

Exploring the Effect of Overload on the Discontinuous Intention of SNS: The Moderating Effect of Gender

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Abstract

With the proliferation of smartphones and 5G networks, mobile social network service (SNS) has become an indispensable part of people's daily lives. However, with the use of SNS, fatigue and withdrawal behavior gradually emerged. Based on The Transactional Theory of Stress and Coping (TTSC), we explored the mechanism of SNS overload on users' discontinuous intention under the framework of "stressor-strain-outcome". And we also investigated the moderating effects of gender in this process. We hope that through our research, we can help SNS users to reduce unnecessary fatigue, and provide better suggestions for platform designers to adjust product design to improve user experience.

Keywords : Social Network Service, SNS Fatigue, SNS Overload, Transactional Theory of Stress and Coping, Discontinuous Intention

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1. Introduction

With the popularization of smart mobile devices and high-speed mobile network, a large number of social network service (SNS) applications migrate from PC to mobile terminals, such as mobile phone and Pad, which accelerates the spread and dissemination of mobile SNS. People spend a lot of time on SNS every day, they seem to be in constant contact with these SNS applications, for work, communication or entertainment. However, after experiencing rapid growth and dissemination of SNS, it is now facing the risk of losing users, and users' flight from the SNS is becoming a trend.

Twitter had 70 million active users in the United States in the first quarter of 2017, but fell to 68 million in the second quarter, and its global active users are stagnant at 328 million [Trefis, 2017]. The phenomenon that users escape from SNS also appears in China. The "2017 China SNS influence report" shows that, those who said SNS had a positive impact on their lives fell from 65% to 61%. Among the 20-30 age group, 31% said SNS made them feel empty and restless, 34% said they couldn't concentrate and 39% said they had turned off some features of SNS [Kanter, 2017].

All these evidences suggest that aspirers are increasingly tired of SNS and are scaling back their use. This trend of 'frequent-occasional-eventual abandonment' indicates that early adopters are beginning to suffer from social networks fatigue (SNF). The Limited Capacity Model (LCM) can be used to explain social networks fatigue. Lang [2000] suggests that people have a limited amount of mental resources to process information. Overload can cause social networks fatigue. Several studies have looked at the negative effects of SNS overload on users' psychological states,

such as dissatisfaction, regret, and fatigue. However, there is disagreement about the type of overload. In addition, according to the Person-context interactive Theory, individual traits and the context interactively affect individual psychology and behavior [Magnusson and Stattin, 1996]. Social cognitive theory also holds that gender determines different goal-orientation, and thus determines differences in male and female behavior. Different genders have different perceptions of technology, so their response to technological stress may also vary by gender. However, no studies have examined gender differences in the impact of overloading on discontinuous use. Therefore, we wanted to examine the influence of individual traits (gender) and various overload factors simultaneously in order to fully understand the influence of SNF on discontinuous intention. Our research aims to:

- (1) Discuss the impact of different types of overload on SNF and discontinuous use.
- (2) Investigate whether gender plays a moderating effect in this process.

Our research can help people better understand the phenomenon of social networks fatigue and escape, and will provide meaningful implications for users and SNS designers.

2. Theoretical Background and Literature Review

2.1 Previous Studies on Social Networks Fatigue and Discontinuance Intention

"Fatigue" first appeared in the medical field and was described as a subjective, unpleasant feeling [Piper et al., 1987, p. 19]. In occupational studies, fatigue is cited as a response

of vulnerable individuals to high demands or workload and inability to meet individual goals [Hardy, Shapiro, and Borrill, 1997]. The experience of fatigue is a gradual process. The intensity of fatigue change from a mild feeling of tiredness to a more persistent experiences and a state of exhaustion [Lewis and Wessley, 1992] or fatigue.

Fatigue is also classified as acute or chronic based on the duration for which the experience persists. The former can be relieved by appropriate rest [Shen et al., 2006], while the latter is chronic, progressive, and cumulative, and cannot be relieved by rest [Shen et al., 2006; Tiesinga et al., 1999]. Fatigue manifests itself in both physiological and psychological aspects. The former is defined clinically as a "loss of maximal force generating capacity during muscular activity" [Lewis and Haller, 1991, p. 99]. The latter is described as a psychological fatigue experience related to stress, etc. [Potempa, Lopez, Reid, and Lawson, 1986; Shen, Barbera, and Shapiro, 2006]. Fatigue will lead to individual withdrawal from the stress-causing environment [Walker, 1986]. Ravindran, Yeow Kuan, and Hoe Lian [2014] defined social network fatigue (SNF) as a subjective, multi-dimensional individual feeling caused by the use and interaction of social network, including exhaustion, annoyance, anger, disappointment, lack of interest and enthusiasm.

As for the causes of SNF and the impact of SNF, there are three main streams: Bright, Kleiser, and Grau [2015] adopt Technology Acceptance Model (TAM) to study SNF, and construct a cognitive-attitude paradigm to explore the antecedent variables of social networks fatigue: SNS efficacy, SNS helpfulness, SNS confidence and SNS privacy concerns. Cramer, Song, and Drent [2016] believes that

SNS is often used to show oneself in the most favorable way, such as presenting positive events and good feelings, etc. Therefore, SNF may be induced by negative social comparison. These studies focus on the causes of SNS fatigue, but ignore the process and results of psychological state evolution. The second perspective, based on the environmental psychology perspective, adopt Stimulus-Organism-Response (SOR) as baseline model. SOR model points out that environmental factor stimulate people's internal state and drive their behavior. Luqman, Cao, Ali, Masood, and Yu [2017] discusses the excessive use of SNS (Excessive cognitive use, Excessive social use and Excessive hedonic use), which causes technostress and SNS exhaustion, and ultimately results in discontinuance intention of use. Cao and Sun [2018] explore the effect of overload on the discontinuous intention of SNS users, and propose three types of overload in the SNS context: information, communication, and social overloads. They are assumed to impact the internal psychological states (i.e., exhaustion and regret) of users, which in turn motivate them to quit. Thirdly, based on psychological health and pressure perspective, adopted the Stressor-Strain-Outcome (SSO) as their research framework. Lee, Son, and Kim [2016] employ the Transactional Theory of Stress and Coping (TTSC) as the benchmark theory, regards overload (i.e., stressors) as a core determinant of SNS fatigue (i.e., strain) and identifies three dimensions of overload (i.e. information overload, communication overload, and system feature overload). They also propose SNS characteristics as the antecedents of overload (i.e. information characteristics: information relevance & equivocality and system characteristics: system pace of change & complex-

ity). Dhir, Yossatorn, Kaur, and Chen [2018] utilize the stressor-strain-outcome framework (SSO) to examine whether psychosocial wellbeing measures, such as compulsive media use and fear of missing out, trigger fatigue and, furthermore, whether social networks fatigue results in anxiety and depression.

Overall, these studies defined the antecedent variables of SNF, including overloading, negative social comparisons and privacy concerns. We believe that overload is the most important cause of SNF. And based on these previous studies, we divide overload into four types: social overload, communication overload, information overload and system feature overload.

According to Transactional theory of stress and coping (TTSC) [Lazarus and Folkman, 1984], when confronted with a stressor, individuals make assessments of potential threats, as well as the irability to change situations and manage negative emotional reactions. This process causes individuals to perceive a given situation in different ways and adopt different coping strategies. We think that gender plays a big role in how well individuals cope. Previous studies have investigated the gender differences in the effects of environmental stress on psychological status and coping strategies. For example, Greer, Laseter, and Asiamah [2009] investigated how gender modulates negative emotions such as anxiety and obsessive-compulsive disorder among African American adults in response to racial pressure. Israel Cohen, Kaplan, and Health [2016] investigated that male and female adopt different coping mechanisms to seek emotional support to relieve the stress of war trauma in Israel. However, there are few studies on gender differences in the effect of overloading on discontinuous use. There-

fore, it is necessary to further study the influence of individual characteristics, such as gender, on SNF and discontinuance intention.

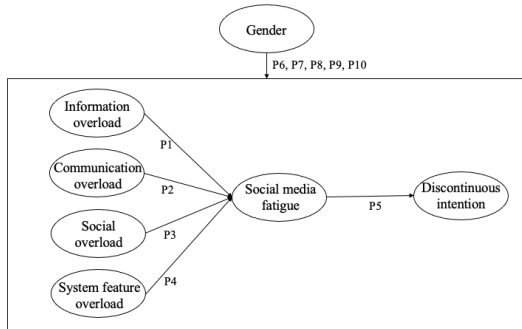
2.2 Transactional Theory of Stress and Coping

The Transactional Theory of Stress and Coping (TTSC) proposed by Lazarus holds that stress is a process by which an individual interacts with the environment. TTSC has been used to study the causal relationships between stress factors and outcomes in the context of organizational and occupational environments [Barley, Meyerson, and Grodal, 2011; Cooper et al., 2001; Kahn and Byosiere, 1992; Sparks, Faragher, and Cooper, 2001]. Person-Environment Fit Theory [French and Caplan, 1972] is the underlying theory of TTSC [Edwards and Cooper, 1990]. McGrath [1976] points out that stress arises from a situation where the demands presented by the environment exceed the capabilities and resources of the person for meeting it. Ragu-Nathan et al. [2008] believes that stress is the interaction between "a stimulating condition" and "the individual's response to it". Individuals differ in how they evaluate and adapt to stress, leading to different responses. Stressors are demands, conditions, events, or situations in the environment that can generate stress. Karr-Wisniewski and Lu [2010] defines overload as a typical stressor. It causes negative emotional reactions, such as exhaustion, discomfort, dissatisfaction, and unfriendly attitudes toward SNS use [Fuglseth and Sorebo, 2014; Salanova, Llorens, and Cifre, 2013].

In this study, TTSC is employed as the basic theory. We build our research model with the framework of stressor-strain-outcome. Stress comes from overload. The strain manifests it-

self as social networks fatigue, and the outcome is understood to be discontinuance intention.

3. Research Model and Propositions



3.1 The Effects of Overloads on SNS Fatigue

Information overload refers to the amount of information generated in a social network that exceeds the user’s ability to process it. The pace of information proliferation in SNS accelerates as the number of SNS users increases exponentially. Too much information in an SNS could quickly drive SNS users to cognitive limits in processing information and make them feel overwhelmed [Karr-Wisniewski and Lu, 2010; Whelan, Islam, and Brooks, 2020]. When the user faced with excessive information, it is easy to generate information anxiety, which is characterized by mental and psychological fatigue, anxiety and unhelpfulness. Thus, we proposed:

Proposition 1: Information over load is positively related to SNS fatigue

Communication overload refers to the imbalance between frequent communication and human cognitive ability, which can increase users’ burden and make them feel powerless

to cope [Zhang et al., 2016]. This constant communication interrupts people’s work. Communication overload can make it difficult for people to focus on their work or even finish it, leading to fatigue [Lee et al., 2016; Whelan et al., 2020]. Thus, we proposed:

Proposition 2: Communication overload is positively related to SNS fatigue

Dunbar (2010) has proposed and tested the “150 law”, which states that the human brain can only maintain 148 stable social relationships, but most people actually have far more SNS friends than that. It may take a lot of effort to manage these redundant social relationships. SNS technology allows people to connect with each other anytime, anywhere, but constant exposure to social networks and intense social activity can leave users feeling exhausted (Cao and Sun, 2018). This has become a social norm because people need to provide social support to their friends on the social network. Excessive requests for social support can be a major cause of perceived social overload and fatigue (Zhang, Zhao, Lu, and Yang, 2016). Thus, we proposed:

Proposition 3: Social overload is positively related to SNS fatigue

System feature overload captures SNS users’ perception of technological characteristics, and it is defined as the perception that the features provided by the SNS platform exceed users’ demands. System feature overload occurs when a given information technology is unsuitable for a given task and is considered too complex for the task. Users often encoun-

ter system updates and modifications in SNS. While these new features may not be particularly useful to users, people will need to put extra effort into learning about them, and they will feel tired and stressed because of the complexity (Zhang et al., 2016). Thus, we proposed:

Proposition 4: System feature overload is positively related to SNS fatigue

3.2 SNS Fatigue and Discontinuous Intention

In the context of SNS, users' social networks fatigue is often associated with their discontinuous intention. The discontinuous intention mainly includes the decrease in the duration and frequency of SNS use, the intermittent shutdown or permanent shutdown and the shift to other SNS. A lot of previous studies have found that SNF positively affects discontinuous intention [Cha and Lee, 2015; Rahmanyanti and Yasa, 2019; Zhang, Zhao, Lu, and Yang, 2015]. Thus, we proposed:

Proposition 5: Social networks fatigue is positively related to discontinuous intention

3.3 The Moderate Effects of Gender

Previous studies have found that there are significant differences between male and female in the use of IT. Males' use of SNS is more driven by their ability to get general information [Krasnova, Veltri, Eling, and Buxmann, 2017]. Males are more likely to use the Internet for information search and entertainment, while females are more likely to use the Internet for communication [Joiner et al.,

2005]. Therefore, it can be inferred that in the context of SNS, males have higher information processing ability than females. Females, on the other hand, are more responsive to social and communication requests on SNS, and are less likely to tire of SNS due to social and communication overload. In addition, many studies have found that male and female have different positive attitudes toward using the Internet. Female lack confidence in their ability to use the Internet and often feel anxious [Joiner et al., 2005], so it can be inferred that females are more likely to feel tired due to the SNS system feature overload. Thus, we proposed:

Proposition 6: The positive effect of information overload on social networks fatigue is stronger for females than for males.

Proposition 7: The positive effect of system feature overload on social networks fatigue is stronger for females than for males.

Proposition 8: The positive effect of communication overload on social networks fatigue is stronger for males than for females.

Proposition 9: The positive effect of social overload on social networks fatigue is stronger for males than for females.

Social cognitive theory has demonstrated that males and females behave differently when make decision in various situations. Males are more outcome-oriented, whereas females are more process-oriented. Social role

theory also supports this view. So, we conclude that females pay more attention to psychological processes than males, their behavior intention is more affected by social networks fatigue. Thus, we proposed:

Proposition 10: The positive effect of social networks fatigue on discontinuous intention is stronger for females than for males.

4. Conclusions and Implications

SNF has a significant positive effect on the discontinuous intention. Information, communication, social and system feature overload all have significant and positive effects on SNF. They can be listed in order of importance: information overload, social overload, communication overload, and system feature overload. It shows that the existence of a large amount of irrelevant information on SNS is beyond people's ability to deal with, which is the primary cause of SNF. Second, sometimes due to the pressure of social norms, people have to provide social support to their friends, respond positively to what they post, vote for their friends or buy the goods they sell on SNS, which is the second factor causing SNF. The third cause of SNF is too much communication, which causes distraction and other negative effects. However, system feature overload has the least impact on SNF, probably because SNS is relatively simple in overall function design and easy to control.

Male and female groups have different perceptions and receptivity to technology and relationship-oriented factors, and have different response to technical pressure. Therefore, gender difference exists in the generation of

discontinuous intention. Information overload and system feature overload have a greater effect on SNF for female. Communication and social overload have a greater effect on SNF for male. And female users are more likely to be tired and generate a discontinuous intention.

We integrated previous studies to define four types of SNS overload and revealed their varying degrees impact on SNF. Based on the TTSC, we consider gender as an individual trait and investigate its moderating role in this influence process. Our research sheds light on the understanding of negative psychological and behavior of users in SNS context.

In addition, through our research, we hope to provide some useful suggestions for SNS users and designers. For the designer, they should provide proper filter mechanism for the user to choose independently, strengthen SNS content management function, reduce the interference and prevent the user fatigue. Such as providing summaries of articles, or categorizing content according to users' interests, to provide a better information processing experience for users. SNS can restrict some meaningless commercial activities; allows users to choose to turn off certain features to avoid interrupts.

Furthermore, different strategies should be adopted for male and female groups. For example, reduce recommendations for new conversations or new friends on male users' pages. For male users, SNS should provide some functionality to group friends and allow them to organize friends according to groups, such as some friends are restricted to communication. SNS should reduce the general information on female users' page and provide simpler functional design for female them.

At last, users should be aware that they

can avoid the negative effects of SNS by actively managing their actions. For example, reduce unnecessary online friends, avoid meaningless social activities, reduce stress and burden. Use strategies such as delayed and focused responses to reduce the time and effort invested in the conversation. Block certain information platforms or friends and choose other communication channels to reduce dependence on SNS.

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