knowledge refers to an ability to execute steps in a process, while conceptual knowledge is an understanding of the governing principles and interrelationships between concepts [38]. Both forms of knowledge are critical to understanding. Successful everyday navigation of the internet and social media requires conceptual understanding as well as procedural knowledge [39].

While procedural knowledge is important to physically navigating through social media platforms, the process of acquiring the new language of social media engages conceptual learning. Prior studies emphasized the value of procedural knowledge when training older adults to use the internet [40], favoring simplistic instruction over more cognitively-taxing conceptual learning. Yet this approach does not adequately equip older adults to navigate in 'real world' settings. Although acquisition of new concepts and terminology, such as "wall" and "timeline" may be cognitively taxing, it is precisely this process of learning that may be one of the greatest benefits of social media use at older ages. Future studies should examine whether the implicit process of conceptual and procedural learning, coupled with expanded social connectedness obtained from social media use, improves cognitive functioning among older adult users, noting that reducing barriers to learning should in turn enhance utilization and adherence rates.

In conclusion, the everyday challenges of social media use at older ages extend beyond more commonly understood age-related declines in physical and cognitive functioning. A lack in perceived benefit of social media use is a real obstacle at older ages, but one that potentially could be addressed by providing evidence of the value of maintaining weaker ties

through these media. Learning social media concepts and terminology may be cognitively taxing at older ages, yet this process of learning may hold the greatest benefit for social media use in later life.

## 6 Limitations

The voluntary nature of focus group research precludes generalizability of these results to other populations and data is potentially prone to bias resulting from its self-reported nature. Despite these limitations, the results are salient for social media researchers and site designers alike, as they provide a more nuanced view of challenges to social media adoption facing adults at older ages.

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