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New Rules of Engagement: How Adaptation To Online Media Changes Older Adults' Social Connectedness

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Older adults often struggle to adjust to the rapid changes in the digitizing media landscape. In this article, we study, first, how 10 older adults adapt new online media into their daily lives and, by doing so, adjust to the changing "rules of engagement" that guide online-media use in their social surroundings. Second, we analyze how this adaptation process generates change in older adults' social connectedness. Results suggest that older adults' non-use of popular online media results in social exclusion. Enhancing their social connectedness, requires older adults to (partially) conform to new communication norms and values. Based on our findings, we propose three adaptation strategies that enhance both offline and online social connectedness.

Because many societies around the world are aging (United Nations, 2017), policy makers often see online-media use as a means of enhancing older adults' social connectedness—the feeling of being connected to a social network or of belonging to a particular social group (Yu, McCammon, Ellison, & Langa, 2016b). However, the research findings remain inconclusive (Chen & Schulz, 2016). Some research finds supportive evidence (Khalaila & Vitman-Schorr, 2018; Yu et al., 2016b). Other studies report insignificant results (Aarts, Peek, & Wouters, 2015; Slegers, Van Boxtel, & Jolles, 2008), or even a negative relationship (Sum, Mathews, Pourghasem, & Hughes, 2008). Understanding why some older adults benefit from using online media and others do not requires a greater understanding of the underlying mechanisms.

In this article, we develop an online-media adaptation perspective in order to analyze how older adults adapt to online media and integrate it into their daily lives, as well as to consider the social implications of this process. Online-media adaptation refers to 'the cognitive and behavioral efforts' that

people exert to deal with the specific consequences of taking up online media (Beaudry & Pinsonneault, 2005, p. 469). This perspective enables us to look beyond older adults' adoption decisions and to instead focus on their subsequent adaptation processes. As such, this perspective offers a better understanding of (a) older adults' efforts to adapt to online media, and (b) how these adaptation efforts shape their use behaviors and social connectedness. This perspective allows us to consider how older adults adapt to dynamic and context-dependent group norms regarding media use (McLaughlin & Vitak, 2012). Adaptation to online media may help older adults adjust not only to the changing media landscape but also to the changing rules of engagement related to media use.

Based on the current ethnographic study, we argue that older adults' norms need to be aligned with new norms for online engagement if those adults are to realize beneficial social-connectedness effects of using online media. We focused on older adults as across the world, older adults are relatively often late adopters (Poushter, Bishop, & Chwe, 2018). They have been facing difficulties adopting new media in the past; with the Internet, Facebook, smartphones (Anderson & Perrin, 2017), and more recently with Instagram and Snapchat (Smith & Anderson, 2018). Accordingly, the older adults in our study had never before used online media, despite the fact that online communication had become the norm in their region. We explored the social implications of older adults' initial nonuse of popular online media—which could be seen as violations of newly established norms for media use. Results from the literature suggest that the social implications of media use depend on the extent to which individuals' media use violates or complies with their community's norms (Hage & Noseleit, 2018). The nonuse of online media in a community where such usage is common can lead to social exclusion. This study's participants indeed experienced such exclusion. We then studied how these older adults tried to adapt to the changing media-use norms as they participated in an instructional course focused on tablets and the use of online media. This allowed us to observe these older adults' adaptation efforts, use behaviors, and the changes they experienced in social connectedness over time.

This study contributes to the literature because we unravel the mechanisms that shape older adults' adaptations and because we determine how older adults can benefit from adapting to online media. We apply a process perspective to study in-depth the adaptation efforts that older adults employ when addressing obstacles and surprises as they use online media. First, we identify three core types of adaptation efforts: knowledge development, emotional coping, and value alignment. Second, we outline specific (combinations of) adaptation efforts that generate distinct use behaviors, as well as the related social-connectedness changes. Initially, adaptation to online media enhanced these older adults' offline social connectedness, as they applied only relatively simple adaptation efforts. Online social connectedness only emerged when the older adults simultaneously engaged in digital knowledge development, coped with negative emotions, and aligned the values that underlie their own and their contacts' media use. Finally, we propose an adaptation hierarchy in which online social connectedness requires the most complex combination of adaptation efforts.

Literature review

Older adults tend to be late in adopting new online media. Tams et al. (2014) proposed four mechanisms to help explain this age effect. First, while crystalized intelligence and experience increase with age, the ability to learn and adapt decreases, hindering the adoption of new media (Czaja et al., 2006). Second, sensorimotor abilities deteriorate with age, in particular movement duration, movement variability, force control, and regulation (Ketcham & Stelmach, 2004). Third, the 'Big Five' personality traits that co-determine media adoption vary over the lifespan (McCrae, Martin & Costa, 2005). Consequently,

personality changes could affect older adults' adoption. Finally, age related stereotypes might discourage older adults' media adoption (Tams et al., 2014).

Although on average older adults tend to be late to adopt new online media, studies report important differences in their online-media use. Not only does the extent of use range from non-users and reluctant users to savvy users (Quan-Haase, Williams, Kicevski, Elueze, & Wellman, 2018), older adults also vary in the types of online-media used. A study of urban populations suggests that older adults, who are younger, more educated, or engage more in cultural activities are more likely to use the Internet for social activities (Schehl, Leukel, & Sugumaran, 2019). Social networking sites are more popular among older adults that are younger, higher educated, have higher incomes (Anderson & Perrin, 2017), are female, and are widowed (Yu, Ellison, McCammon, & Langa, 2016a). Next to personal characteristics, older adults' online-media use depends on their motivation and the derived gratifications (Jung & Sundar, 2018). Evidence from a few studies suggests that older adults purposely select online media to generate specific changes in social connectedness. For example, older adults' desire to maintain ties with family members encouraged them to make frequent, yet passive use of Facebook's newsfeed feature (Jung, Walden, Johnson, & Sundar, 2017). In another study, participants used voice chat rooms to find companionship and instant messaging to find emotional support (Xie, 2008). Finally, older adults used a wide range of online media to maintain ties with family and friends, yet preferred email for coordinative activities (Quan-Haase, Mo, & Wellman, 2017).

In contrast, the current study focuses on those older adults who are lagging behind in their adoption of online media and how they may ultimately adapt to online media. Assuming online media will continue to evolve, we need knowledge on the process through which these older adults may adapt to online media and, importantly, how the resulting use behaviors will change their social connectedness. Thus far, evidence on whether online-media use enhances social connectedness of this group is inconclusive (Chen & Schulz, 2016; Neves, Franz, Judges, Beermann, & Baecker, 2019), although it may help in connecting to the outside world, gaining social support, engaging in activities of interests, and boosting self-confidence (Chen & Schulz, 2016). Indeed meta-analysis, has indicated that a detailed understanding of specific online-media use behaviors is required to explain inconsistent findings on the social connectivity outcomes of online-media use (Domahidi, 2018). For example, one study showed that older late adopters, once they did adopt a tablet, actually made little use of email and social networking sites as compared to older population averages (Perrin & Bertoni, 2017). It is not clear what kind of online-media adaptation process would work for older late adopters. A few previous studies have mentioned some of the adaptation efforts involved (e.g., skills development and overcoming fears, Quan-Haase et al., 2018; Neves et al., 2019) and have—more or less separately—reported all kinds of social connectedness outcomes. However, these studies did not build a systematic connection between the two. In this ethnographic study, we examine the adaptation process through which older late adopters develop specific use behaviors and changes in social connectedness. Based on this finer-grained analysis, we propose how (combinations) of adaptation efforts lead to specific use behaviors and related social connectedness outcomes. We use an online-media adaptation lens to do so as explained in the next subsection.

Social actors' online-media adaptation

The coping model of user adaptation is a well-known process model (Beaudry & Pinsonneault, 2005), which was successfully applied, among others, to study older adults' computer-related coping strategies (Hauk, Göritz & Krumm, 2019; Wright, 2000). The coping model of user adaptation is particularly useful, as it provides rich theoretical insights into a wide range of adaptation efforts (Beaudry & Pinsonneault, 2005), thus helping us to understand how older adults start to use online media. Following

Beaudry and Pinsonneault (2005), we assume that adaptation starts with a disruptive trigger that creates (renewed) awareness of the personal and often problematic consequences of online media availability. We assess how older adults cope with this awareness by engaging in various adaptation efforts. Diverse adaptation efforts can be combined into distinct, overarching adaptation strategies that generate specific outcomes (Beaudry & Pinsonneault, 2005), here, use behaviors and related social-connectedness changes.

We further acknowledge that older adults' social-connectedness outcomes generated by the use of online media are also dependent on others' engagement (Hage & Noseleit, 2018). In this respect, we draw on Lamb and Kling's (2003) social-actor perspective in viewing each older adult not merely as a user of online media, but rather as a social actor whose interactions are simultaneously enabled and constrained by the social-technical affiliations and environments of the group, its members, and wider society.

Method

Research context

We conducted a 22-month ethnographic study to follow 10 older adults as they participated in an instructional tablet course targeted at older adults who lacked computer experience. The project took place in a village (with a population of less than 600) in the northern Netherlands, where the Internet penetration rate was approximately 94% (Eurostat, 2019). In 2012, two tablet courses were held. Each course consisted of eight two-hour sessions and was developed and taught by a younger villager. During the courses, the instructor introduced one of the authors (EH) as a researcher and teaching assistant. This role allowed EH to observe and interact with the participants. All project participants received an Android tablet that they could continue to use at home after paying a small fee. The first tablet course ran from April through July 2012 and had six participants. The second course ran from October through December 2012 and had four participants. Of the 10 participants (age range: 62–75, all retired) eight were female. Six had been widowed, three were married, and one was single. Three had basic education, one had received practical training, five had undergone secondary vocational education, and one had completed higher education. A comparison with population averages from survey data shows that the tablet-course participants reflect the local population of Internet nonusers. Each participant set up a personal email account during the course and all the participants shared a joint Facebook account, which they used to practice their skills and explore the medium. Later, four participants created personal accounts. The others continued to use the shared account.

Data collection

We collected the data from April 2012 through January 2014. The data mainly comprise participant observations (from 16 of the 17 tablet-course sessions) and interviews. Furthermore, we organized two feedback sessions to allow the participants to reflect on the preliminary research findings. One month after the first course concluded, each of the six participants completed an interview. We then interviewed each of them a second time, four months later. Three of four participants from the second group completed interviews before starting the tablet course. All four participants completed an interview one month after finishing the course. In all cases, the participants provided informed consent. The taped interviews lasted between half an hour and 2.5 hours, and they occurred in the participants' homes. We aimed to minimize social-interpretation bias through data triangulation and by feeding the results back to the participants. After completing the first data analysis, we presented the preliminary results

to the participants and the tablet course's teacher in January 2013 and January 2014. We recorded these feedback sessions.

Data coding and analysis

We transcribed the interviews and added fictive participant names to ensure confidentiality. We coded the transcribed interviews using Atlas.ti in a round of open coding followed by rounds of theoretical and axial coding. To flesh out the participants' adaptation efforts, we combined iterative data coding with a phased literature-review process (Urquhart & Fernandez, 2013). After the initial inductive rounds, we used the coping model of user adaptation (Beaudry & Pinsonneault, 2005) to loosely guide our inquiry. To connect inductive adaptation efforts and use behaviors in a transparent fashion, EH developed two overviews: one summarizing all findings for each participant and one linking observed use behaviors to specific adaptation efforts. We discussed these overviews and refined them until we agreed on the coding (the resulting codebook is available from the authors on request). We coded 41 use episodes that resulted in social-connectedness changes and 17 episodes that led to no change. We then grouped these use episodes into 11 use behaviors that each resulted of a specific combination of adaptation efforts. Finally, we analyzed how each use behavior shapes social connectedness using the social actor dimensions (Lamb & Kling, 2003): Affiliations refer to the personal relationships individuals engage in. Interactions concern the information, resources, and media that individuals use to engage with others. Identities refer to avowed presentations of the self and ascribed profiles. Environments relate to the institutionalized practices, associations, and locations that circumscribe individual and collective action. We examined whether the participants considered changes in social connectedness to have been generated by their use of online media.

Results

Being the last to adopt

The participants often felt socially excluded as online-media use had already become so common in their society. This feeling motivated adoption, as Gina explained: "*Really, I think I don't want* [to use online media]. *Still, I pushed for this* [because] *I want to know: How does all this work? Because* [I] *feel* [that I am] *lagging behind* (. . .) *This computer world and everything—the kids are using it, and the grandchildren know all about it, and, at grandpa and grandma's, they know nothing!*" The data indicate how a process of adaptation followed the older adults' initial adoption decisions. To feel included again, the participants had to learn how to use tablets and online media. We observed the adaptation efforts through which they explored technological functionalities, coped with their emotional responses to technology, and navigated both personal and group norms regarding online-media use. We assess the three main online media adaptation problems that the participants encountered, the adaptation efforts that they employed to address these problems, and the resulting use behaviors and social connectedness (Table 1).

Knowledge development: Learning about online media

The first problem we noted was that information technology (IT) jargon such as online, Google, Internet, and log in had no specific meaning for the participants. Because he did not understand these common terms, David felt separated from society: "*Before I started the tablet course, I felt that I was not taken seriously because* [I didn't] *know (. . .) how to deal with modern media.*" At the same time, the participants questioned whether they had the cognitive abilities to operate tablets. For example, Joan,

Table 1 Summary of Findings

Problem	Adaptation efforts	Use		Social-connectedness outcomes	
		Domain	Behavior	Domain	Perception
Encountering unfamiliar digital terms and concepts	Knowledge development	Offline	(Re)connecting to society; Joining offline, IT related conversations	Offline	Better understanding of the offline environment; Higher quality offline interactions
Experiencing fear of being unable to operate tablets	Knowledge development and emotional coping	Online	Being capable; Increasing one's independence; Dealing with being alone; Googling offline contacts; Adding a digital spark to offline interactions; Providing peer IT support	Offline	Improved self-image and identity; Less dependence on offline affiliations; Adjustment to a new social role and identity; Better knowledge of offline affiliations; Higher quality offline interactions; Additional offline interactions
Having negative normative judgments of online media and of others' use of such media	Knowledge development, emotional coping, and value alignment	Online	Connecting to distant and "real" friends; Lurking; "Welcome to the 21st century!"	Online	Additional online affiliations; Additional observations of online interactions; Additional online interactions

who had quit a previous computer course, stated, "*At the time, I felt like, 'I'll never be able to learn all this (. . .) I hope that, this time, I'll be able to get it in my head.'*"

To overcome their experienced lack of knowledge and ability, the participants tried to develop a digital vocabulary and to practice their tablet skills using experimentation. They engaged in this knowledge development process during the course and at home. In the tablet-course sessions, the teacher provided paper-based glossaries with very basic definitions of relevant IT concepts. For example, social-networking sites were described as follows: "*Nowadays, you read a lot about social media. Social media are simply concerned with communicating and sharing information via the Internet. This can be done in several different ways and via multiple media.*" The participants carefully held onto these glossaries, keeping them in folders or bags. The participants also started to experiment at home. Anna and David, for example, both conducted online searches for web addresses and email addresses that they had encountered offline. Anna explained, "*In the newspaper, I see an email address or the like. WWW, dot, @, you know? That kind of stuff (. . .) Then, I sit down* [with my tablet] *and look: Is this stuff also in there?*" Along the way, the participants developed a refined understanding of digital concepts.

Developing a digital vocabulary had important consequences for the participants' use behaviors. This process not only "*enriched*" the participants (as Bonny noted) but also "*opened up the world*" for them (as Ivo stated). For example, developing a digital vocabulary allowed the participants to better understand IT-related news items that they saw on television or in newspapers, which induced a sense of being (re)connected to society. Christina explained, "*You often heard on television: www this-and-that dot NL* [the Internet country code for the Netherlands], *and yes, you now have some understanding of how that works. It's not so alien anymore.*" In addition, developing a digital vocabulary enabled the participants to join offline, IT-related conversations. Christina noted: "*All those computer conversations, all those difficult words*—[I] *didn't understand anything. I used to think, 'This is not for me; it will pass me by because I don't have* [a tablet],' *but now, I think, 'I can join the conversation because I have such a thing too.*" This enhanced understanding of offline references to online media gave participants such as David an "*increased sense of belonging.*" Interestingly, merely being able to understand offline references to online media sufficed for this change in social connectedness.

Emotional coping: Gaining confidence in using online media

The second major problem was that the participants had to cope with emotional reactions such as fear, enjoyment, curiosity, frustration, and stress. Importantly, we observed that most of the participants initially feared that they would be unable to operate a tablet because they perceived themselves as being old, poorly educated, and inexperienced. Fear created a hurdle that the participants needed to overcome in order to interact with the tablet. David illustrated this feeling by describing his first encounter with the tablet as a "*confrontation.*" Fear also resulted in temporal breaks in the adaptation process. This happened, for example, to Eline, who mentioned, "[I am] *afraid that* [I will] *do something wrong because* [I am] *not so familiar with it.*" When asked how she dealt with that feeling, Eline replied, "*Well, then I put* [the tablet] *away for a moment* [laughs]. *Yes, then I walk away and leave it. Still, it is annoying.*"

Some of the participants managed to overcome their negative emotions by resolving them. Anna explained, "[The teacher said,] '*You cannot destroy it. Whatever button you press, it does not matter. You can always go back home* [via the home button]. *There is nothing you can break.' Well, I internalized that. Now I think, 'We'll see.'*" By accepting that she could not destroy the tablet, Anna reduced her fears and engaged with it more freely; leading to positive emotions stimulating additional experimentation with the tablet. Gina shared, "*Anna loves that* [tablet] [laughs]. *While, in the beginning, she was the most skeptical (. . .) she can't talk about anything else anymore (. . .) It is fantastic. I must say, it*

[Anna's enthusiasm] *is contagious!*" In sum, emotional coping includes resolving negative emotions and reinforcing positive emotions induced by adaptation.

The participants who both developed a basic knowledge about tablets' functioning and managed to cope with the related emotions then started to integrate tablet use into their daily offline activities. By doing so, these participants changed their self-perceptions from being incapable to (relatively*)* capable. Anna surprised herself: "[I] *created* [my] *own email* [account] *and* [was] *then able to send an email. It makes you think, 'Huh? I never thought I would be able to do that.' (. . .) That's most surprising.*" This increased self-confidence gave the participants a feeling of independence. Ivo described this feeling as follows: "*In the past, I didn't want anything to do with that, and when I needed something, I would say to* [my wife], '*Can you do this?*' *Well, now I can do it myself.*" In addition, this independence helped the participants (most of whom have been widowed or are taking care of a sick partner) to deal with being alone. Christina, a widow, explained: "*Now that* [I am] *alone—especially during those long autumn and winter periods with those lengthening evenings—well, then I start to think about ways to fill my life, and yes, then I think* [and] *feel happy that I have taken this step* [to learn to use the tablet].*" In addition, this increased self-confidence induced the participants to integrate the tablet's applications into their offline interactions. For example, the participants did not only search for websites they had heard about in the newspaper or on television; they also Google searched for online information about people whom they knew offline. In addition, the participants started watching YouTube videos together and sat with their grandchildren playing digital games, which triggered strong positive emotions (e.g., laughter). Such use added a digital spark to the participants' offline encounters. Finally, when the participants ran into problems with tablets, they would call other participants and ask for help. Peer IT support proved particularly helpful at further reducing tablet-induced fear and stress. In sum, once the participants had basic knowledge of their tablets and could cope with their negative emotions, they started to integrate tablet use into their offline interactions. Developing online interactions, however, required an additional adaptation effort: value alignment.

Value alignment: Negotiating the new rules of engagement

The third major problem entailed participants' experiencing clashing norms or values. In addition to coping with their a priori normative judgments of online media, they had to merge their moral beliefs with other people's usage of online media. Conflicting values influenced their adaptations to online media. First, the participants often perceived online communication as "*superficial*" and "*impersonal,*" as well as "*too open*" and "*too short*"; therefore, they viewed it as incompatible with their social values and their need for in-depth communication. For example, Bonny valued a phone call over an email, and explained as follows: "*They prefer a phone call, and, actually, so do I. I think such an email is a bit too businesslike (. . .) It can be nice for those in a hurry, but, like with my son,* [I like] *just to call him—just hearing that little voice* [and getting] *that sense of togetherness.*" In addition, Gina was hesitant to create a Facebook account: "*There* [on Facebook], *you write about everything, like: 'I'm doing this. I'm doing that, and now this.' Yes, that is the idea behind Facebook, I believe. Then, you really have to be friends or something, because otherwise I'd say, 'What* [is] *someone else* [meant] *to do with that information?*'" The conviction with which the participants held onto their online media related values dramatically affected their lives. David illustrated this by sharing the following: "*The first time I was confronted with* [a computer], *I was still a* [professional], *and eh, well, you had to, in that time, (. . .) these computers had to be implemented (. . .) I remember that I felt like, 'Is that necessary? I don't like this.' (. . .) It is not the only reason that I quit* [my job], *but it was one of the reasons. This is going in a wrong direction, I cannot express myself in this way,* [and] *I do not like this: I'll leave and start* [at] *a different job.*" The participants also often disapproved of others' engagement with online media in both offline and online settings. Anna

explained how others' use of online media in offline settings frustrated her: "*I find it annoying what these kids do nowadays—really terrible. They cannot even talk anymore! My granddaughter was sitting over there this morning; her boyfriend was sitting here* [types on an imaginary mobile phone]. *I was thinking, 'Put that thing away!' (. . .) That's poverty. It is supposed to be progress, but in some ways, it is also poverty. Children do not talk anymore, right? (. . .) At least, that's how it appears to me.*" Likewise, the participants felt offended by use behaviors that they encountered online during their experimentation with online media. For example, Anna recalled how Bonny felt distressed after receiving a large number of Facebook friend requests: "[Bonny] *really started crying; she was completely fed up with it! Really! (. . .) She is on Facebook. Well, you would not believe the number of* [friend requests] *she received! Thirty-eight, I believe! (. . .) 'Well'* [Bonny] *said, 'This drives me mad! I don't want this!' She would like to become* [Facebook] *friends with her own friends (. . .) I said, 'I won't touch it. You can get rid* [of the friendship requests].' [Bonny said] '*Yes? How?' 'Well, here and here.' I said, 'Leave them for now, until* [Bonny's daughter] *comes back. Deliberate with her who you want* [as a Facebook friend] *and who you don't.*'" The encounters with perceived inappropriate online behaviors sparked a strong negative emotional reaction in Bonny and resulted in a temporal break in her adaptation process. On another occasion, Bonny received a birthday invitation via email, which she felt was impersonal. Although Bonny strongly disapproved of this behavior, her loved ones did not anticipate her negative reactions. Anna tried to explain Bonny's sentiment to her daughter: '[Bonny's daughter said,] "*Yes, but this is the deal nowadays.*" I [Anna] *said, 'Yes, I know, but we are also living nowadays, only we are somewhat behind. Your mother doesn't like it in principle. She would have rather you had called.'*

To continue their adaptation, the participants needed to align the values that they ascribed to online media with their own social values and with others' use behaviors. For example, Christina came to appreciate her tablet: "*You also participate* [in the modern world,] *while at first, you were very disapproving, and, it is not that bad after all.*" Value alignments were not easily achieved: only once the participants decided specific use behaviors were compatible with their own values and with others' common use behaviors could they start to meaningfully engage via online media.

Consequently, some participants only used online media to communicate with contacts that they would not otherwise have connected with (i.e., distant affiliations). For example, David, who rarely called his sister, liked to email her. Likewise, Eline connected on Facebook with an old friend who lives abroad. Similarly, Bonny felt that her online connections were "*from a distance and also quite close.* [For instance,] *those from* [another town] *respond when I (. . .) write a reaction (. . .) I like that.*" Moreover, the participants who experienced a value conflict when using Facebook emphasized that they valued their privacy and viewed online communication as being too open. Consequently, only four participants set up personal Facebook accounts; the other six participants shared an account. In addition, the participants frequently used Facebook, but most of them rarely posted messages. Thus, their value conflict led to a privacy-sensitive adaptation to Facebook (i.e., lurking), in which the participants hid behind the anonymity of the joint account. Gina explained, "*Well, that kind of stuff, I do have with Facebook*: [I] *read* [messages] *from people in the village: This is going on or that is going on (. . .) Although I don't respond to those messages, I do like to read them!*" The participants' engagement with online media, however careful, did not go unnoticed. They received enthusiastic reactions to their first emails and appearances on Facebook. Anna's son, for example, replied, "*Mum! Welcome to the 21ˢᵗ century!*" Thus, only once the participants had developed knowledge of online media, coped with their negative emotions, and aligned their online-media values could they start to meaningfully interact via online media. However, this value alignment was challenging, and most participants stated that they did not experience any changes in their online social connectedness after adopting email and Facebook.

Discussion

In this study, we developed an online-media adaptation perspective in order to understand how older adults' online-media use behaviors and resulting social-connectedness outcomes arise because of their adaptation efforts. The results show that older adults' noncompliance to group norms for online-media use often went hand in hand with perceptions of offline social exclusion. Offline exclusion occurs not only because many interactions and services are now "digital by default" but also because online norms, language, and behaviors are infiltrating offline domains, alienating older nonusers from their social context. Interventions such as small-scale, slow-paced tablet courses for older adults were crucial for helping these individuals to overcome this impasse.

Research contributions

Adaptation efforts

In this study, we make three contributions to the computer-mediated communication literature. The first contribution is the identification of three complementary adaptation efforts—knowledge development, emotional coping, and value alignment—which together provide a better understanding of when and why online-media use behaviors emerge (or fail to do so). By studying older adults' *knowledge development*—the development of "the cognitive comprehension of content and procedural processes involved in conducting appropriate and effective interaction in the computer-mediated context" (Spitzberg, 2006, p. 641), we highlight the importance of users' to the understanding of digital concepts and their interdependencies. *Emotional coping* relates to the ways in which emotions such as fear and pleasure shape older adults' (non)use behavior. Indeed, emotion—"a complex state of excitement or perturbation, marked by strong feeling, and usually an impulse toward a definitive from of behavior" (Drever, 1952, pp. 80–81) was important in online-media use. Our findings suggest that the combination of knowledge development and emotional coping enables older adults to use tablets and to integrate these use behaviors into offline interactions. Earlier quantitative studies support the idea that knowledge development and (negative) emotions jointly shape use behaviors. Among older adults with low computer anxiety, those with a greater ability to learn engaged in a broader use of web-based functionalities (Czaja et al., 2006). In addition, anxiety mediated the effect of computer knowledge on older adults' interest in computers (Ellis & Allaire, 1999). However, for online-media use, we identified a third adaptation effort, which we labeled value alignment and describe as the normative process by which value structures are changed in the interactions between social actors and online media. Here, values signify "espoused beliefs identifying what is important to a particular group" (Leidner & Kayworth, 2006, p. 359). We found that value alignment guided interactions between older adults and their communication partners, in terms of (a) negotiating which online media are proper to use, and (b) negotiating how to use those media appropriately. Value alignment could involve older adults changing their normative perceptions of online media or of online communication in order to match the perceptions of their online communication partners. Alternatively, older adults reconciled value conflicts by negotiating use behaviors that conflicted neither with their own values nor with those of their communication partners.

Most research has overlooked the importance of value alignment in determining online media's effects on older adults' social connectedness. The coping model of user adaptation includes problem focused- and emotion focused efforts (Beaudry & Pinsonneault, 2005), which share commonalities with knowledge development and emotional coping respectively. Value alignment is not included in the model, although the role of group norms was recognized as a fruitful future research area (Beaudry &

Pinsonneaul, 2005). Individual media choices are known to depend on group norms (Haythornthwaite, 2005). Importantly, as group norms vary—across groups, over time, and across media—individual media use can deviate from group norms and cause violations of communication partners' media-use expectations (McLaughlin & Vitak, 2012; Taylor & Ledbetter, 2017; Uski & Lampinen, 2016). Such value conflicts are likely to occur among older adults who are late to adopt popular online media for two complementary reasons. First, because online media facilitate unique forms of communication, the emerging values guiding online-media use are likely to differ from the values guiding older adults' offline media use (McLaughlin & Vitak, 2012). Second, although most studies on the values guiding online-media use have been conducted among younger populations (McLaughlin & Vitak, 2012; Uski & Lampinen; 2016), some evidence suggests that intergenerational differences in group norms exist (Moncur, Orzech & Neville, 2016).

Such individual violations of group norms have social implications. This study showcases how deviations from group norms regarding media use can hinder individuals (in this case, older adults in a small village) from reaping social-connectedness benefits. Moreover, both the participants' accounts and our observations of their online and offline interactions suggest that older adults have difficulty completing the required value alignment, as this involves changing fundamental ideas about what is wrong and right (Adolphs, 2009). Finally, our results demonstrate how older adults develop use behaviors that reconcile or disguise conflicts between their own values, the values that they hold with regard to online media, and the online-media values of other relevant people.

Online and offline social connectedness

Although the use behaviors identified in this study have been described before (e.g., Jung et al., 2017; Marvin, 1995; Xie, 2007), we highlighted how each of these behaviors uniquely shapes online and offline social connectedness. Scholars have noted the importance of assessing the social-connectedness outcomes of specific online-media behaviors (Domahidi, 2018) and of differentiating between online and offline social connectedness (Williams, 2006). Extending this knowledge, this study's findings (a) provide a more diverse range of online and offline social-connectedness outcomes, and (b) highlight how specific outcomes can be generated through adaptations and use behaviors. Moreover, this study's results emphasize the integration of the online and offline domains (Roberts & David, 2016). For example, nonuse of online media initially limited the participants' ability to relate to their offline social contexts. In addition, although using online media in offline social settings can reduce social connectedness (Roberts & David, 2016), this study suggest that doing so can also enhance offline interactions.

Adapting to the new rules of engagement: A hierarchy of adaptation strategies

Finally and most fundamentally, although older adults' established offline use behaviors relatively easily, online use behaviors—and especially online social connectedness—required a more complex combination of adaptation efforts. This study contributes by proposing a hierarchical sequence of adaptation strategies shaping older adults' use behaviors (Figure 1). The hierarchy among the adaptation strategies pertains to the finding that, although some older adults used basic and more advanced adaptation strategies more or less simultaneously, the advanced strategies became effective only when older adults had also engaged in the basic strategies. The first and simplest adaptation strategy, learning about online media, does not require actual use of online media. Merely developing knowledge of digital concepts allows older adults to better understand digital references when in offline contexts, thus enabling more meaningful offline interactions. These changes in older adults' offline social connectedness are most likely to occur in social environments in which the use of online media is popular and in which
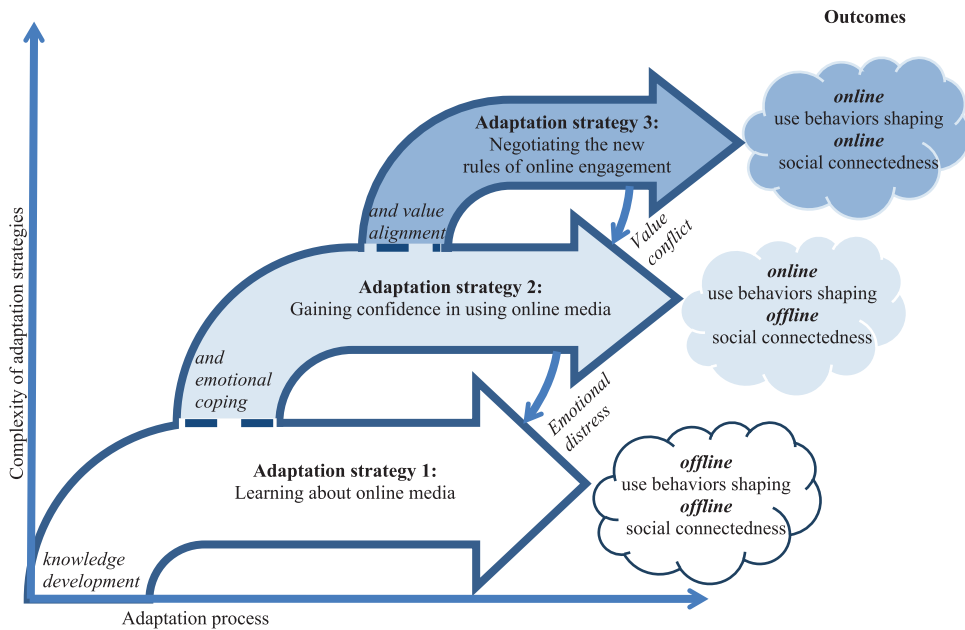
Figure 1 Adaptation-effort based hierarchy of adaptation strategies and their outcomes.

digital concepts commonly infiltrate offline communication. After developing a basic understanding of digital concepts, some older adults invest in further adaptation efforts. They move on to the second, slightly more complex adaptation strategy, which involves increasing one's confidence in the use of online media. Although developing a basic digital knowledge is necessary to establish tablet use, it is not sufficient. To have meaningful engagement with tablets, the older adults must also cope with the negative emotions that result from their confrontation with the technology. After individuals gain both the knowledge of online media and the confidence in their online-media capabilities, they start to use tablets to enhance both their independence and their offline interactions. However, this second adaptation strategy does not yet foster online interactions, or facilitate the creation of online affiliations; the participants often viewed online interactions as inappropriate. Instead, the development of online social connectedness requires older adults to extend their adaptation efforts to the most complex adaptation strategy: negotiating new rules for online engagement. In our study, changes in online social connectedness were established only after a participant (a) knew how to operate online media, (b) was comfortable operating such media, and (c) believed online communication was appropriate. This adaptation strategy is likely to be especially challenging for older adults living in settings where the use of online media is highly common. In such settings, norms for online-media use are firmly established and continuously reinforced through frequent interactions. At the same time, late adopters are likely to hold onto the norms that guide offline media use and thus approach online media with a certain suspicion (Rogers, 2003). The hierarchy of adaptation strategies highlights the process through which not just online changes but also offline changes in social connectedness are induced. Moreover, it may help focus the efforts to establish such changes. Note that adaptation may not be a linear process and value conflict and emotional distress may cause older adults to resort to less complex adaptation strategies.

Policy implications

Policymakers could use this study's results to develop strategies for implementing online media so as to enhance older adults' social well-being. Although our findings suggest that online-media adaptation can enhance social well-being, policymakers need to recognize that adaptation is a challenging process for older adults with little online experience. The implementation strategies need to be sensitive to the cognitive strain, negative emotions, and value conflicts adaptation can evoke in older adults. These costs should not outweigh the expected benefits. Finally, those who aim only to get older adults to adopt may be ignoring opportunities to boost offline social connectedness. Providing low-threshold access to information about online media and demonstrating their use can already enhance social connectedness; it enables older adults to (re)connect to society by rejoining offline conversations.

Limitations

First, statistical generalization based on ethnographic studies is impossible. Human phenomena are dependent on both time and context, yet the adaptation efforts that lead to social-connectedness benefits could be transferable to other contexts. This study's results are based on the observations and interviews of 10 older adults from one subculture, all within a single project. However, the sampling method ensured a diverse range of participants, all of whom were older late adopters who had made an initial decision to adopt a technology that was new to them but that was commonly used in their community at the time of our inquiry. As the online-media landscape is dynamic, such contexts will recur, and our thick description can facilitate judgments regarding transferability (Guba & Lincoln, 1982). Second, an ethnographic approach relies on researchers' interpretations. We enhanced the credibility of our analysis by a prolonged engagement, the use of peer debriefing, the additional reference materials, and the participants' feedback (Guba & Lincoln, 1982). Future research needs to establish whether our findings are transferable to other contexts. For decades older adults from across the world have been facing difficulties adopting generations of new media (Anderson & Perrin, 2017; Poushter et al., 2018; Smith & Anderson, 2018). Therefore, adaptation problems among older adults may persist.

Future research

Future researchers could identify the differentiated effects of the combinations of adaptation efforts used in other populations. Likewise, to understand the entanglement of the online and offline domains, it is necessary to not only study whether media are used (adoption decisions), but (more importantly) the ways in which they are adapted and used. Future research is necessary to unravel how the online and offline domains interact in other populations, such as intensive users or early adopters. Furthermore, how older adults' individual media adaptations relate to tie-level and group-level media coordination (Taylor & Ledbetter, 2017) warrants further research. In aging societies, it would be interesting to examine when older adults are able to codetermine the rules of online engagement. Finally, future researchers on the social impact of online-media use should incorporate the hidden forms of offline exclusion that result from nonuse.

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