

Social Media Use of Older Adults

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Detailed Information on the Literature Search

Method

A literature search was carried out in July 2012. The multidisciplinary search engine ISI Web of Science was used that stores articles from more than 250 disciplines (http://thomsonreuters.com/products_services/science/science_products/a-z/web_of_science/, accessed July 27, 2012) and covers over 12,000 of the highest impact journals worldwide, including Open Access journals and over 150,000 conference proceedings. Only peer-reviewed papers were considered, conference abstracts were not included in the literature review.

The following search terms as topics were used: “social networking” (B), “online communities” (C), “social media” (D), “computer-mediated communication”(E), “discussion boards” (F), “networking sites” “social network sites” (G), website (H), “social computing” (I), “Virtual community” (J), “Web 2.0” (K), and “user-generated content”, each search term combined with the terms “older adults”, elder*, senior*, and “age differences”. Search result numbers ranged from 0 or 1 results (user-generated content AND older adults) to 89 results (social networking AND older adults). Title and abstract were screened to assess suitability to include the article into the review. Additional literature was identified by a literature search of Xie et al in press, where articles were used which sufficed our search criteria (see below) (A). Further literature was searched with Google scholar, and in references and citing articles of the literature found in Web of Science (marked with add. search).

Articles that focused on ICT use of older adults in general (e.g., Nasi et al 2012) establishing new communication technologies without the use of publicly available sites or discussion boards were not included in the review (e.g., Garattini, Wherton & Prendergast 2011; Rothenpieler et al., 2011; Sun et al. 2007; 2010). Articles that investigated age differences of people in young adulthood (e.g. Baams et al 2011) were not included in the review. Articles identified by the literature search were screened if topic was indeed linked to social media use and included conceptual or empirical links to older adults.

Since the results of this search were quite scarce, an additional search in Google scholar was carried out. Additionally, the articles found via ISI were searched for their references and citing articles to identify more articles.

Only articles were included which reflect some kind of innovative form of communication, such as commenting online, interacting with instant messaging or in a chat room, or participating in virtual game or social worlds as defined by Kaplan and Haenlein (2011). Articles which merely included the use of email as online communication channel were not included in the review, since this form of internet-based communication reflects great similarities to more traditional forms of communication like writing a letter and may thus not involve specifics of social media use.

Publication	Type of Publication (Theoretical, Review, Study) and Instruments (Interview, questionnaire, focus group)	Target group (age, ICT experience)	Main Outcomes	Topic
1. Ballantyne, Trenwith, Zubrinich, & Corlis, 2010 A (not found in ISI)	Qualitative study with inductive analysis on Australian Social Networking Sites (SNS) 'About My Age' ; getting to know the SNS, unfortunately activities on SNS not reported (lurking versus active participation, messaging or discussing?)	Three-month weekly use of SNS in one-on-one sessions; semi-structured interviews with 4 adults (69-85 years, 1 female, expressed loneliness) recruited from community aged care programme South Australia and reflective journals of involved researchers	Social networking sites can reduce experiences of loneliness	Teach, describe and evaluate first experiences with online social networking
2. Barker, 2012 B	study: online survey	An online survey (N = 256) compared social networking site (SNS) use among younger (millennial: 18-29) and older (baby-boomer: 41-64) subscribers	Age, social identity (collective self-esteem) as factors in SNS use: Regardless of age, participants reporting high collective self-esteem and group identity were more likely to use social networking sites for peer communication and social identity gratifications, while those reporting negative collective self-esteem were more likely to use social networking sites for social compensation.	Factors in social networking use
3. Batchelor, Bobrowicz, Mackenzie, & Milne, 2012 B	Theoretical: Ethicolegal implications in SNS when decision-making ability is compromised (e.g., dementia); Case study with vignettes to elaborate challenges in SNS use	Adults with impairments in decision-making ability	Outlines need for further research, discussion, and legal advancements due to several problems of SNS for adults with impaired decision-making capacity, such as: Legal uncertainty over SNS governance (described for the cases of England and Wales), problems with lasting power of attorney and digital identity, right to remove digital footprints, liability for the role of data controller for others in an online context (e.g. managing photographs), sharing confidential health information	Societal and legal implications of SNS use

4. Blit-Cohen & Litwin, 2004 E	Study on use of computer-mediated communication, although rather focused on ICT use per se and not specifically social media; open-ended interviews	10 ICT users and 10 ICT non-users	Differences in beliefs about learning capacity in later life, differences in temporal orientation (future or past)	Factors in social media use; differences between users and non-users
5. Brandtzæg, Lüders, & Skjetne, 2010 AG	Study: in-depth interviews, explorative usability tests of Facebook	8 adults (16-33 years, M = 22), 8 adults (40-64 years, M = 48), Norwegian, Greater Oslo area, already Facebook users	Facebook users have more contact to different social groups (e.g., family, friends, acquaintances), too many Facebook friends hindered sharing due to experiences of social surveillance and social control; usage patterns differed between younger and older users; age differences in usability testing	Usability of social media; age differences in usage patterns
6. Buzzi, Buzzi, Leporini, & Akhter, 2010 B	Study	Usability session with authors as test users, one blind, other seeing	Accessibility to Facebook for adults with functional limitations, for example visual impairments. Users with impaired vision have difficulties accessing the website despite assistance with screen reader. Some parts of menu (e.g. signing up with captcha) inaccessible without help of a seeing person, notifications are not announced with heading but with icon which cannot be read by the screen reader. Authors give several recommendations how to improve accessibility of site for people with visual impairments	Accessibility and usability of SNS site for people with functional impairments
7. Chadwick-Dias, Bergel, Tullis, & Stephanidis, 2007 AK	Conceptual, design issues. Pilot study	5 older users 64+ not further specified. Pilot study seemingly conducted as usability test	Design issues to facilitate access for older adults (apparently focusing on seniors with low internet experience and minor functional limitations) from a theoretical and usability perspective	Accessibility and usability
8. Chung, Park, Wang, Fulk, & McLaughlin, 2010 C	Study	Online survey with 248 non-users of online communities aged 20-83 (mean 47)	Perceptions of online communities. Perceived ease of use not associated with perceived usefulness, perceived usefulness associated with intention to use. Older adults reported less self-efficacy and perceived lower	Authors evaluate first experiences with social media

			quality of the websites compared to younger adults	
9. Colvin, Chenoweth, Bold, & Harding, 2004 E	Study on internet-based social support, e-surveys qualitatively analyzed	63 caregivers of older adults (age 27-76), care receiver age 52-98	Advantages: anonymity, asynchrony, ability to personalize use, connectivity with other caregivers; Disadvantages: limitations of computer-mediated communication (absence of physicality, desire for more social contact/intimacy, inability to give/receive tangible support	Perceived benefits and barriers of social media use (social support)
10. Cornejo, Favela, & Tentori, 2010 AB	Outline and Study: Description of two ambient displays to integrate older adults into SNS (ePortrait, eBowl); observation in a private nursing home, interviews to identify ways of communication and barriers	9 older adults with cognitive impairments, 32 of their relatives, and the nursing manager	ePortrait: downloads Facebook-posted photographs of family members and displays them in a frame eBowl: share jokes with family members by using special balls to share and rate jokes; monitors home presence of family members if they put their keys in the bowl; evaluated positively of test family, however on a personal note system that keeps older adult passive (1. Being monitored when entering and leaving the house, 2. Being “fed” with photographs and information on home presence, but not actively stimulated to engage in activities themselves in ePortrait)	Accessibility and usability of SNS; development of facilitating tools to access SNS
11. Correa, Hinsley, & de Zúñiga, 2010 B	Study: social media defined as SNS and instant messages	National sample of US adults; 1,482 adults aged 18-34, 35-54, 55+ (older adults = 30 years and older...)	Age-related findings: being open to new experiences as important predictor of social media use in more mature segment of sample (at a younger age extraversion is more important to predict social media use); extraversion and openness are positively related to social media use; emotional stability is negatively related to social media use	Factors in social media use
12. Donelle & Hoffman-Goetz, 2009 J	Study: content analysis of one-year archived cancer conversations of general health online forums of two	125 Canadian and 70 American cancer based discussions (approx. 7 % of overall discussions on the	Concerning request, provision, and sharing of information, important subthemes were cancer prevention and screening, treatment and cancer care and health system issues.	Comparison of content of two online forums; characteristics of

	North American leading associations for retired persons	sites), no information on participant characteristics	More posts providing cancer information on the Canadian than the US site, health system concerns more considered as determinants in cancer care practices on US site.	shared information in online forums
13. Gibson et al., 2010 A	Study: ethnographic interviews, focus groups, testing sessions	Focus groups (t1:17 adults age 63-86; t2 8 months later: 10 adults)), ethnographic interviews (4), testing sessions (15 age 63-81)	Perceptions and (mainly negative) attitudes towards SNS (e.g. privacy issues), design issues in social networking sites for older adults are not provided although announced in title, abstract and subtitles	Teach, describe, and evaluate first experiences in social media use
14. Godfrey & Johnson, 2009 B	Theoretical	Older adults in an English city	Information store as single, accessible gateway to a wide range of social and community services and information promoting health, independence, well-being and quality of life and work. Vision of experienced information mediators in network. Digital circles of support as a conceptual framework for combining mediated public information and self-authored multi-media content	Design considerations of social media use in social and community services
15. Harley & Fitzpatrick, 2009 H	Study	3 adolescents responding to a video of Geriatric1927	Geriatric1927, 80-year-old video blogger on YouTube engages in conversations with younger viewers. Identifies different communicative modes in response videos to older video blogger's question	Communicative modes to establish time- and location-independent video conversation
16. Hussain & Vassileva, 2011 B	Conceptual: introduction of system to upload tweets inserted with speech-to-text technology for television viewers		Simple interface and similarities to TV viewing may facilitate access to ICT for older adults.	Development of facilitating tools to access SNS
17. Ji et al., 2010 G	Theoretical: outline of research agenda on social computing (open, web-based, user-friendly services that enable users to network, share data, collaborate and coproduce content, such as SNS, blogs)		Research areas: BASIC: (1) SNS usage behaviors for an aging society (e.g., user characteristics and usage patterns), (2) social interactions and communications in an aging society, (3) cognitive ability of older adults in social computing, APPLIED: (4) mobile	Research agenda

			user experience for social interaction in an aging society, (5) social games for an aging society, (6) interactive TV interface for an aging society	
18. Karahasanović et al., 2009 AC	Empirical study on user requirements: three studies conducted in Norway and Belgium, EU research project CITIZEN MEDIA; 1: survey 2: ethnographic research, proxy technology assessment, online research blog, experience-sampling method (questionnaire), interviews 3. quantitative study	50+ 1: 500 internet users NO 2: 4 ICT users and non-users 3: 34 participants	1: Age differences in amount and patterns of internet usage and co-creating and sharing of user generated content (UGC) 2: Social requirements of older people: ease of use, social heritage/identity formation through media content, need to control, mirroring online/offline structures 3: user and context requirements: existing applications too difficult to use, good integration between tools needed	Age differences in usage patterns; usability of existing social media
19. Kim, 2006 B	Conceptual, presentation of a social community portal service for social networking with convenient accessibility		Introduction of concept of “short multilingual International Domain Names (IDN), instead of the long and inconvenient URL-string”	Development of facilitating tools to access SNS
20. Lehtinen, Näsänen, & Sarvas, 2009 A (not in ISI)	Qualitative study with testing existing SNS Netlog.com	8 adults aged 58-66	Internet perceived as dangerous place, SNS are places of socially unacceptable behavior; no access to user profiles, therefore only active participation observable (no lurking behavior),	Teach, describe, and evaluate first experiences with social media
21. Lewis & Ariyachandra, 2010 (add search)	Pilot study with semi-structured interviews; results (no further information) combined with literature to elaborate a conceptual model (= identifying important factors in social networking)	5 seniors (no further information)	Perspective: seniors as potential consumers of electronic commerce products; factors influencing social networking such as gender, web experience, computer anxiety, social norms, enjoyment, desire to get and give information	factors in social media use
22. Lin & Chou, 2011 D	Study	Interviews with five adults aged 55-60 on media use and social life	Attitudes and behaviors of older Taiwanese adults towards media and in social life to derive at recommendations on how to design social media. Not very rich results, e.g., in that computer and TV should be combined to have easier access to internet	Development of facilitating tools to access SNS

23. Mikkola & Halonen, 2011 (add. search)	Study: feasibility study of ICT and social media, interviews	12 community-dwelling older adults (4 men, 8 women), 67-86 years old, ICT users and non-users	Focused on social media not on interviews. Facebook known but negative views towards it due to privacy issues and “disgusting” behavior in network, Skype used by some of the interviews	Accessibility and usability of existing SNS
24. Nahm, Resnick, DeGrezia, & Brotemarkle, 2009 F	Study: impact of moderated discussion board on social cognitive theory based structured hip fracture prevention website on health behaviors	Analysis of 316 discussion board postings of 90 older users (55+) with ICT access and experience from SeniorNet and a newspaper online appearance read mainly by African Americans to include minority participants	Many adults recognized opportunities for improvement (k = 55 postings) and identified motivators to improve health behaviors (k = 31); more than half of the sample reported that the discussion board enhanced their learning experiences.	Education/health information via social media
25. Nahm et al., 2010 H	Study: effects of the use of discussion boards in a hip fracture prevention website			
26. G. Nimrod, 2010 C	Randomized controlled study: qualitative content analysis of one year’s data from 14 leading seniors’ online communities	Messages of adults in online communities: 686,283 messages of 79,665 authors	Activity during one year slightly increasing. 13 main topics including (in descending order) “Fun on line,” “Retirement,” “Family,” “Health,” “Work and Study,” “Recreation” “Finance,” “Religion and Spirituality,” “Technology,” “Aging,” “Civic and Social,” “Shopping,” and “Travels.” The overall tone was somewhat more positive than negative.	Content analysis of online communities
27. Galit Nimrod, 2011 C	Study: ethnography (netnography = “a new qualitative research methodology that adapts ethnographic research techniques to study cultures and communities that are emerging through computer-mediated communications” (Kozinets, 2002, p. 65).) approach of one year’s data from 6 leading seniors’ online communities	About 50,000 posts of an unspecified number of authors	The majority of posts were part of online social games, including cognitive, associative, and creative games. The main subjects in all contents were sex, gender differences, aging, grandparenting, politics, faith, and alcohol. Main participatory behaviors were selective timing (different activity rates according to time of day, week, and year), using expressive style, and personalization of the online character. Although most participants were only passive users (“lurkers”) the active par-	Content analysis of online forums

			<p>participants nurtured community norms and relationships, as reflected in the written dialogues.”</p> <p>online communities provide a unique form of casual leisure</p>	
28. Norval, Arnott, & Hanson, 2012 *(add. search)	Study: focus group	8 adults 60+ having varying degrees of experience with computers		Inhibiting factors in SNS use
29. Norval, Arnott, Hine, & Hanson, 2011 (add. search)	Theoretical		Thoughts about integrating telecare into existing SNS functionality or vice versa through Application Programming Interface (API) tools; problems to use existing SNS and suggestion to use dedicated platform to allow interactions between care professionals and cared-for persons	Development of facilitating tools to access SNS
30. Nyemba, Mukwasi, Mhakure, & Mosiane, 2011 (add. search)	Study: semi-structured interviews in South Africa Western Cape Province	Randomly picked 12 adults aged 45+, representing “golden baby boomers born 1945-1964) not participating in any online social networking group	Attitudes: + getting up-to-date information about an individual of common interest, - privacy, security, exposure to unsolicited content ; conflicts of public nature of communication in SNS with adopted social norms of keeping information private; SNS perceived as time consuming, “people get carried away”	Teach, describe and evaluate first experiences with social media
31. Perkins & LaMartin, 2012 G	Literature review		Internet as social support for older carers of adults with intellectual disabilities.	Development of specific social media applications for defined user group (carers for adults with intellectual disabilities)

32. Pfeil, Arjan, & Zaphiris, 2009 AB	Study: Content analysis of data collected on social activities and profile pages in MySpace, data collected with automated web crawlers (no music artists, profiles public and private)	Compare 50 users 60+ with 50 users aged 13-19 and their friends' networks, ending up with data set of 6,000 user profiles	"Teenagers have larger networks of friends compared to older users of MySpace. On the other hand, we found that the majority of teenage users' friends are in their own age range (age \pm 2 years), whilst older people's networks of friends tend to have a more diverse age distribution. In addition, our results show that teenagers tend to make more use of different media (e.g. video, music) within MySpace and use more"	Age differences in usage patterns of social media (number and age distribution of friends in network)
33. Pfeil, Zaphiris, & Wilson, 2009 C	Study: interviews qualitatively analyzed with MAXqda	31 older adults (60+) with different levels of online expertise: 10 non-users, 10 email users, 11 online community users	Perceptions and experiences of different aspects of online social support: Self disclosure \rightarrow level of trust necessary, but easier online than offline due to anonymity, Deep support \rightarrow physical presence important, high rate of misunderstandings online, Light support \rightarrow humor important, but difficult to deliver in online settings, Community building, Information/Facts, Off topic, and technical issues. Specific for older adults: building trust online with strangers seems to be difficult, online communication as skill to acquire, not coming natural, people participating in online networks are regarded as sad and insincere	Factors in providing and receiving online social support in online communities
34. Pfeil, Svangstu, Ang, &	Study: content analysis of 400 messages in online support community	Unspecified age, supposedly older adults	"Drawing on the findings, a set of six social roles were identified, defined, and described	Usage patterns in social media: social roles

Zaphiris, 2011 C	for older people within SeniorNet, analyzed with MAXqda2		in depth. The findings showed that the structural positions of online community members were associated with the kind of content these members tended to post.”	
35. Pfeil & Zaphiris, 2009 C	Study: social network analysis	Members of SeniorNet, 400 messages over 1.5 years on discussion board on Depression	Differences in structure between emotional and factual sub-networks, differences in social sub-networks of disclosing and supportive communication, differences between light support and deep support whereby light support is bi-directional and balances whereas deep support is pronouncing roles as support-givers and –receivers.	Usage patterns, social network analysis
36. Quico, 2008 (add. search)	Theoretical: Outline of research procedure		Proposed investigation of combination of TV with social media applications	Development of tools to facilitate access to social media
37. Sayago, Sloan, & Blat, 2011 E	Study: 3-year ethnographical study	Approx. 400 older adults aged 58-77, recruited at an adult education centre Barcelona, Spain	Use of computer-mediated communication (CMC) tools limited by cognition rather than by visual and haptic problems; ICT experience compensates for difficulties in reading from screen or using input devices, cognition problems persistent and independent of experience and practice with ICT and probably most important in addressing for further(?) research. Video chat devoted to family members to stay connected and feel close to them; blogs considered interesting though not considered relevant for own communication, many participants created content such as presentations with MS PowerPoint and Windows Movie Maker, but apparently shared these off-line → creation and sharing of social media highly dependent upon own interests and perceived usefulness	Usability and accessibility of social media; usage patterns of social media applications

38. Tanis, Das, & Fortgens-Sillmann, 2011 E	Study: cross-sectional online questionnaire on caregiver strain and well-being of participants of online health forums	Link posted in 11 online health forum, 66 participants (76 % female, 24-65 years, mean 45.63 years)	Positive relation between caregiver strain and using online health forums to seek emotional support. Caregiver strain negatively related to well-being; amount of time spent in forum is in statistical analyses no moderator variable, but amount of active participation (nr. messages posted per peek): attenuates the negative correlation between caregiver strain and well-being	Identifying factors contributing to positive consequences of social media use
39. Tsai, Chang, Wong, & Wu, 2011 D	Study: system and hardware functions, design description and acceptance study	52 residents 64-91 years old (17 males): demonstration of system and acceptance questionnaire	Designing a social media platforms for older adults living in a senior village: Sharetouch operated by up to four people accessible by RFID identification, in order to share music, videos, documents. Description of “fancy” attributes of system rather than observation of behavior. Acceptance of device investigated with biased instrument (anchors ranging from “strongly agree “ to “neutral”) → non publicly available social network	Design consideration of tool facilitating use of social media; usability and accessibility
40. Wright, 2000 E	Study: online questionnaire, quantitative analysis	136 older adults (55-87, mean age 62, 52 males) using SeniorNet and related websites	High internet users: higher satisfaction with online providers of social support, less satisfied with offline support network; greater involvement in online community associated with lower life stress; most common coping strategy = direct action	Factors contributing to positive consequences of social media use
41. Wright, 2000b (add. search)	Study: qualitative topic analysis (grounded theory) of social support messages of members of the SeniorNet community	136 adults (55-87 years old)in online questionnaire; sample of online conversations/ messages from SeniorNet forums on random days over a two month period, e.g., encompassing every day issues, meeting forums to life events cancer, caregiving, home and auto repair, retirement topics	Topics were community support, advice disguised as self-disclosure, shared life events; use of humor, discussion of family issues with non-family members, use of others as a “sounding board”	Content analysis of information shared on SNS

42. B. Xie, 2007 C	Study: semi-structured interviews	20 members of SeniorNet Users Group computer club aged 67-92, 11 males	“First, within this particular group of older American Internet users, there is little online interaction. The Internet is used primarily as a handy tool to obtain information rather than for developing online relationships. Second, weak tie relationships that develop as a result of face-to-face interactions in computer club meetings facilitate the exchange of information among members. Third, social interactions in the offline environment also provide rich opportunities for older adults to form and maintain companionship relationships. These findings reveal a previously ignored phenomenon: In addition to creating online social relationships, the Internet can also affect relationship formation in the physical world.”	Transfer between real and virtual world; offline and online relationship formation
43. Bo Xie, 2008 E	Study: semi-structured open-ended interviews with grounded theory approach and ethnographic study (observation)	Online community OldKids of older Chinese people (age 50+): 33 members age 50-79	Three different modes of CMC and types of social support exchanged: Voice chat room is best suited for companionship, e.g., singing/talking, nothing personal, fun, online forum used for informational support (“computer-related subjects, “very general level” interactions, and learning/education”), instant messaging used for emotional and instrumental support (“communication of intimate subjects, exchange of deep, personal feelings, and emotional support”)	Different usage patterns of social media applications dependent upon exchanged information/support/ intimacy
44. Bo Xie, Watkins, Golbeck, & Huang, 2012 AD	Exploratory study with inductive thematic analysis	7 weekly semi-structured open-ended discussions with 10 African-American adults, 3 males, 61-83 years old	Older adults’ perceptions and learning of how to use social media: perceptions changed from negative to differentiating between more and less private modes of social media (e.g. blogs versus Facebook); from	Teach, describe, and evaluate first experience with social media; educational strategies in teaching how to use social media

			passive observation to actively revealing information; main effective educational strategies were to introduce the concepts before introducing the functions and making social media personally relevant. Privacy as primary concern and key barrier	
45. Zaphiris & Sarwar, 2006 B	Study: descriptive and social network analysis and other techniques	437 visitors of teenagers' newsgroup and 131 visitors of the seniors' newsgroup	Differences between teen and senior public online newsgroups: the teens newsgroup is more connected, sent and received more messages and has a higher reciprocity. The senior newsgroup has more central dominant people who tend to make the rest of the network dependent on them for communication.	Age differences in usage patterns

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