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Chunmei Gan

School of Information Management, Sun Yat-sen University, China

Tingting Li

School of Information Management, Sun Yat-sen University, China

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Inhibitors of Continuance Intention to Use Mobile Social

Networking Sites: The Effects of Stress and Regret

Chunmei Gan, Tingting Li

School of Information Management, Sun Yat-sen University, China

Abstract: [Purpose /significance] This study aims at exploring factors influencing continuance intention to use mobile social networking sites (SNS). Specifically, this study attempts to investigate the effects of stress and regret. [Method /process] 226 valid data from working staff were collected via questionnaires and further analyzed using SEM. [Result /conclusion] Results show that, stress and regret have significant impacts on continuance intention to use mobile SNS. Also, technology-work conflict and technology-personal conflict have significant influences on stress, and excessive use has a significant effect on regret.

Keywords: mobile social networking sites, continuance intention, stress, regret, user behavior

1. INTRODUCTION

With the development of mobile technologies and smart phones, mobile social networking sites (SNS) (such as WeChat) become more popular in individuals' life. Tencent official report reveals that WeChat monthly active account has reached 980 million, a year-on-year growth of 15.8% in the third quarter of 2017^[1]. However, as the competition is fierce, user continuance is still a big issue for service providers. Considering that SNS users have a high motivation and the freedom to discontinue using an SNS platform, especially when they feel the need to avoid stressful or self-evaluated feelings of painful emotion situations, it is necessary to investigate the inhibitors of continuance intention to use mobile SNS. Previous studies have mainly focused on the motives that foster continuance to use mobile SNS. To better understand factors that affecting user behavior of mobile SNS, more attention should be paid to the inhibitors.

Prior studies have investigated the factors affecting SNS user behavior. For example, Chaouali revealed that information overload and social overload affect emotional exhaustion, further influences mobile SNS continuance intention^[2]. Also, stress is found to be negatively associated with SNS user behavior. Luqman et al. found that stress can result in the decision to quit Facebook^[3]. In addition, several studies have revealed the effects of regret on IS user behavior. Woollaston confirmed that use context, which is the excessive or improper use of intrinsically rewarding information system, can violate users' moral norms and values^[4]. Turel examined the antecedent of regret feeling, satisfaction and consequences of discontinuance intention to use Facebook^[5]. As can be seen from prior studies, both stress and regret make users feel uncomfortable, so they would experience a cognitive dissonance, and consequent motivation for corrective action will arise. However, to reveal the effects of stress and regret in the context of mobile SNS, more attention should be paid to such questions as how stress and regret develop as well as what effects they have on user continuance. Thus, this study aims to explore the inhibitors that influence user continuance on using mobile SNS.

In addition, Zheng and Lee found that technology-personal conflict, technology-work and technology-family conflict have significant impacts on stress, but they did not study the negative effects of stress on continued use^[6]. Also, prior research argued that users who tired or drained from doing something develop the intention to shape their current situation^[7]. Therefore, this study attempts to integrate the effects of stress and regret, and develops an integrated model to explore the inhibitors affecting user continuance of mobile SNS. Data were collected from 226 working staff via questionnaires, and further analyzed using

structural equation model. The findings of this study have both theoretical and practical contributions.

2. RESEARCH MODEL AND HYPOTHESES

Stress refers to an individual's psychological response to a stressor such as an environmental condition^[8]. Users who are exhausted from doing something may develop the intention to change his or her behaviour^[7], such as temporarily or permanently discontinue using IS. Prior studies have shown that stress is an inhibitor that influences continue intention to use SNSs. Beauty and Pinsonneault confirmed that stress is an inhibitor that influences their intention to continue using SNSs^[9]. Luqman et al. found that psychological and behavioral consequences lead users to discontinue or reduce the use of Facebook due to stress^[3]. In addition, Maier et al. found that discontinuous use is users' coping strategy toward stress resulting from SNS exhaustion and social overload^[10]. For example, when users consider using a stressful mobile SNS is a problematic behavior, they will feel more exhausted, and intentions to discontinue SNS usage arise. The higher stress the users feel, the less they will intend to continue using the services. Hence, the following hypothesis is developed.

H1: Stress negatively affects continuance intention.

Regret is described as a painful emotion, accompanies actual or contemplated violation of internal values and rules in any situation^[11]. Users may feel regret due to their unpleasant feelings about regret-producing system or their usage behaviors that make them dissatisfied with themselves^[5]. To reduce their regret, users may modify their current situation when they realize that their behavior can't satisfy their expectations^[12]. It is argued that regret has a significant impact on user continuance. Woollaston confirmed that some hedonic IS use context, where the excessive or improper use of intrinsically rewarding IS, can violate users' moral norms and values^[4]. Based on social cognitive theory and theory of planned behavior, respectively, Turel confirmed that regret feeling is a unique driver of IS discontinuance decisions^[5]^[13]. That is to say, regret, which refer to subjective and self-evaluated feelings of painful emotion from SNS usage would be involved in the judgmental process, and influence discontinuance decisions. For example, when users sense regret, they will feel something is wrong, make them more aware of their problems, and therefore increase their motivation and ability to reflect on the discontinuance decision. The more regret users develop, the less intention they will have of using the services continuously. Therefore, the following hypothesis is put forward.

H2: Regret negatively affects continuance intention.

Technostress reflects users' psychological reaction of stress caused by their experience of using IS in the organizational context^[14]. Previous studies investigated the techno-stressors that create technostress^[15]. For example, Fox et al. indicated the interrelationship between technostress and strain among intensive ICT users^[16]. Drawing from P-E model, stress stems from the absence of equilibrium in the relationships. When individuals are limited in time, energy, and even body health conditions, the increased inappropriate use of MSNSs in different environments could lead to conflicts with family, work or school. Zheng et al found that because of the widespread use of social networking sites, stressors which create from family relationships, external environment, and personal conflicts are technology-family conflict, technology-work conflict, and technology-personal conflict^[6]. For example, when individuals produce conflict with personal, family, or work due to using mobile SNS, it will affect their body health, work performance, and reduce their quality of life. Such phenomenon may make them feel nervous and stress. The more technology-family, technology-work, and technology-personal conflict the users feel, the higher stress the users feel. Thus, the following hypotheses are assumed.

H3a: Technology-family conflict positively affects stress.

H3b: Technology-work conflict positively affects stress.

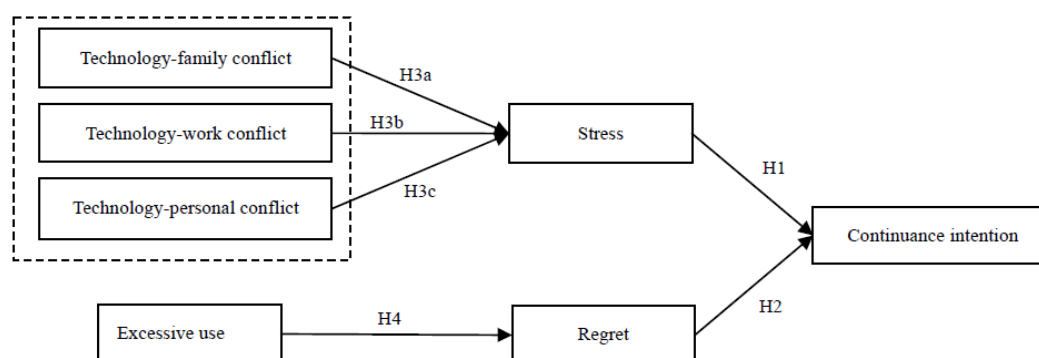
H3c: Technology-personal conflict positively affects stress.

Excessive use reflects the extent to which IS use is longer than the time planned ^[17]. Luqman indicated that excessive social, hedonic, cognitive use may be perceived as a negative stimulus and an intrusion in an individual's life ^[3], thereby causing regret. Turel found that in some cases the use of mobile SNS such as Facebook and especially excessive use and conflict stemming from high levels of addiction to such systems can present such violations that result in regret feelings ^[5]. For example, when users sense they lose control over the time they spend on website, they experience a discrepancy between what they believe is right to do, and what they are actually doing, and regret feelings arise. The greater the degree of unreasonable use, the more regret users develop. Thus, the following hypothesis is proposed.

H4: Excessive use positively affects regret.

Figure 1 presents the research model.

Fig 1. Research model



3. RESEARCH METHODOLOGY

3.1 Instrument development

To ensure validity and reliability, items were adapted from prior studies. Items for technology-family conflict were adapted from Turel ^[18]. Items for technology-work/study conflict were adapted from Hong et al. ^[19]. Items of technology-personal conflict were adapted from Zheng and Lee ^[6]. Items for stress were adapted from Ayyagari et al. ^[15]. Items for excessive use were adapted from Scott and Andrew ^[17]. Items for regret and continuance intention were adapted from Turel ^[5] and Bhattacharjee ^[20]. All items were measured with a seven-point Likert scale, ranging from “strongly disagree (1)” to “strongly agree (7)”. Appendix shows the items in this study.

Since the investigation was carried out in the context of Chinese mobile social networking sites, the method of back-translation was used to ensure equivalence of translation ^[21]. A native Chinese speaker translated the original English questionnaire into Chinese. Then another researcher translated the questionnaire into English to ensure content is consistent. And they reached agreement on the final version of the questionnaire. In addition, 25 users with rich usage experience were invited to participate in the pilot study and their feedback to the questionnaire was used to modify and improve the comprehensibility and clarity of the measurement items.

3.2 Data collection

The data were collected from working staff, and a professional survey platform sojump was used to distribute our questionnaires online. The data used in this study were collected in China, where there are noticeable characteristics in the usage of Internet and SNSs. CNNIC official report reveals that the number of mobile Internet users reached 753 million in China, an increase of 57.34 million from the end of 2016, and 97.5% of Internet users use mobile phones to access the Internet ^[22]. Furthermore, this study did not focus on

any specific mobile SNS, because most of the popular SNS applications have similar functions. This will ensure good generalizability of this research. Data were collected for two weeks and 244 completed questionnaires were obtained. After eliminating outliers and removing invalid responses, 226 valid samples were used for further analysis.

Table 1 depicts the demographic information of the respondents. With respect to the demographics of the respondents, the current research finds that 54% of the respondents are females and 46% are males. The age of most respondents ranged from 23 to 27 years. 62.18% use mobile Facebook every day, 17.13% from 3 to 6 days a week, and 20.67% from 1 to 2 days a week. 54.9% have joined Facebook for more than 3 years, 10.2% from 2 to 3 years, 16.8% from 1 to 2 years, and 18.2% for less than 1 year. 48.7% used mobile SNS frequently each day, 25.7% several times a day, 10.6% more than ten times a day, 6.6% once a day, 4.4% several times a week, and 4.0% rarely use.

Table 1. The demographic information of the respondents

| Variables | Levels | Count | (%) | Variables | Levels | Count | (%) |
|-----------|---------------------------|-------|------|------------|-------------------|-------|------|
| Gender | Male | 104 | 46 | Age | <18 | 0 | 0 |
| | Female | 122 | 54 | | 18-22 | 42 | 18.6 |
| Education | High school or below | 53 | 23.5 | | 23-27 | 119 | 52.7 |
| | Bachelor degree | 139 | 61.5 | | 28-31 | 34 | 15 |
| | Master's degree | 31 | 13.7 | | 32-36 | 25 | 11.1 |
| | PhD or higher | 3 | 1.3 | >=37 | 6 | 2.7 | |
| Usage | Frequently each day | 110 | 48.7 | Usage time | Within half year | 16 | 7.1 |
| Frequency | more than ten times a day | 24 | 10.6 | | 0.5-1 year | 25 | 11.1 |
| | Several times a day | 58 | 25.7 | | 1-2 years | 38 | 16.8 |
| | Once a day | 15 | 6.6 | | 2-3 years | 23 | 10.2 |
| | Several times a week | 10 | 4.4 | | More than 3 years | 124 | 54.9 |
| | Rarely use | 9 | 4.0 | | | | |

4. DATA ANALYSIS

4.1 Measurement model

The evaluation of the measurement model is mainly conducted by examining the validity of the convergent validity and the discriminant validity. Convergent validity reflects whether there is a high correlation between the measure items of an instrument, and is examined by composite reliability (CR), average variance extracted (AVE) and Cronbach's alpha. Values of AVE, CR and Cronbach's alpha for each construct should be at least 0.5, 0.7 and 0.7, indicating that the scales have good convergent validity and reliability^{[23][24]}. As shown in Table 2, CR values range between 0.736 and 0.916, and those for AVE are between 0.502 and 0.785, and all Cronbach's alpha values were greater than 0.70, thereby indicating valid measures.

Table 2. Construct reliability and convergent validity

| | Cronbach's α | CR | AVE |
|------------------------------------|---------------------|-------|-------|
| Technology-family conflict (TFC) | 0.712 | 0.736 | 0.502 |
| Technology-work conflict (TWC) | 0.887 | 0.888 | 0.725 |
| Technology-personal conflict (TPC) | 0.836 | 0.837 | 0.633 |
| Excessive use (EU) | 0.812 | 0.812 | 0.593 |
| Stress (ST) | 0.916 | 0.916 | 0.785 |
| Regret (RE) | 0.929 | 0.929 | 0.766 |
| Continuance intention (CI) | 0.740 | 0.752 | 0.512 |

Discriminant validity reflects whether two factors are statistically different. The criterion for discriminant validity is that the square root of the AVE value of each variable should be greater than the correlation coefficient of that variable with other variables. As shown in Table 3, the square root of the AVE value for each variable was significantly greater than its correlation with other variables. Thus, the discriminant validity is confirmed.

Table 3. Correlation Coefficient Matrix.

| | TFC | TWC | TPC | EU | ST | RE | CI |
|-----|--------|--------|--------|--------|--------|--------|-------|
| TFC | 0.708 | | | | | | |
| TWC | 0.657 | 0.852 | | | | | |
| TPC | 0.602 | 0.702 | 0.796 | | | | |
| EU | 0.649 | 0.725 | 0.726 | 0.770 | | | |
| ST | 0.549 | 0.691 | 0.750 | 0.619 | 0.886 | | |
| RE | 0.478 | 0.534 | 0.535 | 0.737 | 0.456 | 0.875 | |
| CI | -0.374 | -0.446 | -0.467 | -0.498 | -0.524 | -0.541 | 0.715 |

4.2 Structural model

The results are presented in Fig 2, explaining 54.3%, 61.7% and 39.0% of the variance in stress, regret, and continuance intention, respectively. All hypotheses were supported except for the relationship between Technology-family conflict and stress ($\beta=0.039$, $t=0.475$), thus H1, H2, H3b, H3c and H4 are supported, and H3a is not supported. Also, as shown in Table 4, the overall model fit indices demonstrate that the model is acceptable.

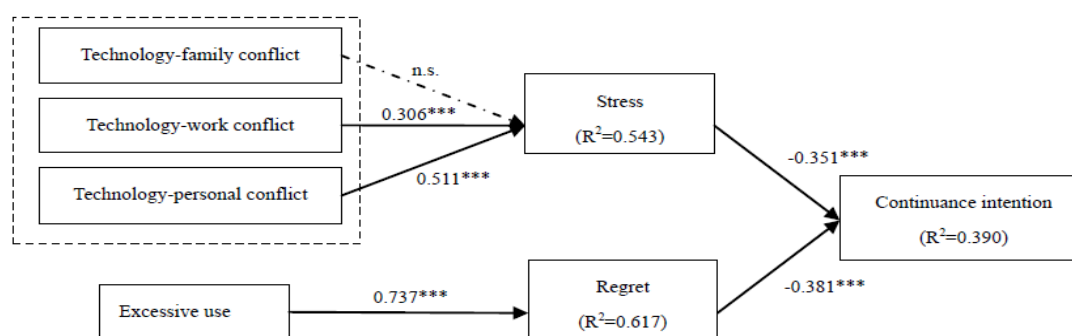


Fig 2. Structural model

Table 4. Fit indices for the estimated model.

| | Chi-square /df | RMSEA | CFI | IFI |
|----------------|----------------|--------|--------|--------|
| Critical value | < 3.0 | < 0.08 | > 0.90 | > 0.90 |
| Actual value | 1.985 | 0.066 | 0.941 | 0.942 |

5. DISCUSSION, IMPLICATIONS AND LIMITATIONS

5.1 Discussion

This study aims to explore inhibitors of continuance intention to use mobile SNS. Results show that technology-personal conflict and technology-work conflict have significant impacts on stress. This finding is consistent with the previous study of Zheng and Lee ^[6]. Due to the use of mobile SNS, users may experience

physical problems, such as backaches, eye strain and headache. Such phenomenon may makes uses feel nervous and stress. Furthermore, the working stuff may use SNSs for their work needs. Untimely attention to the message may lead to loss of work interests; on the other side, excessive attention to information can also affect their work performance and concentration. However, the results show that technology-family conflict has no effect on stress. The possible reason may be that this study focuses on different samples, i.e. working stuff. Generally, working stuff has less time to spend with their families because of the place and time constraints. The existence of mobile SNS enables them to greet and care for their families whenever and wherever they want, and therefore has no significant relationship to stress.

As expected, excessive use of mobile SNS is found to be positively related to regret. Prior studies found that addiction to using the sites directly influences the feeling of regret^[18]. When users find that their use of mobile SNS is longer than the time planned, they will produce regret feelings. They consider that time should be spent on more meaningful things, such as learning a new knowledge or new skill. Therefore, reasonable use can effectively reduce the sense of regret.

Among the inhibitors of mobile SNS continuance intention, stress is found negatively related to mobile SNS continuance intention. This finding is consistent with Beaudry^[8]. Beaudry found that individuals avoid using SNS when they perceive SNS usage as a stressful experience^[9]. That is to say, when user is stress from mobile SNS, they would shape their current situation to stop using the sites. As users adjust their stress in their lives, users rely more on mobile SNS. But the social stress from the convenience of mobile SNS itself adds further stress on users, which further increase the likelihood of users reducing their use of mobile SNS. What's more, the current research finds that regret negatively affects continuance intention. This is consistent with the conclusion of a previous research on SNSs activities, which indicated that if people feel regret, it is reasonable to expect that this negative emotion can be fixed by discontinuance actions^[25]. Hence, when mobile SNS users realize that their behavior is wrong and feel regret from mobile SNS, they will temporarily or permanently discontinue using mobile SNS to reduce their regret.

5.2 Implications and limitations

This study has theoretical implications. First, prior studies were more concerned about the enablers of user continuance intention and considered less on the influences of personal feelings, such as regret. However, this study mainly focused on inhibitors of mobile user behaviors and explored effects of regret and stress. It will be helpful on better understanding user behavior in mobile contexts. Second, data were collected from the working staff, while prior studies mainly focused on samples such as university students. Findings of this study thus will enrich the related study of mobile user behaviors.

Furthermore, this study has practical implications. For users, mobile SNS is a double-edged sword and need to be used rationally. Users should handle their conflicts of technology with personal and work in an appropriate way. In order to relieve the stress of users, service providers are advised to set relaxing games in social networking sites. They can recommend new knowledge or skills based on the users' habits. In addition, when users overuse social networking sites, service providers should friendly remind users of paying attention to their health. For example, when users use mobile SNS continuously for more than two hours, he or she will be reminded to rest to protect his or her eyesight. To reduce users' regret, service providers are expected to encourage users to use SNSs reasonably.

This study is subject to several limitations. First, different user groups may behave differently. Further study may consider conduct difference analysis among e.g., working staff and student samples. Second, data were collected from Chinese users. Future research may consider the effects of cultural differences. Third, this study only focused on the impacts of stress and regret. Further study may consider other inhibitors such as

perceived overload.

APPENDIX: ITEMS AND SOURCES

| Construct | Items | Sources | |
|-------------------------------------|-------|--|-------------------------------|
| Technology-family conflict | TFC1 | The use of mobile SNS keeps me from my family and friends more than I would like. | Turel ^[18] |
| | TFC2 | The use of mobile SNS takes up time that I feel I should spend with my family and friends. | |
| | TFC3 | (R) I generally seem to have enough time to use my mobile SNS and to spend time with family and friends. | |
| Technology-work conflict | TWC1 | Mobile SNS usage influences my work. | Hong ^[19] |
| | TWC2 | I neglect work to spend more time on mobile SNS usage. | |
| | TWC3 | My work performance and concentration are influenced by mobile SNS usage. | |
| Technology-personal conflict | TPC1 | I experience physical problems because of mobile SNS use (e.g., backaches, eye strain, and headache). | Zheng ^[6] |
| | TPC2 | Using mobile SNS at night influences my sleep. | |
| | TPC3 | I lose sleep due to late-night mobile SNS using. | |
| Stress | ST1 | I feel drained from activities that require me to use mobile SNS. | Ayyagari ^[15] |
| | ST2 | I feel tired from my mobile SNS activities. | |
| | ST3 | I feel burned out from my mobile SNS activities. | |
| Excessive use | EU1 | I think the amount of time I spend using mobile SNS is excessive. | Scott ^[17] |
| | EU2 | I spend a usually large amount of time using mobile SNS. | |
| | EU3 | I spend more time using mobile SNS than most other people. | |
| Regret | RE1 | Excessive use of mobile SNS makes me feel guilty. | Turel ^[5] |
| | RE2 | Excessive use of mobile SNS makes me feel ashamed. | |
| | RE3 | Excessive use of mobile SNS makes me be angry at self. | |
| | RE4 | Excessive use of mobile SNS makes me be dissatisfied with self. | |
| Continuance intention | CI1 | My intentions are to continue using this mobile SNS than use any alternative means. | Bhattacharjee ^[20] |
| | CI2 | (R) If I could, I would like to discontinue my use of this mobile SNS. | |
| | CI3 | (R) If I could, I would like to use other alternatives rather than this mobile SNS. | |

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