# Exploring the Use of Mobile Instant Messaging Among Middle-aged Adults in Social Relationships Maintenance with Family and Friends

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## Abstract

Smartphone has played a vital role in shaping our modern daily life, including gratifying our needs in entertainment, information search, and social networking. Nowadays, mobile instant messaging (MIM) has been adopted as a main communication tool not only by the younger generations, but also by the older groups. However, most studies have focused on how the young users communicate with their peers, while the middle-aged group has not received any proper attention from researchers. This study aims to examine middle-aged adults' (40 to 60 years old) use of MIM as a complementing tool of the traditional communication forms to sustain relational involvements with their friends and family members. Applying a snowballing online survey method, this study has asked a group of students of a communication research class of a mid-size private university in Hong Kong to deliver the online questionnaire to their parents, also asked their parents to send the questionnaire to their middle-aged friends who have children. This study finds two major types of MIM functions being used: visual-based and audio-based. These functions are significantly related to three newly found relational gratifications: friendship maintenance, family relations maintenance, and troubleshooting. This study expands the understanding of specific MIM communication patterns among the respondents, also explores the age and gender differences in MIM communication.

**Keywords:** *Mobile instant messaging, relational maintenance gratifications, family relations, middle-aged adults.*

## Introduction

Instant messaging (IM) came of age in 2000 and has become a popular communication service which allows people to create a private chat space via their mobile phones (Ramirez, Dimmick, Feaster & Lin, 2008). With the popularity of mobile technology, mobile instant messaging applications (MIM), like WhatsApp, WeChat or Line, received instant heat among all age groups because of its easy to use and is a must have mobile application for every mobile phone user. The social subject that develops in relation to this invisible technology is one who expects access, expects to be connected to friends at the stroke of a key, and expects to read and write in particular ways that lead to fulfilling connections with those friends.

Nowadays, not only teenagers use instant messaging applications as their main communication tool, but it has also diffused to the older age groups and has become their major daily communication channel. However,

most of the past research focused on younger users' gratifications and on studying how they communicate with their peers. Those who have been using the Internet since its commercialization in the early 1990s, that is the middle-aged group (aged 40 to 60), has not received any attention from researchers. One of the reasons could be related to their technology literacy level which is often underestimated among this group. Thus, this study examined the usage gratifications of Mobile Instant Messaging (MIM) among married middle-aged adults who have children and regularly used this digital technology in their daily lives. Grounded in uses and gratification theories, this research asked what functions MIM served in the participants in this group's lives and how different they use this technology with families and friends and if gender matters. To answer these questions, this study conducted an online survey through the college students whose parents are the subjects.

## Literature Review

### 1. The Gratifications of MIM Among Older Adults

Technology has the ability to enhance and enrich the lives of older people by facilitating better interpersonal relationships. Petrovčič, Fortunati, Vehovar, Kavčič and Dolničar (2015) explained that older adults have increasing their usage of the mobile phones for social interactions with their family members and peers. Marston, Kroll, Fink and Gschwind (2016) analyzed a set of data related to a developed technology, collected from participants of aged 65 years and above. The results showed that the participants have been using a variety of technological devices on a daily basis, including e-mail, search engines, text processing, and online shopping. With the popularity of mobile communication applications, we may ask whether the

gratifications gained among the elderly groups different from the younger age groups or share similarities. Uses and Gratification Theory (Blumler & Katz, 1974) assumes that people are active users of media and select how they will use the media to fulfill particular gratifications. Charney and Greenberg (2002) state that there are multiple lists, categories and classification systems to obtain the gratifications from media use. It implies that the media compete against other information sources for audiences' gratifications. Different media channels cater the needs of different users, so users will seek out sources actively to fulfill their needs.

Previous studies do find different gratifications sought by different age groups. Subrahmanyam, Reich, Waechter and Espinoza (2008) studied the emerging adults and found that they used social networking sites to connect and reconnect with friends and family members. Bosch and Currin (2015) found that elderly use email and social media to maintain contact with family and friends outside of, and sometimes even within their neighborhood. Their study found that participants felt connected with society through their communication with people. Some of them felt less isolated and lonely. Through the Internet, the elderly can communicate with more people than before.

The older groups are becoming the fastest growing online users benefited from the low price of mobile phones and data services. Mobile phones have gained an important role in the personal communication of all age groups. However, little is known about older adults' use of technology. Schwartz (2004) discussed that there was a growing trend of middle-aged adults to join youths in the use of instant messaging, while mobile instant messaging was convenient for many teenagers to discuss the hot topics with their parents easily. Hogeboom, McDermott, Perrin, Osman and Bell-Ellison (2010) found that the Internet use can

strengthen social networks, especially for adults over 50. The frequency of their contact with friends and family, and attendance at organizational meetings were all having an association with the Internet use. While Mu-Chien and Chin-Hua (2016) revealed that those middle-aged adults with potential capabilities in finance were more willing to keep up with the times using mobile instant messaging (MIM). Their study focused on middle-aged adults' uses and gratifications of the 'LINE' MIM application. The results showed that middle-aged adults use MIM to maintain their social activities and for other purposes such as stress-relief and obtaining information.

These previous studies lead to the first research question of this study: what are the relational maintenance gratifications that the middle-aged adults gained from using MIM in their daily life?

### 2. The Usability of MIM Among Older Adults

Instant messaging products have evolved quickly over the past few years and have been widely adopted by users throughout the world, not only among younger generations for social networking, but across all age groups. The new form of instant messaging through the Internet, mobile instant messaging (MIM), such as WhatsApp, Line and WeChat, emerged with the rapid development of mobile phone applications. In order to build closer ties with society, more people including middle-aged adults tend to use the Internet in their daily routines to fulfill a lot of needs, including interpersonal communications, information search, entertainments, and killing boredom. The multi-functions of MIM, such as voice messages, video call, photos and emojis sharing, may help them to express their views conveniently. Furthermore, MIM has an advantage of building up and maintaining social relationships.

While the use of MIM has been expanding vastly along with mobile technology, the needs of the elderly user groups have not been addressed sufficiently in the existing MIM applications. Bong (2015) revealed that MIM applications have great potentials in supporting social interactions and thus contribute to the well-being of the elderly. However, user interface design features, such as small font size, confusing icons, and application flow in current MIM applications, make them difficult to be learnt and used by the elderly.

On the other hand, Smith and Chaparro (2015) conducted a study to compare the user performance, perceived usability, and preference for five smartphone text input methods between youths and middle-aged adults. The study reported on a direct comparison of the five most common input methods (physical QWERTY, onscreen QWERTY, tracing, handwriting, and voice) among a population of younger and older adults who had no experience with any of the methods. Both age groups input text equally fast using voice input, but older adults were slower than younger adults using all other methods. Both age groups had low error rates when using physical QWERTY and voice, but older adults had more errors with the other three methods. Both age groups preferred voice and physical QWERTY input to the remaining methods. Voice and physical QWERTY input methods proved to be the most effective for both younger and older adults.

Gell et al. (2015) described the prevalence of technology use among adults aged 65 or older. They found that mobile technology usage in older adults varied significantly by socio-demographic and health status. E-mail and mobile text messaging might be viable mediums communication, particularly for younger cohorts of older adults and those with certain types of

impairment and less severe disability. Chopik (2016) examined the benefits of technology use of 591 older adults, including using e-mail, social networking sites, online video calls, instant messaging and using a smartphone. They generally had positive attitudes toward multi-functions of technology. The study also found that greater functions of technology use were associated with better self-rated health, fewer chronic illnesses, reduced loneliness and fewer depressions. Mei (2016) examined the ways in which 'WeChat' (a popular MIM application in China) provides new means of communication to the Chinese middle-aged adults. The research found out four recurring themes: (a) promoting status, (b) sharing memories, (c) forwarding information, and (d) organizing activities.

Westmyer (1998) found that the telephone was frequently to be used as a functional alternative to face-to-face communication; people rated it on effectiveness and appropriateness to communicate with others. Dimmick, Kline and Stafford (2000) measured the competition between e-mail and telephone use at the level of gratifications derived by consumers. They found that telephone provided more sociability gratifications such as expressing emotions and providing companionship than did e-mail. This is not surprising, as Dainton and Aylor (2002) also stated that telephone use was positively associated with satisfaction in a relationship. MIM truly changed mobile phone users' habit from making voice calls to texting. MIM also provides more user-friendly features, such as convenient voice and video chatting; a status bar allowing users to show their availability status of whether they are online or offline; free or busy that helps them to conduct real-time conversations; and individualized functions like user portraits and personalized emoticons. Therefore, when measuring the usage preference of different functions in MIM,

the multi-functions of MIM could be divided into visual-based and audio-based.

Thus, this study will further examine two research questions. The second research question: which MIM functions are mostly used by the middle-aged adults in their daily communication routines? The third question: to what extend do the different MIM functions (visual-based functions and audio-based functions) influence their various gratifications (friendships maintenance, family relations maintenance, and troubleshooting)?

### 3.  Gender and Age Differences in Technology Use

Previous studies have shown that there are gender differences in different communication media and Internet use. Leung (2001) examined the college students' motives for chatting on ICQ. He found female ICQ users tended to chat longer and more frequently for reasons of sociability, while males spent less time on each session for entertainment and relaxation. Other studies (Ling, 2004; Wei and Ven-Whei, 2006; Lo & Leung, 2009) also support that mobile phone use, texting, and instant messaging are prevalent among different age groups and gender.

Thus, the fourth research question asks: are there any impact of gender and age on the middle-aged adults' relational maintenance gratifications and preference on MIM functions?

### Method

This exploratory study adopted snowball sampling method to collect the data from the middle-aged group. The researcher invited some undergraduate students from a mid-sized university in Hong Kong to invite their parents to participate in this study, also asked their parents to forward the invitation to their friends who are in middle-age group and using MIM.

The questionnaire was posted on the Google online questionnaire platform and only middle-age adults with children who are using MIM are invited to respond to the questionnaire.

There was a total of 195 subjects responded to the questionnaire. However, 28 participants were not in the target-aged group of 40 to 60 years old. Therefore, only 176 responses were valid. The data were collected from 5 to 15 December 2016.

The most used quantitative measure of relational maintenance is the scale developed by Canary and Stafford (1992). Consistent with previous research, in this study, for each of two maintenance categories, respondents indicated how did they feel about their social relationship in that last week, rated in different statements on a 5-point Likert scale, from 1 = strongly disagree to 5 = strongly agree. A third variable, troubleshooting was added in the dependent variable list; refers to whether respondents use MIM to settle arguments with their family members, including spouse and children, and friends.

Friendships maintenance consists of 3 items. Participants were asked: "How do you agree using MIM in your relationships with family and friends with the following statements?" Item 30, 'helps to build intimate friendships'; item 31, 'builds trust between my friends and me'; item 28, 'enhances the relationships between my friends and I'. They are rated in different statements on a 5-point Likert scale, with 1 = Strongly Disagree; 2 = Disagree; 3 = No Opinion; 4 = Agree; 5 = Strongly Agree.

Family relations maintenance has 5 items. Participants were asked: "How do you agree using MIM in your relationships with family and friends with the following statements?" Item 21, 'enhances the relationship between my husband/wife and I'; item 22, 'enhances the relationship between my child/children and I'; item 25, 'makes me feel satisfaction from my family relationship'; item 26, 'helps my family and I to have a more intimate relationship'; and item 27, 'builds trust between my family and me'. They are rated in different statements on a 5-point Likert scale, with 1 = Strongly Disagree; 2 = Disagree; 3 = No Opinion; 4 = Agree; 5 = Strongly Agree.

Troubleshooting has 3 items. Respondents were asked: "How do you agree using MIM in your relationships with family and friends with the following statements?" Item 23, 'settles argument with my husband/wife through MIM'; item 24, 'settles argument with my child/children through MIM'; and item 29, 'settles argument with my friend(s) through MIM'. They are rated in different statements on a 5-point Likert scale, with 1 = Strongly Disagree; 2 = Disagree; 3 = No Opinion; 4 = Agree; 5 = Strongly Agree.

Measuring the different MIM functions, 11 items were asked with the scenario of "Last week, how often do you use the following MIM functions to communicate with your friends and family?" Items like "send text messages to communicate with my family", "send voice message to communicate with my family", "use audio call to communicate with my family", "use video call to communicate with my family", "send emoji when I am chatting with my family/friends" and the statements were repeated with friends as their recipients. The frequency of usage is measured at a 5-point Likert scale with 1 = Never, 2 = Seldom, 3 = Sometimes, 4 = Usually, and 5 = Always.
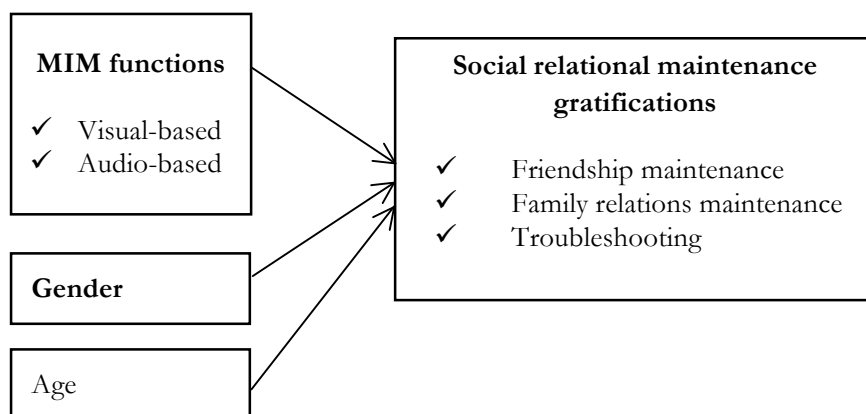
**Figure 1. Research framework**

## Research Findings

There are total 167 valid responses, including 86 female and 81 male adults. Their age ranges from 40 to 60 years old and are divided into four age groups: 40-50 (21, 12.6%); 46-50 (47, 28.1%); 51-55 (68, 40.7%); and 56-60 (31, 18.6%). Their marital status are: 15 unmarried (9%); 133 married (79.6%); 16 divorced or separated (9.6%); and 3 widowed (1.8%). In regard of the number of children, 28 (16.8%) do not have any children; 121 (72.5%) have 1-2 children; and 18 (10.8%) have 3-4 children. When asked which MIM they use most, 133 (79.6%) use WhatsApp; 17 (10.2%) use WeChat; 8 (4.8%) use Facebook Messenger; 4 (2.4%) use Line; 3 (1.8%) use Skype; and 2 (1.2%) use Snapchat.

**Table 1. Sample demographics**

| | | |
|---|---|---|
| Gender | Male | 81 (48.5%) |
| | Female | 86 (51.5%) |
| Age | 40-45 | 21 (12.6%) |
| | 46-50 | 47 (28.1%) |
| | 51-55 | 68 (40.7%) |
| | 56-60 | 31 (18.6%) |
| Most frequent used MIM | WhatsApp | 133 (79.6%) |
| | WeChat | 17 (10.2%) |
| | Facebook | 8 (4.8%) |
| | Messenger | 4 (2.4%) |
| | Line | 3 (1.8%) |
| | Skype | 2 (1.2%) |
| | Snapchat | |

*N =167

To answer the first research question, principal component factor analysis was conducted for the 11 items. This analysis found three factors, i.e. friendships maintenance, family relations maintenance, and troubleshooting, and explained 80.51% of the total variance. The measurement scale of friendships maintenance has 3 items and

accounted for 30.64% of variance explained. The measurement scale of 'family relations maintenance' has 5 items which accounted for 26.46% of variance explained. The 'troubleshooting' factor consists of 3 items which accounted for 23.42% of variance explained. The factor loadings are listed in Table 2.

**Table 2. Factor analysis of three relational maintenance gratifications**

|  | 1 | 2 | 3 |
|---|---|---|---|
| **Friendships Maintenance** | | | |
| MIM helps build trust between my friends and I | .83 | | |
| MIM helps to build intimate friendships | .83 | | |
| MIM enhances the relationships between my friends and I | .79 | | |
| **Family Relations Maintenance** | | | |
| MIM enhances the relationships between my child/children and I | | .86 | |
| I gain satisfaction from my family relations with using MIM | | .71 | |
| MIM helps my family and I to having a more intimate relation | | .68 | |
| MIM helps build trust between my family and me | | .60 | |
| MIM enhances the relationship between my husband/wife and I | | .56 | |
| **Troubleshooting** | | | |
| I settle argument with my friend(s) through MIM | | | .85 |
| I settle argument with my husband/wife through MIM | | | .84 |
| I settle argument with my child/children through MIM | | | .75 |
| Eigenvalue | 6.83 | 1.15 | .88 |
| % of variance explained | 30.64 | 26.46 | 23.42 |

*N = 167

Related to the second research question, the study finds some interesting results which worth note taking. The findings show that the priority of the middle-aged adults use MIM are with friends first (M = 3.92, SD = .91), then their spouse (M=3.26, SD = 1.25), and followed by their children (M = 3.14, SD = 1.40). The MIM functions they mostly use to communicate with friends and families are different. They mostly prefer visual-based functions to communicate with friends than families, including texting messages (M = 3.99, SD = 1.07; M = 3.90, SD = 1.00), followed by emoji (M = 3.43, SD = 1.01; M = 3.16, SD = 1.06), and sending images and videos (M = 3.00, SD= 1.18; M = 2.99, SD = 1.13).

When using audio-based functions, their preferences are somewhat different among family and friends. They prefer to make phone calls to family members (M = 2.62, SD = 1.19) than to their friends (M = 2.52, SD = 1.01); but sending voice messages to friends (M =2.55, 1.22) than to family members (M = 2.20, SD = 1.15). Video call is the least used MIM function to both families and friends (M = 1.68, SD = .96; M = 1.62, SD = .94) and therefore they are deleted from further analysis for factor analysis.

Principal component factor analysis was then conducted for the remaining 10 items and found two major MIM functions being used for their daily relational communication with friends and families (spouse and children): (1) visual-

based functions and (2) audio-based functions. They explained 55.82% of variance. The visual-based functions have six items which refer to text messages, emoji, and images and videos, explaining 32.40% of variance; whereas audio-

based functions have four items, refer to their usage of audio call and voice messages functions, explaining 23.42% of variance. Detail of the factor loadings are listed in Table 3.

**Table 3. Factor analysis
of MIM functions**

|  | Component | |
| --- | :---: | :---: |
|  | 1 | 2 |
| **Visual-based function** | | |
| I send emojis to my family | .79 | |
| I send images and videos to my family | .77 | |
| I send emojis to my friends | .76 | |
| I send images and videos to my friends | .72 | |
| I send text messages to my family | .65 | |
| I send text messages to my friends | .64 | |
| **Audio-based function** | | |
| I use audio call to communicate with my friends | | .82 |
| I send voice messages to communicate with my friends | | .74 |
| I send voice messages to communicate with my family | | .71 |
| I use audio call to communicate with my family | | .64 |
| Eigenvalue | 3.72 | 1.86 |
| % of variance explained | 32.40 | 23.42 |

*N = 167

To answer the third research question, multiple regression analysis was run to test the correlations among the two predicting variables (visual-based functions and audio-based functions) and the three gratifications.

**Friendship maintenance**. Regression analysis was run to examine the correlation between visual-based MIM functions (as predictor variable) and friendships maintenance. The data also shows a strong correlation between the variables, $r = .39$, $F (1, 165) = 29.74$, $p<.001$. The equation for predicting friendships maintenance level from usage frequency of visual-based MIM functions is: predicted friendships maintenance level = .46 x

usage frequency of visual-based functions + 1.94.

Regression analysis was run to examine the correlation between audio-based MIM functions (as predictor variable) and friendships maintenance. The data also shows a strong correlation between the variables, $r = .23$, $F (1, 165) = 9.32$, $p<.01$. The equation for predicting friendships maintenance level from usage frequency of audio-based MIM functions is: predicted friendships maintenance level = .26 x usage frequency of audio-based functions + 2.89.

**Family relations maintenance**. To answer this issue, regression analysis was run to examine the correlations between visual-based functions (as predictor variable) and family relations maintenance. The data shows a strong correlation between the variables, r = .37, that was highly significant, $F (1, 165) = 26.65$, $p< .001$. The equation for predicting family relations maintenance level from usage frequency of visual-based MIM functions is: predicted family relations maintenance level = .47 x usage frequency of visual-based functions + 1.53.

Regression analysis was run to examine the correlation between audio-based MIM functions (as predictor variable) and family relations maintenance. The data also shows a strong correlation between the variables, r = .21, $F (1, 165) = 7.33$, $p<.01$. The equation for predicting family relations maintenance level from usage frequency of audio-based MIM functions is: predicted family relations maintenance level = .25 x usage frequency of audio-based functions + 2.54.

**Troubleshooting**. Regression analysis was run to examine the correlation between visual-based MIM functions (as predictor variable) and troubleshooting. The data also shows a strong correlation between the variables, r = .29, $F (1, 165) = 15.54$, $p<.001$. The equation for predicting troubleshooting level from usage frequency of visual-based MIM functions is: predicted troubleshooting level = .95 x usage frequency of visual-based functions + 2.97.

Regression analysis was run to examine the correlation between audio-based MIM functions (as predictor variable) and troubleshooting. The data also shows a strong correlation between the variables, r = .24, $F (1, 165) = 9.63$, $p<.01$. The equation for predicting troubleshooting level from usage frequency of audio-based MIM functions is: predicted troubleshooting level =

.72 x usage frequency of audio-based functions + 4.45.

To answer the fourth research question, bivariate correlation analysis was run and the results show that there are no significant relationships between gender and the three gratifications: friendships maintenance, r = .03, n.s.; family relations maintenance, r = .02, n.s.; troubleshooting, r = -.02, n.s.

Result of ANOVA analysis shows that there are also no gender differences in choosing the two major types of MIM function: females (M = 3.43) and males (M = 3.39) middle-aged adults' use of visual-based $F(1,165) = .08$, n.s.; females (M = 2.55) and males (M = 2.40) middle-aged adults' use of audio-based functions $F(1,165) = 1.35$, n.s.

## Theoretical Discussion

The present study sought to examine the usage preferences among middle-age adults in achieving their relational maintenance gratifications in their daily routines. The results provide confirmation for previous studies from a uses and gratifications perspective, but also expand it with three newly found relational gratifications (friendship maintenance, family relations maintenance, and troubleshooting) for the less studied age group, middle-age adults. This study finds some interesting results about the middle-aged adults' specific choice of MIM functions for friends and families. Although they use mostly visual-based functions, like text messages, videos, images and emojis, to communicate with both friends and families, they prefer audio-based MIM functions, like audio calls and voice messages, for spouse and children, instead of friends. Previous research only focused on the usage of text messages and generally concluded that texts are primarily being used in personal relationships (Doring, 2002), but failed to pinpoint the various types of

personal relationships, for instance friendships or family ties. Thus, this study has enriched the literature in understanding more about middle-aged adults in their MIM usage preferences for specific recipients.

Besides, the study also expands the understanding of middle-aged adults who prefer to use audio calls with families including spouse and children, but voice messages with friends. These differences are not found in previous studies. Past study states that "text messages are being used to commence, advance, maintain, or otherwise influence interpersonal relationships" (Pettigrew, 2009: 32). With the advancement in telecommunication technologies, audio-based functions should be included in the future studies. Besides relational maintenance, the result identifies that this age group (40 to 60 years old adults) use MIM for troubleshooting to settle arguments among friends and family members as well.

The study also finds that usage frequency of both visual-based and audio-based MIM functions are significantly related to all three gratifications: friendship maintenance, family relations maintenance, and troubleshooting. These findings are supported by previous study on coding mobile text messages and divided them into two major types: relational and informational. Nardi et al. (2002) identified three troubleshooting functions of IM at the workplace: (1) for quick questions and clarifications; (2) organization and scheduling work tasks; and (3) coordinating impromptu social meetings. This means that after some technological advancement, MIM still functions like previous version of IM. Technology has changed but the gratifications gained remain unchanged.

This study also finds some contradictory results from previous research on gender and age differences in technologies adoption and communication patterns. This study assumes there are gender and age differences in MIM usage among the middle-aged adults. However, there are no significant differences found between male and female in either MIM functions preferences and the three gratifications gained through the use of MIM. Female MIM users or different age users did not show any particular preference on communicating more often with their spouse or children, like past studies have. For example, previous experiment done by Smith and Chaparro (2015) found that middle-age adults typed slower than younger adults which may indicate that older people may prefer audio-based functions. However, this study does not find any age differences in visual-based and audio-based functions usage frequency. Their preference of making phone calls to their families, instead of calling their friends, is not related to their age and ability in typing text messages.

## Conclusion

This study provides support for a uses and gratification framework that visual-based and audio-based MIM functions are strongly correlated with the specific relational gratifications and troubleshooting gratification in communicating with friends and families.

There are a number of limitations. The sampling method used is snowballing which is not a random sampling method and which may cause the validity issue. The findings of this study may only apply to this sample only. In this study, the data was collected from a sample of middle-age adults by inviting undergraduate students to pass questionnaire to their parents, as well as asking theirs to forward the invitation to their friends who are in middle-age group. Despite the fact that it is efficient to locate the right middle-age adults to be the participants, the sample may not be representative enough.

To improve data collection, a random sampling method could be adopted for future studies. Besides, the sampling size is not large enough. Future study could enlarge the sample size and expand the age range to 65 or above.

As the findings of this study suggested, gender and age have no influence on new communication technology adoption, this may indicate that the digital divine due to gender and age no longer exist in some urban cities like Hong Kong. Future studies should further examine this thesis. In addition, apart from mobile instant messaging, browsing social media such as Facebook, Instagram, and Twitter has also become a routine in recent years. Middle-age adults share their life with others by uploading photos and videos and leaving posts and responses. Future research on their uses and gratifications on social media should also be explored.

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