Summer 2017

Social Media as Enabler for ICT Inclusion to Achieve Active Ageing

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Social Media as Enabler for ICT Inclusion to Achieve Active Ageing

Completed Research Paper

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Abstract

Social media is a potential tool to promote the active engagement of elderly individuals in online communities. Technological advancement in developed countries has spurred interest to improve the quality of life of individuals as they age. This cannot be said in the developing countries like the Philippines, where the digital divide is apparent. This work investigates how technology use, particularly social media, can promote active ageing among Filipino elderly. The paper presents the results of a study conducted among 168 elderly volunteers living in an urban area located in a country experiencing first-level digital divide. Using the lens of social cognitive theory, this quantitative study is directed to examine the personal, environmental and behavioral factors influencing the continued use and non-use of social media among the elderly.

Results show that majority of the elderly in the urban area in the country are experiencing first-level digital divide. However, the paper also discovered that some elderly social media users actively participate in photo and video sharing, social networks, internet forums, and product reviews and ratings. The findings suggest that the obvious predictors of active use/behavior of elderly on social media are influenced by age, highest educational attainment, and capacity to own and access technology. These facilitate social bonding with their strong-tie relationships. To narrow the elderly's digital gap, a proactive stance needs to be taken to prepare technological and social structures to allow the next generation of the elderly to practice active ageing.

Keywords: Active ageing, elderly, digital divide, social media, social cognitive theory
1 The Elderly in a Contemporary Society

The world is ageing. The elderly has the world’s fastest age growth, and its population has outnumbered children aged five years old and below (Scobie et al. 2015). Countries with a huge elderly population must be commended because they have successfully faced the various challenges in human development. However, due to the effects of demographic revolution worldwide such as reducing support ratio of the working class to ageing class, shrinking productive workforce, and elderly isolation, the World Health Organization (WHO) conceptualized the term active ageing in 1990’s. Active ageing refers to the idea of enhancing the life of the people on health, participation, and security as they age (Llorente-Barroso et al. 2015).

Humans are essentially social and societal beings. They need collaboration in order to exist. To collaborate and to cooperate are the fundamental meanings of the terms “social” and “society” (Fuchs 2013). Moreover, sociality can be expressed as cognition like reading, watching, and listening to any media or online platforms (Fuchs 2014). It further involves communication and forming online communities. On the other hand, the goal of the active ageing is the postponement of the functional declines of an individual or generally termed morbidity (Fries 2012). Hence, the social nature of the elderly and their condition must be considered to support active ageing. Mechanisms must be strengthened for the elderly to participate in a collaborative society.

Social media were defined with the concepts of Web 2.0 and the formation and exchange of the user-generated content (Ngai et al. 2015). A high form of democratic participation occurs in an online community (Fuchs 2013). These are apparent in its subcategorization of social media as internet forums, weblogs, microblogs, wikis, social networks, photo and video sharing, product reviews and ratings, multiplayer online games, and podcasts. While some of these served as motivators for young people to use social media (Jung and Sundar 2016), the use of social networking was discovered to be popular with the elderly (Jia and Choe 2013). Leveraging on this finding, it can be seen that the popularity of social networks can be an enabler for the elderly to use the ICT.

Globally, forty percent (40%) of the elderly are now living independently. This is more common in developed countries (United Nation 2013). Moreover, utilization of ICT in an ageing society is seen as a social necessity and economic opportunities (Chakrabarti et al. 2015). To promote active ageing in today’s information society requires an understanding of their technological needs (Malanowski et al. 2008) and attitudes (Gonzalez et al. 2012). This is also a logical first step to anticipate the further growth of the senior citizen population in the future. In general, it was observed that the elderly sector is becoming more interested in the internet because of the different opportunities found relevant to their needs, such as information, communication, transactional, administrative, leisure, and entertainment (Llorente-Barroso et al. 2015). They are also commonly focused on current affairs and health, which are said to positively contribute to their active ageing (Gonzalez et al. 2012).

In the Philippines, ICT opportunities for the elderly are becoming evident, although elderly internet users are only estimated at 2% of the elderly population (Labucay 2011). Two of the strategic thrusts of the Philippine Digital Strategy Plan for 2011-2016 are an inclusive internet opportunities and digital literacy for all, including the elderly. Tele-geriatrics, a possible effective means to deliver quality healthcare to the elderly, has been introduced still is in its infancy stage (Soriano 2012). There are also online jobs which are opening to everyone regardless of age and status (S&T Media Service 2014). Thus, ICT has the capability to respond to the challenges faced by the elderly, whether for employment opportunities or personal well-being.

Prior IS research on elderly and social media have been conducted with focus on characteristics (Hutto et al. 2015), motivations (Jung and Sundar 2016), perceptions (Xie et al. 2012), attitudes and behaviors (Lin and Chou 2011), and challenges (Arfaa and Wang 2014) of the elderly in the use of social media. Some other work related to the elderly and social media has focused on its use (Leist 2013; Rachham and Ttechatassanasoontorn 2014), user requirements (Huei et al. 2013), and design (Hutto et al. 2015). Studies on social networking sites and the elderly were also found to be more common compared to their activities on other forms of social media; Liu and Engineering 2015; Vošner et al. 2016).

In this regard, the objectives of this study are to examine the personal, environmental and behavioral factors influencing the continued use and non-use of social media of the elderly in the Philippine context. Through the lens of social cognitive theory (SCT), the researchers posit that it will uncover the
potential of social media use as an enabler of ICT inclusion for elderly in the Philippines. This article is structured as follows: Section 2 presents the review of the related works on the three factors of SCT which influence the elderly use of social media, the functional building blocks of social media, and bridging the elderly's digital divide to e-inclusion. The research design is discussed in Section 3, while the findings and its analysis are presented in Section 4. These are followed by the presentation of conclusion and future work in Sections 5 and 6 respectively.

2 Literature Review

2.1 Factors of SCT in the Elderly Use of Social Media

The existing literature on the use of social media to any age group revealed that there are different interactions of factors which influence the adoption and use of social media to an individual (Jia and Choe 2013; Ngai et al. 2015). In this paper, the lens of the SCT was used to explain the bidirectional influence or triadic reciprocity of the three factors. Individuals were not forced by their inner self alone to do certain task nor shaped and controlled by external forces but there are these three events which all operate as interacting determinants to each other (Carillo 2012). The selection of the SCT focusing on social psychology is in contrast to other theories used in IS which is mainly driven by a techno-centric approach. To understand the elderly use of social media is not only to examine their experience of technology use alone but with other elements of daily living. The three factors of SCT, namely personal, environmental, and behavioral are explained further:

Personal. Personal factors are aspects which characterize an elderly individual (Carillo 2012). These are their demographic profile, health status and motivation to use the technology. There are different studies of social media use involving the investigation of personal factors in various approaches. These are in terms of methodologies and lenses of theories (Coelho and Duarte 2016; Ngai et al. 2015). One of the major research directions proposed by Ji and colleagues (2010) is to analyze the real needs of the elderly in the use of technology to improve their quality of life as they age. Moreover, Leist (2013) identified hindrances in the use of social media for older people. These are considered constraining as they age, such as intrapersonal - being too old, functional-memory decline, structural – limited capacity to own a technology, and interpersonal- lack of support from others. Reducing these barriers are the important prerequisite for older people to use social media. However, despite the limitations in the use of social media to elderly, an observed number of seniors are still using the platform for social networking.

Environmental. Bandura (1999) distinguishes three types of environmental structures, as follows: imposed, selected, and constructed environments. Although individuals have limited control over some of its physical and social environment, most aspects of the environment do not operate as an influence until they are activated by appropriate behavior (Bandura 2011). These different forms of environment represent shades which will affect personal development and functioning (Bandura 1999). This means that family members do not influence elderly in the use social media unless their elders become active users. Another example is when two people meet on social media, this should result in an offline meeting or other outdoor activities. Thus, social media is one of the potential online sites for the elderly to gather and engage in social contacts and receive up-to-date information to family members and friends (Trentham et al. 2015) and this will also direct to social support which will influence the elderly’s actions and attitudes (Vošner et al. 2016).

Behavioral. There are different theories which will explain one's action towards technology (Abedalaziz et al. 2013). To mention some of them are TAM (Braun 2013), the theory of planned behavior (TPB) (Liu and Engineering 2015), and theory of reasoned action (TRA) (Ngai et al. 2015). TAM and TRA have both behavioral elements however, TAM was an improvement of TRA, with constructs of perceived usefulness and perceived ease of use as determining factor of user’s intention. On the other hand, TPB postulates that human actions are guided by behavioral beliefs, normative beliefs and control beliefs (Al-Lozi and Papazafeiropoulou 2012). Therefore, the behavior in the use of social media is viewed as the result of a set of beliefs about technology and a set of affective responses to the behavior. Attitudes towards the use of technology play an important role in the user’s intention that turn into actual usage of social media.

2.2 The Functional Building Blocks of Social Media.

Social media is found to be an information rich medium which the activities are discussed in the different literature as expert search, identity (Schaar et al. 2013), content sharing, communication, social connection (Gu Ji et al. 2010), and presence (Kietzmann et al. 2011).
The use of social media for expert search. Popular social media platform promotes the meeting of professionals, while other sites link individuals with a shared interest (Thelwall 2009). Users can form a network of people from common workplace or university. Such as the expert search function of social media was utilized by Korean and Chinese users aged 20-30 years old to find experts for an advice to an important decision or emotional support (Gu Ji et al. 2010). While the purpose of the elderly in using social media is to research offline contacts (Coelho and Duarte 2016). These kind of social media usage are giving the user a chance to seek and share ideas or learnings which are forms of association and collaboration.

The use of social media for communication. To establish a communication on social media is to require two-way conversation regardless of any platform (Bannier et al. 2013). Like an elderly with migrant family members in other countries, they need communication tool to stay in touch with each other (Labucay 2011). Social media is also an important factor for maintaining positive social interaction and support from online and offline sources to enhance person’s quality of life (Ractham and Techatassanasoontorn 2014).

The use of social media for social connection. Social connection activity is performed on social networking sites (SNS). It is categorized under the umbrella of social media, embedded as one of the internet applications of social media which are the social networking feature (Thelwall 2009) rather than it exist as one application. Some of the authors used the social media and social networking interchangeably (Aarts et al. 2014). The spread of the use of social media for social networking can be explained by the virtualization theory (Overby 2012). It is the process of face to face offline social connection that can be migrated to virtual environments provided it has a significant level of adoption and an evidence of a quality of outcomes. This means that the success of the social connection technology is recognized when it is as good as in person to person connection.

The use of social media for content sharing. Contents are resources commonly available on a network. Acquiring and sharing contents on social media are forms of satisfying the fundamental interests of an individual for expression, deliberation, and information (Mathiesen 2008). Articulation of users’ feelings, emotions, and ideas through different kinds of expression on social media is an interesting virtual behavior of an elderly online. (Kurian 2014) offered a framework for examining the types of user information on social media. This information is classified as personal, professional, social communication, information and knowledge sharing, information request, media, and others. This variation of information can, directly and indirectly, benefit or harm users on a network.

The use of social media for identity. Individuals considered media as the second self, an extension of themselves (van Dijk 2006). Social media offer a space for a self-expression and simultaneously multilateral interactions (Kim et al. 2010). These platforms help a user to create a profile which depicts one’s identity online. It is one of the motivations for the use of the online social network, a desire for an expression and facilitates social interactions (Treem et al. 2016).

The use of social media for presence. Presence on social media identifies users if they are online and available, on-line but hidden, or available to some and hidden to others (Kietzmann et al. 2011). This is an opportunity for the user to select his mode of the virtual environment. This is a way of giving a message to the online community that the user is available and locatable, otherwise, the user has the option to set his status hidden while exploring virtually. Thus, social media platform foster privacy of individual on an online environment.

2.3 Bridging the Elderly Digital Divide to E-Inclusion. There are gaps or divisions between people, homes, geographic regions, economic areas in various access and use of the ICTs (Peral-Peral et al. 2015). Efforts are evident to close or narrow this digital divide in the younger generation in terms of digital access, capability and outcome. However, this must be extended to the elderly population. The access, usage, and skills related to ICT are continuously changing. The dynamic phenomenon of digital divide changes as technology change and the last reason of digital divide is aging, whom senior citizen are often excluded from access to modern technology (Almuwil et al. 2011) and young and middle-aged people are the main targets in several social media platforms not including elderly (Chou et al. 2013).

Previous researchers call for change in the terminology of the digital divide to e-inclusion, which has more positive implications (Almuwil et al. 2011). It is e-inclusion which is the solution to gaps in ICT
usage, improves the quality of life and social participation, and will result in the reduction of social exclusion of the elderly (Bannier et al. 2013). It was also termed “digital inclusiveness”, which is the participation of all individuals and communities in all aspects of the information society (Andreasson 2015). Similarly, Bradbrook and Fischer identified the e-inclusion in 5 “Cs” key issues, these are connection, capability, content, confidence and continuity (Almuwil et al. 2011), while van Dijk (2006) distinguishes four successive kinds of new media access, which are motivational, material or physical, skills, and usage access.

3 Methodology

This research study followed the four basic requirements for a good ethical practice in dealing with the respondents, which are voluntary participation, informed consent, confidentiality, and the safety and security. Discussion of the overview of the study was first conducted to the respondents to ensure that they are aware of the nature and method of the research. To express consent, volunteers affixed their signatures to the consent form. They were also reminded that they have the option to withdraw the conduct of the survey at any point in time for whatever reason. The whole study was guided by the substantial perspective of SCT from the investigation, analysis, and findings.

The survey contained questions based on the variables of the constructs of SCT. These are the personal profile of the elderly, motivational access on ICT, measures on material access or technological requirements, support, attitude and behavioral control, skills, and usage access on the use of social media. Other entries of the survey form were adapted from the different literature in the use of social media from younger or general age group (Gonzalez et al. 2012; van Dijk 2006). The list of variables and indicators of the constructs of SCT is found in Table 1. This was used as guide in constructing the questionnaire which utilized recall, dichotomous type, multiple choice, multiple responses (e.g. Source of fund), and Likert rating scale (e.g. Very high extent to least extent and strongly agree to strongly disagree) set of questions.

<table>
<thead>
<tr>
<th>Construct</th>
<th>Variable</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal</td>
<td>Elderly’s Profile</td>
<td>Sex, age, civil status, and highest educational attainment</td>
</tr>
<tr>
<td></td>
<td>Elderly’s Physical Condition</td>
<td>Activities of Daily Living (ADL) and Self-Reported Health Status</td>
</tr>
<tr>
<td></td>
<td>Motivation</td>
<td>Motivational Access in the use of technology</td>
</tr>
<tr>
<td>Environment</td>
<td>Elderly External Support</td>
<td>Living status, source of fund, and External support in using social media</td>
</tr>
<tr>
<td></td>
<td>Technological Requirement</td>
<td>Technology/gadget used and availability of Internet connection at home</td>
</tr>
<tr>
<td>Behavior</td>
<td>Attitude and Behavioral</td>
<td>Attitude scale in the use of social media (e.g. good-bad and beneficial-harmful) and behavioral control situations</td>
</tr>
<tr>
<td></td>
<td>Control in the use of</td>
<td></td>
</tr>
<tr>
<td></td>
<td>technology</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Social media use</td>
<td>Elderly’s social media profile and social media activities/usage</td>
</tr>
</tbody>
</table>

Table 1. SCT’s constructs, variables and indicators in the elderly use of social media

The Procedure of the conduct of the study. The city is the capital of the Philippines, composed of six districts with 897 barangays. Barangays are small villages based on pre-Spanish colonial settlement structure (Aronson 2016). The study utilized the convenience sample (Onwuegbuzie Collins 2007) from several villages of Manila. These are elderly individuals who were invited and willing to participate in the survey. The 15 to 30-minute researcher-administered questionnaire was conducted in different settings based on the availability and convenience of the respondents. In performing the survey from mid-November 2016 to the first week of January 2017, voluntary participation of the elderly was ensured through a consent letter. The interview was also employed to gain additional information to the participants regarding their responses.

The Participants. There were 168 elderly volunteers who participated in the study; 60 of whom are social media users and 108 are non-users. Users of social media are composed of 61.67% female and 38.33% male while non-users are 64.81% female and 35.19% male. The majority of the respondents are in the age group of 60–69 years old (67%), they are married (52%) or widowed (32%). The results also show that elderly in the country do not practice independent living compared to the developed countries (Malanowski et al. 2008), as 93% of users and non-users live with family. Multiple responses of the respondents for their sources of financial support are typically from social security and family members (spouses, grand/children). The list of the elderly’s profile is presented in Table 2.
Table 2. Elderly’s Profile of User and Non-user of Social Media

**Validity and Reliability.** To assess the validity and reliability of the items in the questionnaire, the study used Cronbach’s Alpha with an acceptable value of 0.7 or greater. The study yielded an Alpha of 0.823 to 0.976 to the items tested which indicate that its reliability is good. On the other hand, to establish the content validity, thorough literature review and several rounds of pretesting the instrument were conducted (Straub et al. 2004).

**4 Results, Analysis, and Discussion**
From the perspective of SCT, the elderly as an agent of the action is characterized as “direct personal agency” who has the ability not only as a planner and a forethinker but is capable of functioning to decide appropriate courses of action with motivation and self-regulation. On the other hand, an elderly may consider the mode of “proxy agency” who rely mainly on others to perform certain actions. Otherwise, this individual may consider himself in a “collective agency”, i.e., one who exercises and situates socially with coordination and interdependent endeavors in a virtual environment such as the social media. These three scenarios show that the elderly is influenced by internal and external factors, i.e. as someone who regulates their own behavior from a combination of cognitive process and environmental manipulation (Bandura 1999).

Table 3. Environmental Attributes of the User and Non-user of Social Media
Elderly social media users in an urban area.

Personal. The study shows that well-educated elderly aged 60-69 years old residing in an urban area use social media more frequently. Their activities online include sharing photos and videos, posting on social networks and internet forums, and reading product reviews and ratings. This confirms previous studies that more educated people have more self-confidence, self-esteem, and courage for socializing offline (Choudrie and Vyas 2014). The survey shows that active elderly users on social media have a “very good self-reported health status” as most of the elderly users of social media are generally healthy and independent. They stay online from 10-30 minutes because they suffer from poor eyesight and arm fatigue (see Tables 4 & 5).

<table>
<thead>
<tr>
<th>Social Media Use</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-5 times per day</td>
<td>21</td>
<td>35.00</td>
</tr>
<tr>
<td>A few times a week</td>
<td>21</td>
<td>35.00</td>
</tr>
<tr>
<td>6-10 times per day</td>
<td>8</td>
<td>13.33</td>
</tr>
<tr>
<td>Less than once a week</td>
<td>8</td>
<td>13.33</td>
</tr>
<tr>
<td>More than 10 times per day</td>
<td>1</td>
<td>1.67</td>
</tr>
<tr>
<td>Missing</td>
<td>1</td>
<td>1.67</td>
</tr>
</tbody>
</table>

Table 4. Frequency of Social Media Use of the Elderly

Motivational access in the use of the technology is considered as the first successive kind of access to new media (van Dijk, 2006). The elderly is motivated to use technology for organizing activities, obtaining and sharing information, to access entertainment, and to keep in touch with family and friends. On the other hand, questions on self-expression and finding new relationships online as motivations of the elderly to use the technology found to be 5.20 WA or “somewhat agree” and 4.23 WA or “undecided”, respectively (see Table 6). These two activities were proven to be more common to the younger generation than the older generation similar to the findings of (Livingstone 2008). It further confirms and extends previous findings of the offline-to-online paradigm that social media is a medium to continue individuals to connect their contacts from offline to online which is also performed by the elderly as their motivation to use the technology (Maier et al. 2011).

Environmental. Support from their children (71.67%) and grandchildren (23.33%) is very important in helping them learn to use social media. The elderly can easily acquire external support in their use of the technology because 93.33% of them are living with their spouse, children or relatives and only 6.67% are living alone (see Table 3). The devices they commonly used to perform social computing were the smartphone (75%), laptop (33.33%) and tablet (31.67%). It was found that having their own ICT device (98.33%) and internet connection at home, or a mobile data subscription (85%) are the most important prerequisites for the active participation of the elderly in the social media (see Table 3). These factors are considered the second kind of access which is called material or physical access. It is understood that no inclusion process can be implemented without these dimensions (van Dijk 2006). Some of the elderly who are active on social media have been supported by their family members by providing them the technology.

Elderly’s main use of social computing is for photo and video sharing (88.67%), social networks (80%), internet forums (38.33%), and product reviews and ratings (36.67%). Social media are used to maintain the relationships with friends and relatives. Participants express themselves in online communities with the tool offered by social media such as like, share and raise issues in their status update. They also actively participate in commenting, sharing and uploading contents like photos and videos. An interesting finding from the survey is their reliance on social computing for product reviews and ratings. They check product reviews and ratings to purchase quality and affordable items online. However, fewer websites considered and realized the opportunities of older adults as a potential market (Lian and Yen 2014).

Table 5. Frequency of per session use of social media of the elderly

<table>
<thead>
<tr>
<th>Social Media Use per session</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between 10-30 mins</td>
<td>21</td>
<td>35.00</td>
</tr>
<tr>
<td>Between 30 – 60 mins</td>
<td>15</td>
<td>25.00</td>
</tr>
<tr>
<td>Between 60 – 120 mins</td>
<td>12</td>
<td>20.00</td>
</tr>
<tr>
<td>Less than 10 mins</td>
<td>7</td>
<td>11.67</td>
</tr>
<tr>
<td>More than 120 mins</td>
<td>5</td>
<td>8.33</td>
</tr>
</tbody>
</table>

Table 6. Weighted Average Ratings According to ICT’s Motivational Access of the Elderly

<table>
<thead>
<tr>
<th>Motivational Access in the use of ICT</th>
<th>Social media user</th>
<th>Social media non-user</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>WA</td>
<td>Interpretation</td>
</tr>
<tr>
<td>Self-expression</td>
<td>5.20</td>
<td>Somewhat agree</td>
</tr>
<tr>
<td>Organizing activities</td>
<td>5.43</td>
<td>Agree</td>
</tr>
<tr>
<td>Obtaining and sharing information</td>
<td>5.82</td>
<td>Agree</td>
</tr>
<tr>
<td>For entertainment</td>
<td>5.47</td>
<td>Agree</td>
</tr>
<tr>
<td>Keep in touch with family and friends</td>
<td>5.80</td>
<td>Agree</td>
</tr>
<tr>
<td>Finding new relationships online</td>
<td>4.23</td>
<td>Undecided</td>
</tr>
<tr>
<td>Mean of WA</td>
<td>5.33</td>
<td>Agree</td>
</tr>
</tbody>
</table>
Social bonding or connecting with their strong-tie relationships is found to be the elderly’s motivation to use social media because the type of friend they commonly interact with virtual environment are their close friends (86.67%) and their children (75%), few with their neighbors (30%) and strangers (6.67%). This means that elderly are keen to meet and befriend strangers online. It implies tight social interactions only with their strong-tie relationships and not with weak-tie relationships.

**Behavioral.** An attitude towards an activity is a predictor of behavioral intention which will lead to usage of the technology (Ngai et al. 2015). The findings indicate the elderly find the use of social media to be very good. This suggests their attitude towards the use of social media. Other attitudes on the use of social media are “wise”, “favorable”, “beneficial”, “positive”, and “enjoyable”. These results show that the elder’s continued use of social media leads to their formation of a selective and a constructive environment online in performing their personal, proxy, and collective mode of personal agency.

Measures for behavioral control show that active elderly users of social media are experiencing full control in exploring the virtual environment. They feel free to use the ICT device and they possess full control because they have the necessary means and resources. Behavioral control is a construct of TPB which is a determining factor behind the elderly’s action to use the social media. It indicates that if the elderly holds strong control to the requirements to use the social media, then the individual will have high perceived control over the continued use of the technology. This can also be explained by the personal direct agency exercised by an individual in the use of the technology.

The third kind of access to new media is digital skill, i.e. one’s capability to operate a computer, smartphone, and use the internet. Results revealed a mean of weighted average of 3.25 or “moderate extent” to the five-point Likert scale survey of elderly in operational use the ICT as requirement to use social computing tools (see Table 7). Typically, the elderly requested housemates to turn on the gadget, or launch the application so it is ready for their use. Sometimes, elderly users also ask family or friends to help them connect to the internet, sign them in to the applications, or make an online call. It is evident that proxy agency can promote the elderly’s self-development through socially-interdependent effort by coordination with others to use social computing tools.

<table>
<thead>
<tr>
<th>Operational Skills to Use Social Media</th>
<th>WA</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>I start up, shut down, and sleep/stand computer or tablet.</td>
<td>3.43</td>
<td>high extent</td>
</tr>
<tr>
<td>I connect to a wifi for internet connection.</td>
<td>3.73</td>
<td>high extent</td>
</tr>
<tr>
<td>I start/open a web browser.</td>
<td>3.23</td>
<td>moderate extent</td>
</tr>
<tr>
<td>I log in/log out social media site.</td>
<td>3.40</td>
<td>high extent</td>
</tr>
<tr>
<td>I set maximize, minimize, resize, close windows on screen.</td>
<td>3.23</td>
<td>moderate extent</td>
</tr>
<tr>
<td>I save text/image/audio/video files onto a secondary storage.</td>
<td>3.38</td>
<td>moderate extent</td>
</tr>
<tr>
<td>I delete text/image/audio/video files.</td>
<td>3.35</td>
<td>moderate extent</td>
</tr>
<tr>
<td>I install application software or device driver.</td>
<td>2.83</td>
<td>moderate extent</td>
</tr>
<tr>
<td>I use shortcut keys.</td>
<td>2.62</td>
<td>moderate extent</td>
</tr>
</tbody>
</table>

**Table 7. Weighted Average Ratings of Operational Skills (van Dijk 2006) to Use Social Media of the Elderly**

<table>
<thead>
<tr>
<th>Information and Strategic Skills to Use Social Media</th>
<th>Mean of WA</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expert Search</td>
<td>3.69</td>
<td>high extent</td>
</tr>
<tr>
<td>Communication</td>
<td>3.47</td>
<td>high extent</td>
</tr>
<tr>
<td>Social Connection</td>
<td>3.60</td>
<td>high extent</td>
</tr>
<tr>
<td>Content Sharing</td>
<td>3.39</td>
<td>moderate extent</td>
</tr>
<tr>
<td>Identity</td>
<td>3.03</td>
<td>moderate extent</td>
</tr>
<tr>
<td>Presence</td>
<td>3.08</td>
<td>moderate extent</td>
</tr>
</tbody>
</table>

**Table 8. Weighted Average Ratings of Information and Strategic Skills to Use Social Media of the Elderly**

The two other forms of digital access skill are information and strategic skills. Five-point Likert rating scale questions for social media activities of the elderly were asked. The extent of use to the functional building blocks of social media like: “expert search”, “communication”, and “social connection” were performed by the elderly with weighted means of between 3.4 – 4.1 or “high extent”, while, activities like “content sharing”, “identity”, and “presence” were practiced by the elderly with weighted means of between 2.6 – 3.3 or “moderate extent” (see Table 8). Findings show that not all the activities on social media are amenable to elderly. From an agentic perspective of SCT, the elderly in a virtual environment exercise direct personal control. This means that the elderly practice self-censorship and control. They possess the ability to examine a certain activity based on their collectively held beliefs.
and if a certain expression does not conform to their norms, they resort to limit their access only to certain activities or content. Indeed, the elderly acts responsibly in social media.

**Elderly social media non-users in an urban area.**

**Personal.** Apart from the significant numbers of elderly social media users, this study was also interested to discover the factors of elderly non-users of social media in an urban place. The survey shows that digital divide varies within the elder age cohort. It is typical that elderly non-users reached high school (26.85%) or completed secondary education (19.44%) (see Table 2). Result also disproved the findings of other studies that gender is a factor in the use of the social media (Vošner et al. 2016) because although other studies indicate that female is prominent in the use of social media, they are also non-users compared to male. One of the determining factors of the first stage of e-inclusion of van Dijk (2006) is the motivation to use the technology. The result of the mean of weighted average of the seven-point Likert scale questions of motivational access on ICT is 1.63 or “strongly disagree” (see Table 6). This suggests that elderly non-users of social media are not sufficiently motivated to use the technology because of low motivation, lack the digital skills, resources, and capabilities to obtain access to the technology.

**Environment.** The inability of the elderly to enter the first stage of access to digital technology will prevent them from reaching successive stages of e-inclusion. Barriers which deter the elderly to technological accessibility and connectivity are the lack of smartphone or computer (69.44%) and no internet access (79.63%), which are the second prerequisites to access new media. It was discovered that the top reason for the elderly's non-use of social media is poverty. The elderly's daily struggle is to help meet the family's physiological needs. In a follow-up interview, it was discovered that they spend their time performing domestic chores and working part-time jobs, and do not consider ICT as a tool to improve their existing condition. Because most of them are dependent on their children or grandchildren financially (95%), their economic and social status impose constraints on their use of social media. This deprives them of the opportunities they may acquire in the use of social technology such as self-efficacy and collective powers to produce desired results. Table 3 presents some of the environmental attributes of elderly non-users of social media.

**Behavior.** The elderly non-users are dormant on social media because they do not possess the skill, the support, and resources to use it. They do not know how to use a smartphone or computer, and they are clearly unconnected to digital technology. However, they declare that they are willing to learn to use the social media if given the opportunity. It is also reflected that in the results of the investigation, non-users understood that the use of social media is “somewhat good”, “wise”, “favorable”, “beneficial”, “positive”, and “enjoyable”. They are aware of the advantages and disadvantages of the use of social media. However, they cannot afford to own, connect, and access to the technology. This scenario of the elderly is identified as they “want” but they “have-not” digital divide (van Dijk 2006).

**5 Conclusion**

The paper concludes that the elderly use of social media is influenced by the bidirectional interactions of personal, environmental, and behavioral factors of SCT. The interaction of these factors described how elderly reached the stages of digital access to new media to bridge the elderly’s digital divide. Thus, in the elderly’s use of social media, meeting the requirements of every stage draw the influence of three factors. The interaction of these factors captures the elderly’s desire to use technology because it facilitates social bonding with their strong-tie relationships. This is considered as their main motivation to use the social media. Maintaining such kinds of social relationships has been defined as a core element of aging well. In addition, social media has also allowed them to organize activities with family and friends, obtain and share information, and easy access to entertainment, which has motivated them to use technology. However, it is worth mentioning that their active use/behavior of social media is influenced by their individual characteristics, specifically: age, highest educational attainment, and capacity to own and access technology are the obvious predictors.

The SCT also distinguishes an imposed, selective and constructive environment in the use of social media by the elderly. These forms of environment change as the elderly exercises their increasing level of personal agency. Socio-structural and physical environment must be selectively activated by appropriate courses of action. For instance, support acquired from family members, relatives, and friends, as well as regular updates on new technologies play an important role to ensure persistent use of social media by the elderly. The knowledge that “everyone is on social media” also affects a person’s behavior in the adoption of social media. This may be considered imposed virtual environment to elderly that is thrust on them, but they have the choice to accept, use, and interact with technology. In
addition, based on the results and follow-up interviews, elderly social media users are recognizing the online shopping websites through their growing interest in product reviews, ratings, and online purchase. This only implies that elderly in the use of social media construct new environment through their continued and collective use of the technology.

A certain strand of the elderly population is already bridging the gap in e-inclusion by achieving the significant stages to digital technology. However, the digital divide in the elderly’s population is apparent. Non-users of social media are still facing the first-level of digital divide which is the digital access divide. To narrow the digital gap, a proactive stance needs to be taken. Honing individuals’ digital skills is important to prepare them in their advancing years. The Anti-Age Discrimination in Employment Act or RA 10911, also empowers the elderly to increase their self-efficacy and to find jobs without worries of age limitations. There are already Internet-based and work-from-home jobs performed by the elderly such as veteran editors offering writing services online, typing jobs, support, or telemarketing. This will prepare the next generation of the elderly to be financially stable and to engage in active ageing.

6 Recommendation
The future direction of this study is to extend the findings of the elderly use of social media to other neighboring cities, as well as, municipalities in rural areas. This is to investigate further the various personal, environmental, and behavioral factors of the elderly in the use and non-use of social media. It is also recommended to investigate other functions of social media to elderly apart from the popular social networking, photo, and video sharing. In this study and from the previous study, it was found that social capital and self-efficacy serve to bring positive effects to elderly’s active ageing, therefore, it is also suggested to discover different impacts of social computing to the elderly population in their daily living and in achieving active ageing.

References
259–282.


