

We Learn from Each Other: Informal Learning in a Facebook Community of Older Adults

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Abstract: Older adults represent a growing population of users participating in Facebook communities. Sharing and posting in these platforms exhibit information exchanges that can be considered as informal learning in social media. Although research uncovered rich details of informal learning of older adults in online communities, studies based on social media communities remain a research frontier. In using a netnographic approach, we add to the limited literature and collected social media data from thirty-one (31) members of a Facebook community of older adults. A total of 1076 posts and 631 comments were collected. We applied thematic analysis using the social exchange theory as our theoretical foundation and found three salient themes in the analysis of information exchanges namely (1) Keeping healthy, (2) Ensuring safety, and (3) Family relationships. We present the current state of research in the use of online communities of older adults to support informal learning, discuss our methodology, state our findings, and highlight the implications of this study.

Keywords: Older adults, online communities, information exchanges, informal learning, netnography, social media, Facebook communities

1. Introduction

Population ageing coupled with wider Internet access ushered in a new generation of older adults who are heavily invested in social media platforms such as Facebook. In the last five years, older adults represent the highest increase in Internet usage across all age groups and social media participation is one of their major activities online (Ivan, 2019; Yu, 2020). Primarily designed as a social technology, Facebook has become a tool where information can be shared and acquired in what research referred to as information exchanges (Carvalho & Lopes, 2016; Costello, McDermott, & Wallace, 2017). Within the wide spectrum of Facebook arena of tools is the Facebook Community, a platform where users can interact and therefore exchange information (Johnson, Lawson, & Ames, 2018). For older adults, cognitive decline remains to be one of their generation's constant struggle and online communities can provide a venue to deter this dilemma. Past studies support the value of online communities as a platform that encourage information exchanges among older adults.

Late life can be viewed as a phase where older adults have gained rich life experiences and professional expertise that are rarely captured. The emergence of older adults in Facebook communities is an opportunity where this information can be archived, acquired, and studied to depict the information sharing and seeking behaviors of older adults online. In these online communities, older adults discuss freely their opinions, share and seek information, and participate in social interactions that are all important facets of what constitutes a community (Chang, Chang, Lian, & Wang, 2018; Yu, Ellison, & Lampe, 2018). Discussions online is a tacit process which is difficult to observe but its naturalistic data affords research to investigate these information exchanges to provide a clearer picture of the cognitive behavior of older adults (Ivan, 2019).

In this study, we analyzed posts and comments from select members of a Facebook community of older adults to find themes within their online discourses. Using netnography and social exchange theory, we contribute to present research in several fronts. First, studying the themes and topics within online

communities generated by the users themselves will provide a deeper understanding of what information exchanges occur in the digital space from the perspective of older adults (Kapoor et al., 2018). Second, a qualitative inquiry into the online discourses of Filipino older adults in a Facebook community will add to the limited research diversity in the use of technology for informal learning in adult education (Bora Jin, Kim, & Baumgartner, 2019). Third, most research included participants in Western countries even when social media is gaining popularity in developing economies (Yu, 2020). Fourth, we contribute to limited applicability of the social exchange theory by operationalizing its constructs and applying it to information exchanges occurring online (Cooper-Thomas & Morrison, 2018). Lastly, we present online communities as an information exchange community where informal learning takes place when most research established these platforms as a place where older adults spend leisure time and socially interact. We discuss related studies and the theoretical underpinnings in the next section followed by our methodology and discussion of results. Recognizing the limitations of our study, we highlight opportunities to guide future research endeavors.

2. Related Studies and Social Exchange Theory

Participation in information exchanges by older adults in online communities is driven primarily by factors associated in late life. Physical and psychological deterioration translates to lesser social activities and online communities are venues where older adults interact with others. A prominent topic of research in online communities and older adults looked at how online communities provide social support (Wannatrong, Yoannok, & Srisuk, 2018; Willard, Cremers, Man, Van Rossum, et al., 2018) and social connectedness (Anderson, 2019; Burmeister, 2012). Assisting others and sharing experiences, knowledge, and opinions with like-minded peers related to ageing appears to enhance the feeling of social support and social connectedness (Burmeister, 2012; Litchman, Rothwell, & Edelman, 2017; Willard, Cremers, Man, Van Rossum, et al., 2018).

Retirement signals a transition in late life where older adults spend more time on the Internet for leisure and learning. Prior literature investigated discussion forums catering to older adults such as Greypath in Australia (Coelho & Duarte, 2016), Oldkids and LaoYouBang in China (Pan, 2017; Zhao, Zhang, & Ma, 2020), and numerous English-based discussion forums (Nimrod, 2013; Nimrod & Berdychevsky, 2018). Various topics are discussed in these platforms, proof that older adults engage in informal learning online. Professional knowledge gained across lifespan is shared as well such that older adults are considered as important contributors in an online community (Kowalik & Nielek, 2016).

While research on Internet-based online communities is flourishing, studies on online communities found in social media is scant despite recent change of preference among older adults (Beringer et al., 2017; Blieszner, Ogletree, & Adams, 2019). However, older adults' participation in online communities have recently spurred scholarly curiosity. Facebook communities that cater primarily to information exchanges among older adults are in health-related topics include diabetes (Litchman, Rothwell, & Edelman, 2018) and disability (Baker, Bricout, Moon, Coughlan, & Pater, 2013). Discussions focused on sharing of experiences, coping strategies, and self-interventions to challenges associated with ageing.

The social exchange theory of Homans (1958) views human behaviors as a direct result of social negotiations among individuals. In the exchange process, social interactions among individuals are based on the assessment of the costs and benefits. Online communities are virtual gatherings of individuals who participate in various forms of symbolic social exchanges. Contrary to economic social exchanges, interactions within these communities exhibit forms of symbolic social exchanges where intangible goods such as emotional support, enjoyment, information, and opinions are traded, forming new relationships among its members (Byoungcho Jin, Park, & Kim, 2010; Jung, 2018; Tsai & Kang, 2019). In the study of Jung (2018), members posting online information such as personal life experiences represent self-expression and the comments or reactions from the other members are interaction cues that support social exchange in the virtual environment. The quantitative study of Yan, Wang, Chen and Zhang (2016) tested this theory in the context of online health communities by operationalizing costs and benefits in their

investigation revealing that personal benefits such as self-worth, reputation, and support encourages participation.

3. Methodology

Research in computer mediated communication calls for novel methodological approaches to understand the digital content within these social media platforms. Netnography has been found to be an appropriate tool to depict the culture of a specific social cluster present in online communities. Research using this method uncovered rich insights into the information exchanges among older adults (Ivan, 2019; Kowalik & Nielek, 2016; Zhao et al., 2020).

3.1 An Ethical Approach to Netnography

The convenience of collecting naturalistic data emerging from the daily occupancy of users along with the potential of harm and privacy risks necessitates ethical considerations (Kantanen & Manninen, 2016). The practice of digital research methods to investigate online communities is arguably well founded in recent literatures but approaches are varied and largely motivated by research settings such as the platform, the participants, and the study objectives (Germain, Harris, Mackay, & Maxwell, 2018; Mkono & Tribe, 2017). The ambiguity between what constitutes the public and private domains is at the fulcrum of existing debates among scholars who practice digital research methods (Heinonen & Medberg, 2018; Lawless, Augoustinos, & LeCouteur, 2018). Most online communities require membership, governed by a set of rules and activities are influenced by the technology platform. These elements evolve as communities grow and these online social gatherings adapt to technological improvements of platforms (Fielding et al., 2016; Kozinets, 2013).

Upon approval of the university ethics board of the project's methodology, we commenced data collection by approaching thirty-one (31) older adults who are members of a Facebook community using a snowballing technique in the recruitment process. An informed consent was explained to participants and approval was given prior to the formal collection of data. Posts from the participants were collected. Comments were filtered out to include only participants who provided their consent. Lastly, an approval from one of the community managers was given to the primary researcher prior to the collection of data.

3.2 Site: A Facebook Community of Older Adults

A Facebook community comprising of 71,133 Filipino older adults based in the Philippines was selected based on the number of members and frequency of posts. As required by netnography, the first author immersed in the community on March of 2019 to address the requirement of prolonged embeddedness with the community being studied. While communities of older adults may exist in other platforms, the choice of Facebook is motivated by its popularity among Filipinos and older adults worldwide (Catedrilla, 2017; Sanchez, 2020; Yu, 2020).

3.3 Thematic Analysis on Social Media Posts and Comments

A total of 1,707 posts and comments were collected from February to June of 2020 during the data collection phase. The Facebook community posts and comments from the selected participants covered the first post or comment of the participants until their last contribution to the platform until the end of May of 2020. These posts and comments represent bi-directional exchanges of community members' thoughts, emotions, and beliefs (Sutikno, Handayani, Stiawan, Riyadi, & Subroto, 2016). These exchanges were organized into a data set according to participant, type (post or comment), date, and type of content (image, picture, gif, or emoji). Each post or comment is assigned a unique identification number for traceability.

Excerpts, or portions of the posts and comments were selected using Dedoose, a qualitative data analysis software (Batsis et al., 2018; Taylor, Bogdan, & DeVault, 2016). A codebook was developed based on prior and similar literatures in the application of netnography in the participation of older adults in online communities (Balcerzak & Nielek, 2017; Haris, Majid, Abdullah, & Osman, 2015; Harley, Howland, Harris, & Redlich, 2015). The content of the codebook followed the format of Roberts, Dowell, and Nie (2019) and included the name of the code, its definition, criteria for inclusion, and sample post or comment. This codebook was constantly updated, and data was iteratively analyzed by the first author and the second author when an excerpt demonstrates a new code. Five versions of the codebook representing four iterations of analyses were conducted. Disagreements in the application of code were discussed in 19 sessions using Zoom and written in memos. This resulted to constant reflections from the two authors in the analysis of the data set. Meetings were recorded and transcribed. Agreements and disagreements were noted resulting to an acceptable threshold of Inter Rater Reliability or IRR of 91.59% (Graham, Milanowski, & Miller, 2012).

Themes are defined as patterns of codes that can be grouped together based on similarities and contradictions (Braun & Clarke, 2006). We analyzed codes from within and across the posts and comments of the participants and checked against our codebook to search for learning related clusters of codes to define our themes (Barbosa Neves, Franz, Judges, Beermann, & Baecker, 2019). In addition, we looked at these themes as frequently occurring codes in posts or comments. We extracted this data from Dedoose using its code co-occurrence feature to support our primary themes from the data (Talanquer, 2014; Taylor et al., 2016). The final set of themes, their corresponding codes and names were finalized by Coder A and Coder B.

4. Results

Based on the analysis of data, there are three themes in the information exchanges of older adults in this specific Facebook community:

4.1 Keeping Healthy

The most salient theme from the analysis of our data revolves around discussions about health and the general well-being of older adults. There are 22 participants who shared their daily activities on how they keep healthy such as their daily exercise routines, diet, and vitamins intake to address health challenges in late life. Community members respond to these posts by sharing comments and images of their daily activities. For example, three participants (004, 005, 007) shared their current health crisis with the group which solicited advices from other members ranging from prior experiences from a sickness and how they were able to cope up with that challenge. Physical activities were frequently shared by members and usually posted with images of them walking, running, and dancing Zumba. A male participant (021), is a runner who posts pictures of him during fun runs, his medals, and provides advice to the community on how this physical activity keeps him fit and healthy. A female participant (004), shares images of her while dancing Zumba with friends and relate this activity to her health and well-being. Past studies reveal that information exchanges on health and well-being is popular among older adults participating in online communities (Litchman et al., 2017, 2018). Knowledge shared and gained in these platforms provide meaning and support as older adults grapple with the challenges of late life through constant informal learning interactions with others (Bora Jin et al., 2019).

4.2 Ensuring Safety

Frailty is common in late life and older adults are curious how others deal with this challenge. Discussions about safety were mentioned by 16 participants and were shared through text-based posts and to a lesser extent, image-based content. Natural disasters are frequent in the Philippines, and older adults appear to be

severely affected by these situations. During typhoons and volcanic eruptions, participants remind other members to stay indoors to keep safe. In several posts (003, 005, 008, 28), members will share current information about rains and floods and how it endangers the lives of older adults. During the COVID-19 lockdown, members (003, 005, 017, 029) posted government reminders for older adults to stay indoors that encouraged other members to comment their opinions and inquiries resulting to active discussions about safety. Addressing safety concerns discussed in social media can encourage autonomy and independence while acknowledging limitations in late life (Haris et al., 2015). Online informal learning on safety can complement healthcare professionals in ensuring that older adults live well (Miguel & Da Luz, 2017).

4.3 Family Relationships

In late life, family relationships become as important as health and safety. Issues with family relationships were discussed freely by 14 members with the rest of the community. A male member (007), shares arguments with his children regarding living arrangements and financial support. Advises and inspirational messages from other members are given in the form of comments. Community members value family relationships and this is usually expressed in a form of inspirational quotations shared by some of the participants exhibiting forms of social support (003, 029, 030). Two female members (028, 030) narrates their stories through posts on how they care for their adult children and siblings with special needs and how it provides meaning in their lives. Notable among these Facebook posts are daily activities, selfies, and images of family members and grandchildren. During the COVID-19 lockdown, some members were separated from their family members and posted pictures on how they maintain relationships through technology. Similar studies find that older adults participate more in discussions regarding family relationships and are primarily driven by the joy of sharing happy memories with other members (Nimrod, 2013; Zhao et al., 2020).

5. Conclusion

In summary, this study used netnography to identify key themes in the information exchanges of older adults in a Facebook community. We found three prominent themes in these discussions: keeping healthy, ensuring safety, and family relationships. We adopted a qualitative inquiry into naturally occurring social media data to identify salient points of conversations within a Facebook community of older adults. Population ageing remains to be a global issue that can be addressed by scholars from various disciplines such as technology, social, and health sciences (Zhao et al., 2020). Initial findings indicate that informal learning takes place in Facebook communities among members where they learn from each other in what is referred to as online personal learning networks (Morrison, 2015; Morrison & McCutcheon, 2019). The desire to engage in informal learning activities through these networks supports a recent revelation in literature that older adults can learn, participate, and relate better in a like-minded community (Morrison & McCutcheon, 2019).

The exploratory nature and sample size of this study does not equate to confirmatory findings but establish clear research pathways and practical recommendations. First, cognizant of prior works on the use of social media for active ageing (Chan & Suarez, 2017; Daniel, 2018), future research can investigate how online social interactions in these platforms improve the general well-being of older adults. Second, as an everyday social technology, Facebook is a cost-effective vehicle in promoting advocacies related to active ageing given that informal learning takes place within these platforms (Bora Jin et al., 2019; Quinn, 2019). Third, information dissemination is fast in online communities, appropriate verification mechanisms should be established to deter misinformation especially in content related to health and safety (Carvalho & Lopes, 2016). Fourth, from the academic perspective, informal learning is a naturally occurring process in Facebook communities and it is imperative for stakeholders in education to find ways on how to capitalize on this opportunity for lifelong learning especially for older adults suffering from cognitive decline (Lawless et al., 2018). Lastly, from a methodological standpoint, we

utilized a purely netnographic approach in this study and future studies of online communities may want to combine traditional methods such as interviews to capture a holistic view of why informal learning encourages participation from older adults (Fenton & Procter, 2019).

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References

- Anderson, K. A. (2019). The Virtual Care Farm: A Preliminary Evaluation of an Innovative Approach to Addressing Loneliness and Building Community through Nature and Technology. *Activities, Adaptation & Aging*, 4788, 1–11.
- Baker, P. M. A., Bricout, J. C., Moon, N. W., Coughlan, B., & Pater, J. (2013). Communities of participation: A comparison of disability and aging identified groups on Facebook and LinkedIn. *Telematics and Informatics*.
- Balcerzak, B., & Nielek, R. (2017). Golden years, golden shores: A study of elders in online travel communities. 2017 7th International Conference on Computer and Knowledge Engineering, ICCKE 2017, 2017-Janua(Iccke), 199–204. <https://doi.org/10.1109/ICCKE.2017.8167875>
- Barbosa Neves, B., Franz, R., Judges, R., Beermann, C., & Baecker, R. (2019). Can Digital Technology Enhance Social Connectedness Among Older Adults? A Feasibility Study. *Journal of Applied Gerontology*, 38(1), 49–72. <https://doi.org/10.1177/0733464817741369>
- Batsis, J. A., Zagaria, A., Kotz, D. F., Bartels, S. J., Boateng, G. G., Proctor, P. O., ... Carpenter-Song, E. A. (2018). Usability evaluation for the Amulet Wearable Device in rural older adults with obesity. *Gerontechnology*, 17(3), 151–159. <https://doi.org/10.4017/gt.2018.17.3.003.00>
- Beringer, R., Gutman, G., & de Vries, B. (2017). Developing a web-based platform to foster end-of-life planning among LGBT older adults. *Gerontechnology*, 16(1), 48–55. <https://doi.org/10.4017/gt.2017.16.1.005.00>
- Blieszner, R., Ogletree, A. M., & Adams, R. G. (2019). Friendship in Later Life : A Research Agenda, 3(1), 1–18.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2).
- Burmeister, O. (2012). View of What Seniors Value About Online Community. *Journal of Community Informatics*, 8(1). Retrieved from <http://www.ci-journal.net/index.php/ciej/article/view/545/880>
- Carvalho, R. E. V., & Lopes, C. T. (2016). Social network analysis to understand behaviour dynamics in online health communities: A systematic review. *Iberian Conference on Information Systems and Technologies, CISTI*, 2016-July. <https://doi.org/10.1109/CISTI.2016.7521491>
- Catedrilla, J. M. (2017). Filipino Consumers ' Decision-Making Model in Social Commerce Filipino Consumers ' Decision -Making Model in Social Commerce. *PACIS 2017 Proceedings*, 112.
- Chan, C., & Suarez, M. (2017). Social Media as Enabler for ICT Inclusion to Achieve Active Ageing. Retrieved from <http://aisel.aisnet.org/pacis2017/185>
- Chang, I. C., Chang, C. H., Lian, J. W., & Wang, M. W. (2018). Antecedents and consequences of social networking site knowledge sharing by seniors: A social capital perspective. *Library Hi Tech*, 36(4), 651–664. <https://doi.org/10.1108/LHT-11-2016-0144>
- Coelho, J., & Duarte, C. (2016). A literature survey on older adults' use of social network services and social applications. *Computers in Human Behavior*, 58, 187–205. <https://doi.org/10.1016/j.chb.2015.12.053>
- Cooper-Thomas, H. D., & Morrison, R. L. (2018). Give and Take: Needed Updates to Social Exchange Theory. *Industrial and Organizational Psychology*, 11(3), 493–498. <https://doi.org/10.1017/iop.2018.101>
- Costello, L., McDermott, M.-L., & Wallace, R. (2017). Netnography: Range of Practices, Misperceptions, and Missed Opportunities. *International Journal of Qualitative Methods*, 16(1), 1–12.
- Daniel, F. A. I. (2018). The Use of Social Media Among Senior Citizens in Portugal : Active Ageing The Use of Social Media Among Senior Citizens in Portugal : Active Ageing Through an Intergeneration Approach
- Fenton, A., & Procter, C. (2019). Studying Social Media Communities: Blending Methods With Netnography. *Studying Social Media Communities: Blending Methods With Netnography*.

- Fielding, N. G., Lee, R. M., Blank, G., & Hine, C. (2016). Ethnographies of Online Communities and Social Media: Modes, Varieties, Affordances. *The SAGE Handbook of Online Research Methods*, 401–413.
- Germain, J., Harris, J., Mackay, S., & Maxwell, C. (2018). Why Should We Use Online Research Methods? Four Doctoral Health Student Perspectives. *Qualitative Health Research*, 28(10), 1650–1657.
- Graham, M., Milanowski, A., & Miller, J. (2012). Measuring and Promoting of Teacher and Principal.
- Haris, N., Majid, R. A., Abdullah, N., & Osman, R. (2015). The role of social media in supporting elderly quality daily life. *Proceedings - 2014 3rd International Conference on User Science and Engineering: Experience. Engineer. Engage, i-USER 2014*, 253–257. <https://doi.org/10.1109/IUSER.2014.7002712>
- Harley, D., Howland, K., Harris, E., & Redlich, C. (2015). “Nearer to being characters in a book”: How older people make sense of online communities and social networking sites. *Proceedings of the Annual Hawaii International Conference on System Sciences*, 2015-March, 2023–2032.
- Heinonen, K., & Medberg, G. (2018). Netnography as a tool for understanding customers: implications for service research and practice. *Journal of Services Marketing*, 32(6), 657–679.
- Homans, G. (1958). Social Behavior as Exchange. *American Journal of Sociology*, 63(6).
- Ivan, L. (2019). Using Netnography to Research Older Adults ’ Online Communities. In *Ageing and Digital Technology*. Springer-Singapore. https://doi.org/https://doi.org/10.1007/978-981-13-3693-5_9
- Jin, Bora, Kim, J., & Baumgartner, L. M. (2019). Informal Learning of Older Adults in Using Mobile Devices: A Review of the Literature. *Adult Education Quarterly*, 69(2), 120–141.
- Jin, Byoungcho, Park, J. Y., & Kim, H. S. (2010). What makes online community members commit? A social exchange perspective. *Behaviour and Information Technology*, 29(6), 587–599.
- Johnson, A., Lawson, C., & Ames, K. (2018). Are you really one of us?: Exploring ethics, risk and insider research in a private Facebook community. *ACM International Conference Proceeding Series*, 102–109.
- Jung, E. H. (2018). Status update : Gratifications derived from Facebook affordances by older adults.
- Kantanen, H., & Manninen, J. (2016). Hazy boundaries: Virtual communities and research ethics. *Media and Communication*, 4(4A), 86–96. <https://doi.org/10.17645/mac.v4i4.576>
- Kapoor, K. K., Tamilmani, K., Rana, N. P., Patil, P., Dwivedi, Y. K., & Nerur, S. (2018). Advances in Social Media Research : Past , Present and Future. *Information Systems Frontiers*, 531–558.
- Kowalik, G., & Nielek, R. (2016). Senior programmers: Characteristics of elderly users from stack overflow. *Lecture Notes in Computer Science (Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, 10047 LNCS, 87–96. https://doi.org/10.1007/978-3-319-47874-6_7
- Kozinets, R. (2013). The Method of Netnography. In *SAGE Internet Research Methods (Vol. 6, p. 2000)*. London: Sage Publications. <https://doi.org/10.4135/9781446268513>
- Lawless, M., Augoustinos, M., & LeCouteur, A. (2018). Dementia on Facebook: Requesting information and advice about dementia risk-prevention on social media. *Discourse, Context and Media*, 25, 44–51.
- Litchman, M. L., Rothwell, E., & Edelman, L. S. (2017). Patient Education and Counseling The diabetes online community : Older adults supporting self-care through peer health. *Patient Education and Counseling*, 6–11.
- Litchman, M. L., Rothwell, E., & Edelman, L. S. (2018). The diabetes online community: Older adults supporting self-care through peer health. *Patient Education and Counseling*, 101(3), 518–523.
- Miguel, I., & Da Luz, H. A. (2017). Internet use for active aging: A systematic literature review. *Iberian Conference on Information Systems and Technologies, CISTI*.
- Mkono, M., & Tribe, J. (2017). Beyond Reviewing: Uncovering the Multiple Roles of Tourism Social Media Users. *Journal of Travel Research*, 56(3), 287–298. <https://doi.org/10.1177/0047287516636236>
- Morrison, D. (2015). How older adults use virtual personal learning networks to support informal, self-directed lifelong learning goals: A research program description. In *Proceedings of the 12th International Conference on Cognition and Exploratory Learning in the Digital Age, CELDA 2015 (pp. 293–296)*.
- Morrison, D., & McCutcheon, J. (2019). Empowering older adults’ informal, self-directed learning: harnessing the potential of online personal learning networks. *Research and Practice in Technology Enhanced Learning*, 14(1). <https://doi.org/10.1186/s41039-019-0104-5>
- Nimrod, G. (2013). Probing the audience of seniors’ online communities. *Journals of Gerontology - Series B Psychological Sciences and Social Sciences*. <https://doi.org/10.1093/geronb/gbt059>
- Nimrod, G., & Berdychevsky, L. (2018). Laughing off the Stereotypes: Age and Aging in Seniors’ Online Sex-Related Humor. *Gerontologist*, 58(5), 960–969. <https://doi.org/10.1093/geront/gnx032>
- Pan, S. (2017). Examining the Effects of Social Networks Formed in a Senior-oriented Online Community on Older Participants ’ Subjective Well-being in China, 4750(March).
- Quinn, K. (2019). SOCIAL MEDIA AND SOCIAL WELL-BEING IN LATER LIFE. *Innovation in Aging*, 3(S1), 328–329.

- Roberts, K., Dowell, A., & Nie, J. B. (2019). Attempting rigour and replicability in thematic analysis of qualitative research data; A case study of codebook development. *BMC Medical Research Methodology*, 19(1), 1–8.
- Sanchez, M. J. (2020). Philippines Facebook penetration 2020 |. Retrieved September 3, 2020, from <https://www.statista.com/statistics/490518/share-of-the-philippines-internet-users-using-facebook/>
- Sutikno, T., Handayani, L., Stiawan, D., Riyadi, M. A., & Subroto, I. M. I. (2016). WhatsApp, viber and telegram: Which is the best for instant messaging? *International Journal of Electrical and Computer Engineering*, 6(3), 909–914. <https://doi.org/10.11591/ijece.v6i3.10271>
- Talanquer, V. (2014). Using qualitative analysis software to facilitate qualitative data analysis. *ACS Symposium Series*, 1166, 83–95. <https://doi.org/10.1021/bk-2014-1166.ch005>
- Taylor, S., Bogdan, R., & DeVault, M. (2016). *Introduction to Qualitative Research Methods A*. (S. Taylor, R. Bogdan, & M. DeVault, Eds.) (4th ed.). New Jersey: Wiley.
- Tsai, J. C., & Kang, T. (2019). Reciprocal intention in knowledge seeking : Examining social exchange theory in an online professional community. *International Journal of Information Management*, 48(February), 161–174. <https://doi.org/10.1016/j.ijinfomgt.2019.02.008>
- Wannatrong, N., Yoannok, S., & Srisuk, K. (2018). The Development of Online Community Model to Promote the Life Quality Level of the Elderly in Urban Society. In 2018 16th International Conference on ICT and Knowledge Engineering (ICT&KE) (pp. 1–6). IEEE.
- Willard, S., Cremers, G., Man, Y. P., Van Rossum, E., Spreeuwenberg, M., & De Witte, L. (2018). Development and testing of an online community care platform for frail older adults in the Netherlands: A user-centred design. *BMC Geriatrics*, 18(1), 1–9. <https://doi.org/10.1186/s12877-018-0774-7>
- Yan, Z., Wang, T., Chen, Y., & Zhang, H. (2016). Knowledge sharing in online health communities: A social exchange theory perspective. *Information and Management*, 53(5), 643–653.
- Yu, R. P. (2020). Use of Messaging Apps and Social Network Sites Among Older Adults : A Mixed-Method Study, 14, 4453–4473.
- Yu, R. P., Ellison, N. B., & Lampe, C. (2018). Facebook Use and Its Role in Shaping Access to Social Benefits among Older Adults. *Journal of Broadcasting and Electronic Media*, 62(1), 71–90.
- Zhao, D., Zhang, Q., & Ma, F. (2020). What is discussed about eldercare?: A netnography study on a Chinese online community for older adults. *Electronic Library*, 38(2), 239–255.