Intention to Use Social Networking Sites Among Malaysian Chinese Older Adults

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Abstract

Research has shown that social networking sites (SNS), such as Facebook and WhatsApp, make it more convenient for older adults to bond with friends and family. However, despite such benefits, studies also found few older adults use SNS, and even fewer older adults use SNS in less developed nations. Therefore, it is important to identify factors that can influence intention to use SNS in older adults, especially among the Malaysian Chinese population, as they will face an aging society earlier than other ethnic groups in Malaysia. This study used the Technology Acceptance Model and Reasoned Action Approach to examine whether factors such as perceived ease of use, perceived usefulness, self-efficacy, and subjective norms, are significant predictors of intention to use SNS among Malaysian Chinese older adults. Purposive and snowball sampling methods were used to recruit 288 Malaysian Chinese adults aged 60 and above to participate in this survey. Multiple regression was used to analyze the data. Results showed that subjective norms played the most important role in intention to use SNS among Malaysian Chinese older adults. These findings can provide insight for program managers and policymakers when promoting SNS use among older adults.

Niat untuk Menggunakan Situs Jejaring Sosial antara Orang Tua Cina Malaysia

Abstrak

Studi menunjukkan bahwa situs jejaring sosial (SJS) seperti "Facebook" dan "WhatsApp", membuat orang tua lebih nyaman untuk menjalin ikatan dengan teman dan keluarga. Namun, di samping manfaat menggunakan SJS, penelitian menemukan lebih sedikit lansia yang menggunakan situs jejaring sosial, dan jumlah lansia yang menggunakan SJS bahkan lebih sedikit di negara yang kurang berkembang. Oleh karena itu, penting untuk mengetahui faktor-faktor yang dapat memengaruhi niat untuk menggunakan SJS, terutama di kalangan orang tua Tionghoa Malaysia karena orang Tionghoa Malaysia akan menghadapi masalah kelompok masyarakat lanjut usia lebih awal daripada etnis lain di Malaysia. Penelitian ini menggunakan *Technology Acceptance Model* dan *Reasoned Action Approach* untuk menguji apakah faktor-faktor, seperti persepsi kemudahan penggunaan, persepsi kegunaan, efikasi diri dan norma subjektif, merupakan prediktor yang signifikan dari niat untuk menggunakan SJS di antara lansia Tionghoa Malaysia. Metode *purposive* dan *snowball sampling* digunakan untuk mengumpulkan 288 lansia Tionghoa Malaysia berusia 60 tahun ke atas untuk berpartisipasi dalam survei ini. *Multiple Regression* digunakan untuk menganalisis data. Hasil penelitian menunjukkan bahwa norma subjektif memainkan peran paling penting dalam niat untuk menggunakan SJS di kalangan manula Tionghoa Malaysia. Temuan ini dapat memberikan wawasan bagi manajer program dan pembuat kebijakan ketika mempromosikan SJS kepada orang tua.

Keywords: intention to use, older adults, RAA, TAM, technology

1. Introduction

The United Nations estimated that the population of people over 60 years of age will reach one billion by 2020. In Malaysia, approximately 2.5 million adults were aged 60 and above in 2019 (Department of Statistics Malaysia, 2019). Malaysia is likely to reach an aging nation status by 2035, when older adults will make up of at least 15% of the population (Alfian, 2017). Furthermore, the Malaysian Chinese population will reach the aging status by 2020 (Chai & Hamid, 2015).

Malaysian Chinese individuals have a higher aging rate compared to other ethnic groups in Malaysia, due to lower fertility rates, longer life expectancy, and emigration (Chai & Hamid, 2015). In 2004, one out of eight Chinese individuals was an older adult, compared to only one out of thirteen Malay and Indian individuals (Chai & Hamid, 2015). It is estimated the projected growth of the Malaysian Chinese older adult population will reach 26.1% by 2040, which is the highest compared to other ethnic groups such as Malaysian Indian (20.99%) and Malay (14.23%). Accordingly, it is important to develop strategies to improve quality of life among Malaysian Chinese older adults.

Social networking sites (SNS) are virtual platforms that enable users to interact with one another, participate in various social and recreational activities, and gather information regarding other site members (Wang, Jackson, Wang, & Gaskin, 2015). SNS include Facebook, WhatsApp, and Facebook Messenger (Eid & Al-Jabri, 2016). To date, SNS is one of the most popular and fastest growing communication technologies worldwide, and it has become an important communication tool for work, friends, and family (Tsai, Chang, Chang, & Chang, 2017; Weerasinghe & Hindagolla, 2018).

However, although the number of SNS users above the age of 60 has increased in most countries, including Malaysia (MCMC, 2018), studies have shown that most older adults are slow to adapt to current technologies, such as SNS, and prefer to use old-fashioned communication technology, such as analogue telephones (Olson, O'Brien, Rogers, & Charness, 2011). Therefore, older adults often miss opportunities to strengthen social ties through SNS, and risk becoming isolated from younger family members, who increasingly use SNS to communicate (Cornejo, Tentori, & Favela, 2013).

According to Braun (2013), SNS could be a great platform for older adults to communicate with younger generations, who increasingly use SNS. Additionally, SNS has potential to provide older adults with social satisfaction (Bell et al., 2013). Previous research demonstrated that when older adults engage in social interactions with friends and family through SNS, it can decrease their levels of loneliness and subsequently lower their risk of cognitive decline. This indicates that SNS could be an effective strategy to increase quality of life in older adults (Baecker, Sellen, Crosskey, Boscart, & Neves, 2014; Bell et al., 2013; Erik, Rains, & Wright, 2017; Pornwasin, 2015).

Although SNS can bring a lot of advantages to older adults, they still can encounter difficulties when trying to adapt to SNS use (Bell et al., 2013; Erik et al., 2017). Older adults often have a negative perception of SNS and do not believe it is a suitable tool for sustaining relationships (Vroman, Arthanat, & Lysack, 2015).

Thus, it is important to examine how Malaysian Chinese older adults perceive and use SNS as a communication tool, so that policymakers and program managers can provide better ways to promote SNS use for older adults in Malaysia (Jung & Sundar, 2016).

The Technology Acceptance Model (TAM) and Reasoned Action Approach (RAA) were used in this study to identify factors that affect older adults' intentions and behavior regarding SNS. These two theories have been frequently applied by other researchers to study adoption of different types of technology among older adults (Chen & Chan, 2014; Renaud & Biljon, 2008; Tsai, Chang, & Ho, 2016), including SNS (Brandyberry, Li, & Lin, 2010; Tsai et al., 2017; Wirtz & Göttel, 2016; Zhang & Lu, 2011). Both TAM and RAA have also been used in Southeast Asian countries, such as Indonesia and Malaysia, to examine adoption of different types of technology and systems; however, to date, there has been no research on older adults and SNS using these models (Brandyberry et al., 2010; Jap, 2017; Ramayah & Jaafar, 2008; Rouibah, Ramayah, & Oh, 2009).

TAM can be used to predict intention to use new technology (Davis, 1989; Davis, Bagozzi, & Warshaw, 1989), and studies have used TAM to explore intention to use email, (Karahanna & Straub, 1999), personal computers (Hasan & Ahmed, 2007), and smartphones (Chan & Chen, 2016). The primary concept of TAM is to conceptualize adoptive behavior as a function of two separate beliefs: perceived usefulness (PU), which measures "how this technology fulfills my needs," and perceived ease of use (PEU), or "how am I able to use this new technology" (Jap, 2017). In short, the primary goal of using TAM is to identify individual intentions behind SNS use.

Despite being frequently used for a wide range of technologies and populations, TAM is most often used to predict acceptance of technology among non-users (Braun, 2013). Studies have shown that TAM is still a powerful framework that can explain approximately 40% of the variance in individual intention to use a particular technology (Venkatesh & Bala, 2008). Constantinides, Lorenzo-Romero, and Alarcón-Del-Amo (2013) conducted research in the Netherlands among SNS users between the ages of 16 to 74, and found that TAM was able to predict SNS acceptance among the participants. Additionally, Jap (2017) discovered that TAM is a relevant research model that can be used to better understand online gaming among Indonesian students.

TAM has been shown to be equally useful among older adult populations. A study conducted by Tsai et al. (2017) among 101 older adults in Taiwan found that PEU had a positive relationship with PU, and PU had a

positive relationship with intention to use technology. A qualitative study conducted in South Africa among 34 older adults showed that both PEU and PU are vital factors associated with older adults' intention to use mobile phones (Renaud & Biljon, 2008). Another study conducted among older adults in Singapore found PEU and PU to be highly correlated with intention to use IT services (Phang et al., 2006).

RAA is the most widely used theoretical framework to comprehend individual behavior, according to social and attitude factors (Ajzen & Fishbein, 1980). The Theory of Reasoned Action explains that an individual's attitude toward a behavior could affect intentions toward that behavior, which will eventually affect the target behavior (Fishbein & Ajzen, 2011). A person who has a more positive attitude and higher subjective norms (SN) regarding an action is more likely to show stronger intent to carry out that behavior (Kim, Lee, & Yoon, 2015).

Fishbein and Ajzen (1975), conceptualized SN as an individual's perception that the most important people to that individual think he or she should or should not perform a behavior. Further, Havelka (2003), defined SN as an individual's perception of social pressure that causes the individual to perform or not perform a behavior. Thus, SN can impact a person's behavioral intention to use computers (Al-Ammary, 2010). The concept of SN focuses on the role of social influence in an individual's decision to perform certain behaviors.

Al-Ammary (2010) found that SN had a significant effect on behavioral intention; however, SN was not found to have any effect on PU. In a study by Pan and Jordan-Marsh (2010), the researchers used the term SN instead of social influence to create their research model because SN is more frequently cited in literature. This shows that the pressure and expectations from others to use the Internet have a strong effect on intention to use the Internet. The results of these studies showed that SN plays an important role in Internet use intentions.

Self-efficacy (SE) is related to an individual's intention to adopt a new technology. SE is an individual's determination and faith in his or her ability to accomplish an Internet-related task, organize and carry out suitable actions, reach a goal, and be able to use skills in the future (Tsai et al., 2016). Perceived behavior control is a similar concept to SE, and is an individual's determination and faith in his or her ability to complete Internet-related tasks, carry out actions, obtain goals, and organize and use skills in the near future (Hill, Beynon-Davies & Williams, 2008).

This study aimed to identify factors that could affect intention to use SNS among Malaysian Chinese older adults, by using the combined framework of TAM and RAA. The reason this study uses the combined framework of TAM and RAA is both framework have been proven time and time again by previous researchers to be able to predict the acceptance of technology (Braun, 2013; Venkatesh & Bala, 2008) and the behaviour intention according to social and attitude factors (Ajzen & Fishbein, 1980); which are very important factors especially in Asia culture where social influence or subjective norm plays an important role (Smith, 2015). More importantly, the findings of this study will be able to help program managers and policymakers focus on factors that could increase SNS use among the older adults, thus improving intergenerational connections. Therefore, this study aimed to identify which among the four factors of PEU, PU, SE, and SN have a significant effect on intention to use SNS among Malaysian Chinese older adults.

2. Methods

Participants. According to the G-Power Model's calculation, a minimum sample size of 74 was required to obtain an actual power of 0.80. It is recommended a larger sample size than the minimum requirement be used (Faul, Erdfelder, Lang, & Buchner, 2007); therefore, this study recruited 288 Malaysian Chinese older adult participants of both genders. Ages ranged from 60 to 98 years old. There were 12 participants below the age of 60; however, the data of these participants were not included in the study, as this research only focused on older adults above the age of 60. Thus, 276 participants ($M = 71.20$, $SD = 7.98$) completed the questionnaire, for a response rate of 95.83%. Participants included 106 (38.40%) male and 170 (61.60%) female older adults. There were 179 (64.90%) participants who completed the survey using Chinese-version questionnaires, while 97 (35.10%) participants completed the survey using English-version questionnaires. Older adults who did not use SNS were also recruited, as this study examined older adults' perceptions of and intentions to use SNS.

Instruments. Self-report questionnaires were used in this study. The questionnaires collected data on socio-demographic information, PEU, PU, SN, SE, and intention to use SNS.

Perceived usefulness. Perceptions of the usefulness of SNS were measured using a section consisting of seven items, that was adapted from Gefen, Karahanna, and Straub (2003). The items calculated the usefulness of SNS for interacting with relatives and friends (e.g., "Social networking sites improve my social life" and "Using social networking sites improves the way in which I contact my friends and family"), as well as how SNS fit into older adults' lifestyles. The items were scored using a 5-point Likert scale, ranging from 1-Disagree to 5-Agree. The scale was shown to be highly reliable (Cronbach's Alpha = 0.98).

Perceived ease of use. A section consisting of seven items was made using questions altered from Burton-Jones and Hubona (2003). The questions calculated how comfortable older adults felt when using SNS (e.g., "It is easy to become skillful at using social networking sites," "My interactions with websites are clear and understandable," and "Learning to operate social networking sites is easy"). The items were scored using a 5-point Likert scale, ranging from 1-Disagree to 5-Agree. The scale was shown to be highly reliable (Cronbach's Alpha = 0.97).

Intention to use SNS. Intention to use SNS was measured with six items (e.g., "I intend to continue using social networking sites"; Braun, 2013). One item was reversed coded: "I do not intend to continue using social networking sites in the future." The items were scored using a 5-point Likert scale, ranging from 1-Disagree to 5-Agree. The scale was shown to be highly reliable (Cronbach's Alpha = 0.97).

Subjective norm. The section consisted of three items made using questions altered and adapted from Venkatesh, and Davis (2000). The questions calculated how vital it was to the relatives and friends that the older adults use SNS, and the conversations the older adults had heard about SNS (People who are important to me think that I should use the social networking sites). The items used a 5-point Likert scale ranging from 1-Disagree to 5-Agreed. The scale was reliable (Cronbach's Alpha = 0.87).

Self-efficacy. The Internet SE section included nine items adapted from Kim and Glassman (2013). The scale included general and communication SE items (e.g., "I can be very effective communicating using social networking sites like Facebook and WhatsApp" and "I can use social networking sites to find good information about topics that are important to me"). The items were scored used a 5-point Likert scale, ranging from 1-Disagree to 5-Agreed. The scale was shown to be reliable (Cronbach's Alpha = 0.84).

Procedure. The research proposal was submitted to the Institutional Review Board for approval before starting data collection. Purposive sampling was used to recruit Malaysian Chinese participants above the age of 60 from nursing homes, churches, and community centers that were listed online. Additionally, the snowball method was also used to recruit older adults through family members and students who either themselves or their friends had an older adult at home.

Questionnaires were prepared in basic, simple-to-understand Chinese and English to accommodate older adult participants. The questionnaires were translated to basic English and Chinese using a back-translation method suggested by the World Health Organization, so that they could be easily understood by older adults (World Health Organization, 2017).

Nursing homes, churches, and community centers were contacted via email, telephone, or in person to request permission to carry out the study. Before participants completed the questionnaires, they were briefed about the information of this study, their rights to withdrawal, protection of privacy, and data provided. Subsequently, those who agreed to participate were given an informed consent form to sign. Researchers made sure the older adults fully understood the questionnaire by explaining it to them slowly and repeatedly. More importantly, researchers were present when participants were completing the questionnaires, to answer any questions or doubts. A large portion of the older adults were not able to understand English; therefore, most of the participants completed the Chinese-version questionnaire. For participants who were still not able to understand the Chinese version, the researchers explained it to them using simple Chinese dialects, such as Cantonese or Hokkien. A Tesco voucher worth 10 Malaysian Ringgit was given to participants who completed and returned the questionnaire.

Data were analyzed using the Statistical Package for the Social Science for Windows, version 23. Reliability and validity of the instruments were tested to ensure that all scales and items are reliable. Cronbach's Alpha was used to test reliability of the instruments, and a value above 0.70 was required for the instruments to be deemed reliable (Shaughnessy, Zechmeister, & Zechmeister, 2015).

Skewness and kurtosis for all items were within an acceptable range of −2 and 2 (Shaughnessy et al., 2015). Regarding multicollinearity, correlations of the factors were less than 0.75, and the variance inflation factor in this study was less than 3 (Shaughnessy et al., 2015). The multiple regression model contained four independent variables and all statistical analyses. Therefore, the assumptions of the multiple regression were met. Subsequently, a multiple linear regression analysis was conducted to identify factors that could significantly affect intention to use SNS among Malaysian Chinese older adults.

3. Results

Reliability of measurements. Table 1 shows the summary of instrument reliability by using a sample of 276 older adults. As shown in the table, the scales measuring intention to use SNS and the factors from TAM and RAA were highly reliable, with a Cronbach's Alpha coefficients above 0.929. All items were reliable, since each Cronbach's Alpha coefficient value was above 0.70; thus, none of the items were removed (Shaughnessy et al., 2015).

Table 1. Instrument Reliability (N = 276)

	Number of Items	Cronbach's Alpha
Self-efficacy	9	0.977
Perceived usefulness	7	0.976
Perceived ease of use	7	0.970
Intention to use SNS	6	0.769

Table 2. Pearson Correlations between Intention to Use SNS and All Factors (N = 276)

Factors	*M(SD)*	Pearson Correlation	Sig (2-tailed)
Self-efficacy	27.370(11.979)	0.678	<0.001
Perceived usefulness	21.960(9.273)	0.698	<0.001
Perceived ease of use	20.380(8.561)	0.612	<0.001
Subjective Norm	8.920(3.933)	0.739	<0.001

Table 3. Multiple Regression between Intention to Use SNS and All Factors (N = 276)

Factors	*B*	*SE B*	*β*	*t*	*P*
(Constant)	5.081	0.643		7.904	<0.001
Self-efficacy	0.091	0.058	0.179	1.574	0.117
Perceived usefulness	0.117	0.071	0.178	1.650	0.100
Perceived ease of use	0.028	0.045	0.040	0.629	0.530
Subjective Norm	**0.750**	**0.082**	**0.482**	**9.139**	**<0.001**

Table 2 shows the results of Pearson correlation analysis conducted to find out factor correlations in the TAM and RAA model, with intention to use SNS. The results showed there was a significant correlation between all factors in TAM (PU and PEU) and RAA (SE and SN) with intention to use SNS. This indicted that the higher the PU, PEU, SN, and SE, the higher the intention to use SNS.

A standard multiple linear regression using an enter method was calculated to predict intention to use SNS among Malaysian Chinese older adults based on PEU, PU, SN, and SE. The results showed the regression model was significant, $F(4,271) = 113.34$, $p < 0.001$, and the model account for 62.6% of the total variance, indicating a large effect size (Draper, 2016). However, only SN significantly predicted Malaysian Chinese older adults' intention to use SNS ($β = 0.482$, $p < 0.001$). *SE* ($β = 0.179$, $p =0.117$), PU ($β = 0.178$, $p = 0.100$), and PEU ($β = 0.040$, $p = 0.530$) did not add any statistical significance to intention to use SNS among Malaysian Chinese older adults (see Table 3). Thus, among the four factors (PEU, PU, SE, and SN), only SN was found to have a significant effect on intention to use SNS among Malaysian Chinese older adults.

4. Discussion

This study aimed to use TAM and RAA to identify significant factors that affect intention to use SNS among Malaysian Chinese older adults. The Malaysian Chinese population is expected to face the aging problem earlier than their Malay and Indian counterparts in Malaysia. SNS could prove to be an important tool for older adults to connect with their friends and families, thus improving their quality of life; however, very few older adults use SNS. Therefore, it is vital to identify the factors that significantly influence intention to use SNS among Malaysian Chinese older adults.

First, the findings of this study showed that all the factors in TAM and RAA were positively correlated with intention to use SNS among Malaysian Chinese older adults. The four factors also explained 62.6% of the coefficient of determination, which showed a large effect size. These findings suggest that TAM and RAA are useful models to understand intention to use SNS among an older adult population.

Second, the results of multiple linear regression showed that SN was the only significant factor affecting intention to use SNS among Malaysian Chinese older adults. Multiple linear regression results showed that SN contributed to 75.2% of the intention to use SNS, while PU contributed to 12.2%, SE contributed to 8.9%, and PEU contributed the least, with 3.3%. This is in line with the findings of Chen and Chan (2014), who discovered that older adults with better social relationships are more interested in using technology, compared to those without good social relationships, and encouragement from friends and family can affect older adults' belief in a technology's usefulness. Additionally, the findings of this study were able to support the results of a qualitative study that found SN has a positive impact on intention to use technology (Hill et al., 2008).

Third, the findings showed that both PU and PEU from TAM did not add any statistical significance to intention to use SNS among Malaysian Chinese older adults. One reasonable explanation for this could be that the current study did not focus on a specific type of SNS. This is supported by the findings of a study conducted among 1,012 Hong Kong Chinese adults above the age of 55. This previous study also used a general measurement of technology, rather than a specific type of technology, and the results showed that intention to use was not significantly correlated with PEU or PU (Chen & Chan, 2014).

Similarly, the findings showed that SE from RAA also did not add any statistical significance to intention to use SNS. This could be due to some older adults having a negative perception of SNS and not believing it is a suitable tool to sustain relationships, thus causing them to have lower SE (Gatti, Brivio, & Galimberti, 2017; Vroman et al., 2015).

5. Conclusion

This study achieved some significant findings by indicating TAM and RAA can be used to understand SNS use among Malaysian Chinese older adults. This study also concluded that SN plays the most important role in intention to use SNS among Malaysian Chinese older adults. Additionally, these findings provided an important theoretical contribution to research within a Malaysian context, since there has never been this type of research conducted among older adults in Malaysia. The findings of this study will be able to provide insight into the attitudes and perceptions of older adults toward SNS, especially in Malaysia, where this has not been thoroughly explored.

Policymakers and governments in Malaysia should concentrate on SN as an important factor when promoting SNS use for older adults, since social influence and people who are close to older adults are important when it comes to intention to use SNS. Subsequently, the results can help policymakers and governments improve policies and decisions toward improving the well-being of older adults in Malaysia. In conclusion, with the increasing rate of aging populations in Malaysia, it is better for the nation to be well-equipped with the tools necessary to face this issue and ensure the well-being of future generations of older adults.

Future research should consider conducting intervention programs to examine the effectiveness of these factors on intention to use SNS, and the extent to which these factors may increase actual SNS use post-intervention. Since this study was conducted using purposive and snowball sampling techniques, caution should be taken when generalizing the results to all Malaysian Chinese older adults. Purposive sampling is a nonprobability sampling method in which researchers cannot be certain that every person has the same chance of joining the study; therefore, the data can have low reliability (Shaughnessy et al., 2015). Due to limited resources and difficulties in using random sampling techniques for older adult participants, future research could repeat the study by recruiting different samples to determine whether the results are similar.

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