

# Understanding Mobile SNS Usage for Aging People in China: A Perspective from Motivations, Trust and Attitude

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**Abstract.** The aim of this research is to investigate the determinants of Chinese older adults in the use of the social network service (SNS). Qualitative and semi-structure analysis were applied to understand what factors encourage or discourage older adults use WeChat, a most frequently used SNS in China. Our findings show a digital divide: the number of the older people used WeChat is far less than that of teenagers and young generation. Even those who used WeChat, they tend to use a small part of functions within WeChat. The survey demonstrated that psychological motivations such as sociality need, information exchange and entertainment had positive effects on older adults' attitudes. The level of WeChat usage in the context of aging is influenced by the following major themes: usage purpose and motivation, social influence, physical fitness requirements and self-efficacy. For those users who have experienced WeChat, most have positive attitude toward WeChat. Security concerns and perceived cost are not strong negative factors impeding on the older adult using the WeChat but how they use the functions provided by WeChat.

**Keywords:** Aging people · Mobile SNS usage · Technology usage and adoption

## 1 Introduction

Population aging is taking place in nearly all the countries of the world, including the most population in the world - China. According to China National People's Congress statistics predicting, the number of aging people 60 years and older was 212 million in 2014 and is supposed to arrive 243 million by the end of this decade. It is estimated that the percentage of people over 65 years in China will surpass that of Japan in 2030, and the percentage of people aged 60 or older is expected to increase to 30 % of the Chinese population in 2040. Thus, with the rapid aging process in the world, the development of China is facing the rapid population aging challenges. With the largest older population, China will probably experience heavy economic and social development pressure in the next several decades. How to sustain an autonomous and active lifestyle for the aging by optimizing opportunities for health to enhance quality of life has raised much concerns.

There are several approaches to cope with the problems of aging from a variety of advanced technologies and national policies. Among them one is that the sustainable development of information industry which the developing countries can benefit from its advantages to economic growth. In many countries, economic reform and technological innovations are encouraged to promote the aging society development. An example is that the European Union's Ambient Assisted Living Joint Program has invested significantly as part of a social inclusion agenda to improve access and uptake of ICT-based products and services by disadvantaged groups, such as older people, and to exploit the opportunities this brings for European industry [1]. Similarly, facing with the coming of aging society, China government also proposes the promotion of the aged industry from the technology besides social, economic, and policy response to alleviate the negative influence of the aging. Thus, the aging people may have accommodated to more technological changes than any previous generation for their medical services, social mobility and compatible interpersonal relations, etc.

Previous studies demonstrated that ICTs can be a possible support to help the older adults lead active and participatory life. For example, information technology such as Internet can decrease vulnerability resulting from social isolation and loneliness [2]. The older adults who use it in their personal life for activities such as reading news, trading stocks, and viewing videos will naturally find it convenient to use for personal purposes after they retire. Advanced technology is also frequently postulated as a means of supporting aging in place. Theoretically, ICTs have a huge potential to improve the quality of life for the older people, however, in practice, information technology are often found used by young generation, older adults face a number of hurdles to adopt new technologies. Thus, there is a need to explore the determinants influencing the older people accept and use the new ICTs.

In our study, we attempt to provide a research on understanding older adults' social media usage by collecting both qualitative data to analysis the determinants of using WeChat, one of the most widely used social networking service in China. And also to articulate some of the key challenges that will need to be addressed if the full potential of WeChat is to be exploited. To the best of our knowledge, this is one of the first studies to investigate information communication and sharing in social media in the context of the older generation in China.

## 2 Social Media and WeChat

Social Network Sites (SNS) is a new emerging technologies and applications that utilize the Internet and Web 2.0 technologies and allow users to create and participate genre of community-based websites. According to [3], SNS can be characterized as web-based services that allow individuals to construct the presence usually including a photo and descriptors like location, study concentration and interests, publicly display a list of other users with whom they share a connection, and to traverse those list of connections to view the profiles of others within the system. As a digital platform, SNS provides convenience for sharing the interests and social interaction amongst various ethnic groups having common thoughts on a particular topic or theme. Through functions such

as communicating, sharing, collaborating, publishing, managing, one in SNS can imitate a dialogue amongst the community members.

There are hundreds of SNSs available in the market, with various technological affordances, supporting a wide range of interests and practices. In China, the most commonly used mobile SNS products is WeChat [4, 5]. Integrating a variety of functions in traditional medium and communication technology such as text, instant messaging, hold-to-talk voice messaging, broadcast (one-to-many) messaging, etc. WeChat provides a medium of interaction that allow people to create, generate and exchange media content between users. Users can share their photographs and videos, and location, organize offline meetings and group work, etc. As a means of effective and efficient communication, WeChat has gained its popularity of 650 million active users in 2015 according to the users reports.

In general, available, effective and affordable communication facilities are important for maintaining a good quality of life. Through engagement with WeChat, older people can have more active later life. Unfortunately, despite WeChat have been increasingly popular and widely used in China [6], most users focus young generation between 13 and 35 years old [7]. The number of the older adults using WeChat is also far lower that most developed Western countries. SNS in China are still a young person's game and the elderly population have been found less familiar with IT, which implies that issues pertaining to their acceptance of WeChat deserve special attention.

## 3 Methods

### 3.1 Sampling

The study was carried out in 2015. Participants were recruited in Wuhan City, a megacity in the center of China. Criteria for inclusion were: (1) community-dwelling, (2) individuals aged 50 or older, and (3) not cognitively impaired. Most interviewee lived near campus. There were nine college students participated in our survey and these students were divided into three groups for survey and interview. The questionnaires form were assisted by students according to their answers due to their weak eyesight and reading difficulties. The older adults who did not heard about SNS/WeChat before were ignored in our survey. Therefore, most respondents knew WeChat more or less and some are using WeChat.

Two types of questionnaires, online and offline were designed for data collection. For online survey, older adults who were likely to meet those criteria were selected and given the website linkage to the questionnaires if they expressed interest in participating our survey ( $n = 12$ ). We also made an appointment with local community and scheduled the interview with senior citizen association ( $n = 53$ ). In addition, some interviewee, very small part in our samples, were approached in person near the supermarket and the kindergarten ( $n = 5$ ). That is, although we developed the questionnaires online version, most questionnaires (84.5 %) were completed by interview offline because it was difficult for older adults to continue the online questionnaires.

Finally, we got the samples consisted of 69 participants whose ages ranged from 50 to 70. WeChat use and adoption among them fall off notably starting at approximately

age 70 due to the olds' physical conditions and operation ability. The average age was 57, and 64 % of the participants were female, seemingly indicated that female were more likely to use WeChat than male. Of the participants, most of our samples had attained high school education and above. The majority of the participants considered their health to be good or excellent, and easy to communicate. Our analysis is based on these samples.

### 3.2 Questionnaires and Interview Questions

We used semi-structured interview to collect the data. In order to ensure the interview can continue, we list the possible influencing factors derived from prior western literature. For example, the widely used technology acceptance model (TAM) [8], Unified Theory of Acceptance and Use of Technology (UTAUT) [9], and previous studies on the technology acceptance pertaining to older adults [10]. The reason that we did not completely use the determinants and scale items in these two models as empirical validation is that both models were primarily designed for the organizational context. The respondents we interviewed were all retired and we believed that their purpose and motivation might have distinct comparing to the organizational context. Additionally, there is no prior studies on the determinants pertaining to WeChat and there is a need to explore the possible determinants conducted with a fairly open framework which allow for focused, conversational, two-way communication.

The possible factors led to an interview guideline used for each group. This is a list of questions and topics that need to be covered during the conversation. Different interview tactics were guided to support the goal of creating a broad comprehensive understanding. For instance, regarding to those used WeChat, the questions were guided to the reasons why and how they start their usage such as the factors pertaining to social influence, the benefits WeChat brought to them, etc. While for those not used, purposive attention was paid to capture their views on the barriers such as health status, education, and level of technology experience, the difficulties and the cost, security concerns, etc. In addition, participants were asked how frequently they used these devices and what they used these devices for. Other gathered background information included educational level and previous vocation.

### 3.3 Data Collection

All the interviewer were required to record the new information which are not list on the guideline since the determinants cannot be all designed and phrased ahead of survey. Questions could be added during the interview, allowing both the interviewer and the person being interviewed the flexibility to probe for details or discuss issues. After the interview was completed, the interviewer were urged to list new insights to a report shared by all the members.

The determinants were discussed within the team and then combined into the list. As more data are collected, and as data are re-reviewed, determinants can be grouped into concepts, and then into categories. In this way, new and overarching categories of factors were formed, added and refined, and the findings was shaped. The entire process took 6 weeks, and in the last 1 weeks, few new information about determinants were

added, indicating that data saturation was reached. These data and the data on background information of participants were entered in SPSS version 21 in order to produce descriptive statistics. All possible determinants are sorted by frequency, which have been extracted from the data. Finally, 10 critical determinants were built, based on the reports from each member and group.

## **4 Data Analysis**

### **4.1 Usage Purposes and Motivation**

The usage of technology depends on his purpose and motivation. Most respondents left the working environment, thus, extrinsic motivation such as salary, awards, job performance might not be but intrinsic desire or need might be the forces driving older adults to use WeChat. As a social human, older adults will have the need to communicate with others peoples, know about the information of his living environment and interact with the environment. Hence, a communication channel is important for them to exchange and share the information with other people, which can be transferred by text, symbolic, voice, pictures and video through network.

Our survey indicated that communicating with family members is one of motivations of using WeChat. Many older adults did not live with their children since their children work out-of-town or at other cities far away from their living place. Comparing to mobile call, WeChat is a better alternative to transfer richer information such as pictures and video besides voice and text. Additionally, some respondents especially retired Chinese women often support their children and grandchildren by taking after the younger households with child-care and house-work, they need WeChat to communicate with their children.

Another reason is that some attend the association and need WeChat for the club activity, or for health information and national news. WeChat provides the old with a way to share their life and opinions with others, allows the old to access a broad range of learning materials for personal use. Some often look through the Moments to know about others' life. Most think the information on WeChat is very useful, and many respondents say that they often show their life through Moments.

Not all respondents used WeChat. Some respondents said that WeChat was useless for them because his friends and relatives are always close to them, and they can contact with them using phone call or text. Whenever participants did not use WeChat, they stated that they did not see a need for it, particularly when mobile phones can meet the needs for communication. Additionally, they argued that their friend did not use WeChat and he did not know what they would do with WeChat. Thus, perceived need is one of the critical factors that the respondents use WeChat.

### **4.2 Mobile Smart Phone Devices Ownership and Use**

WeChat primary runs on mobile smart phone with Android, windows phone and IOS system. This means it is not possible to get into the WeChat network if one do not possess a suitable smart phone with the app installed. Therefore, if the older adults have

no smart devices, he has no opportunity to try and use WeChat. Unlike smart phone is popular in young generation, not all the old own smart devices. On average, around two thirds of older adults own smart phone in our survey. Some old adults use the geriatric mobiles with big pressing button and large fonts, which provides simple functions and ease of use.

There are several reasons contributing to the older adults' not having smart phone. Buying a new phone can be costly. Our survey indicated that one is that most popular smart phone are more expensive than geriatric mobiles, the other is those devices always developed with complex functions out of the older adult's capability. For some respondents, the functions of geriatric mobiles is enough for their communications. Thus, the price and complexity of smart phone could be two of the critical barriers using the WeChat. Only when the relative advantages of using WeChat are greater than these hindrance force, will older adults upgrade their phones.

### **4.3 Self-efficacy**

In our research, most of the old people who use WeChat have received senior high school education and above, and their physical conditions are good, therefore, they don't think it hard for them to learn how to use WeChat. For most people in our survey, WeChat is easy to learn and the operation is simple. However, the older adult require a greater amount of assistance on WeChat usage. Most respondents start to install and use WeChat helped by their children and members in the club.

The age changes in perception and motor control may make it harder to see a mobile screen, type on a button, or knowledge leap. For example, several respondents replied that they could not recognize and use English alphabetic characters to input Chinese characteristics. In addition, there need more time it takes to learn a new technology.

### **4.4 Personal Interests and Individual Innovation Awareness**

Not all the respondents are interested in WeChat. Some participants spoke they were 'non-technological' person and they were not interested in WeChat. Some old people have conservative opinions. They think WeChat is for the young and don't support old people to use WeChat. For example, some said that WeChat was trifles for young generation and kids. Some respondents said that they preferred their entertainment and games such as Chinese Chess, dancing in their age. Most WeChat functions are generally aimed the young that don't interested older people.

### **4.5 Perceived Benefit**

When asked about the role that WeChat played in their social activities, most of those used WeChat agreed that WeChat could meet their social activity need and make the connections between them and their relatives/friends. WeChat enlarges their social network because they can keep touch with their friends and relatives. WeChat provides useful ways to contact with their friends. What's more, they can send SMS and voices through WeChat, which is more convenient than phones calls and messages. WeChat

communication has been a emotion expression tool through many kinds of media such as speech, image, facial expression, red packet and so forth.

Older people might weigh benefits heavily when deciding whether to adopt new technology since they learn technology not for future but now. Therefore, relevance such as convenience, entertainment and pleasure is important for them to learn to use WeChat. Besides the obvious benefit in connecting to their friends and family, WeChat is an alternative of phone calls and messages. Many old people will run WeChat when WiFi is available, thereby they can save the phone calls and messages fee.

#### **4.6 Enjoyment and Pleasure**

For those used WeChat, especially for women, they agreed that it was pleasant to chat and interact with their friends through WeChat. WeChat always gather people with the same interests, or, people with common goals and aspirations. Thus, WeChat provided news or issues personal interests in common, hobbies, sports, etc. Sharing on how to take care their grandchildren is a major topic. Also the old are very happy to get to know about their relatives' especially their children's life. They agreed the interesting things in the Moments bring them a lot fun.

#### **4.7 Influence of the Social Network**

Members of the social network of the participant can act as an alternative to the participant's personal technology use, and participants were concerned how their technology use affected other people in their social network. As others talk about "WeChat" from time to time, they also start to use WeChat to catch up with the fashion. As a result, the social network plays more direct, roles in influencing the participants' use WeChat and their technology-related attitudes and beliefs. People who were in close contact with the participant could recommend or against certain technologies. An example is this dialogue between a participant and her daughter: "... And then she said to me: "Mum, I installed WeChat in your cell phone and you have to learn to use WeChat. If I added you as a friend of mine then you can see my photos and moments every day. ...you can see me and your grandson by WeChat.""

#### **4.8 Perceived Cost-Data Access Charge**

Cell phone expenses can be a significant part of old people's budget. Most old people care about cost resulting from data access. There are many different carriers for text, calling and data access. They will find one plan that meets his needs. Most respondents are light users who only use WeChat for text and message browse. Some respondents won't use WeChat unless Wifi is available. Another case is that the carriers is sufficient for them. Anyway, most don't think using WeChat will really kill their savings and they can afford it, so data access charge is not a critical barrier for the older adults using the WeChat but it has impact on when and how to use WeChat.

#### 4.9 Security Concerns

Most respondents in our research concerned about WeChat security. They don't believed they have enough knowledge and experience about WeChat. They worried about possible loss in using WeChat, so they didn't use the functions such as e-pay, financial assistant and charge service in WeChat. They are also concerned about the leak of their personal privacy and doing something wrong. Thus, due to security concerns, many old people only used a small part of functions such as message, chat, news reading and browse the others' Moments. Compared to the young, most functions in WeChat were not used by old adults.

WeChat allows people to add friends by a variety of methods, including searching by username or phone number, adding from phone or email contacts, or viewing nearby people who are also using the same service. However, most of respondents will not add stranger as his friends in WeChat.

#### 4.10 Other Barriers

Education, physical conditions and previous career are important factors influencing the WeChat usage of the older adults. If the old people is low educated and his physical conditions is not very good, for example, weak eyesight problems. Some old people are very busy with their own things and don't have time for social media. Some old people don't have a person who can teach them to use WeChat. Otherwise, some old people think phone calls and SMS can totally satisfy their need because they have small social circles and children are around them.

### 5 Discussion

Sociality interaction need is the primary purpose for the old people to use the WeChat. Our survey indicated that the daily life and interpersonal relationship had a lot influence on the old adults' SNS usage. SNS is a reflection of his/her real life, increases the connection to family and friends, feelings of relevance and an interactive outlet to the real world. Our result indicated that there were two resources from which they start to use WeChat, one is from their Children's persuasion, the other is showed and recommended by their friends. Thus, sociality need in his daily life, social influence, such as from his children and his friends in later life have a great influence on his intention and usage in WeChat. If in social life many of their relatives and friends use WeChat, the older adults will have more willingness to use WeChat. If their daughter and son lived far away, WeChat can provide the relative advantage such as remote video call. This suggests that the older adults will change their WeChat usage behavior according to their social surroundings. In addition, research found that WeChat provides a tool for older adults to stay connected with loosely their children and friends, to expand one's social network by linking like-minded people. Thus, it is important to note that older adults may be aware of technological solutions that could benefit them.

Besides perceived need and social influence, WeChat usage links to individual interests. If the older adults have hobbies together with his friends such as Chinese Chess



and Ping Pong they can spare time, they might not have interests in WeChat. Although the relationship between active later life and WeChat remains unclear, it is found that those who use WeChat have more assertive personality, more active in our interview, and usually participate in group activities. They are more willing to spend time to know about his friends moments and his environment from WeChat.

Among individual factors, age, gender, prior career and education seem to be the most important factors having a direct or indirect impact on the use of WeChat by active older Internet users. In our survey, the younger the seniors are, the more willingness they have to use WeChat. Most respondents who used WeChat are blessed with higher education and rich knowledge. Regarding to the influence by age, the number of the female users is more than male users, the female participants are more familiar with the term 'online social network' and are also more frequent users, compared to male participants. The results are in line with the existing body of research on technology acceptance by community-dwelling older adults [11]. The possible reason is that females' needs of information acquisition and emotional experience such as anecdotal and entertaining were more gratified compared with males' needs. While for old man, they are more concern about the utility functions.

Our findings indicate that participants face several challenges in acceptance of WeChat, e.g. self-efficacy, physical and psychological conditions, etc. For example, the older adults preferred to using phone call if they need to communicate with their daughters, sons and friends when they have something important to communicate. The older adults need invest more effort in using technology. Most respondents were helped by others people, if his children and most of his friends are not using WeChat, they are unlikely to use WeChat. Hence, lack of social support is an important factors hinder the older adults to develop their skills to use WeChat.

Although it is important to take into account older adults' attitudes and opinions regarding technology, more studies need to take into consideration why older adults hold such attitudes and opinions of technology. Our survey indicated that behavior-related consequences form one's attitude toward the behavior, that is, more positive attitudes toward WeChat tend to outweigh negative viewpoints, especially the older adults had used and experienced WeChat. In addition, supporters also believed that WeChat was overall safe for chatting, message and information browse. Although the income of the older adults is not high, data access cost is not a critical factor impeding their using the WeChat. Thus, such attitudes of older adults toward WeChat can be successfully manipulated through training and social support that provides direct and positive experience. The older people are capable of learning SNS albeit they might take more effort. The future SNS development for the older adults is to provide more appropriate services that reflect older peoples' interests and their needs, make the service run on geriatric mobiles.

## 6 Limitations

This study fills existing research gap by empirically explaining the factors impacting the adoption of social media of the older adults in China. However, this study has some limitations. Firstly, most samples are from campus with higher education. Seniors, like

any other demographic group, are not monolithic, and there are important distinctions in their WeChat adoption patterns, therefore, the number of the samples should be expanded. Secondly, this study only based on qualitative analysis, future studies are encouraged to use quantitative analysis to specify and expand the implications of the findings.

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