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ORIGINAL RESEARCH

How Do Passive Social Networking Services Use and Its Antecedents Affect Users' Continuance Intention? An Empirical Study of WeChat Use

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Purpose: Although social networking services (SNSs) have attracted billions of people to maintain and extend their social relationships online, more and more passive usage behaviors have been found during the daily SNS usage. The aim of this paper is to investigate how SNS users' continuance intention is affected by passive SNS use, subjective well-being, as well as perceived concern regarding privacy and impression management.

Methods: A research model was developed according to the proposed hypotheses, and then partial least square (PLS) SEM was adopted to empirically assess the valid data collected from 389 WeChat users.

Results: The findings show that passive SNS use cannot significantly undermine continuance intention, but it has a negative moderating effect on the relationship between subjective well-being and continuance intention. Besides, the results of empirical research also reveal the antecedents of passive SNS use and subjective well-being from the perspectives of privacy concern and impression management concern, and thereby present the mechanism underlying users' continuance intention.

Conclusion: This study enriches the SNS literature by indicating the moderating role of passive SNS use in the process of SNS usage, which facilitates the understanding regarding how users' continuance intention can be influenced when they use SNSs passively. This study can help SNS providers to better understand the factors affecting users' continuance intention in the case of passive SNS use, and then formulating effective strategies for retaining users and avoiding passive usage behaviors.

Keywords: social networking services, passive SNS use, continuance intention, social well-being, WeChat

Introduction

The increasing popularity of social networking services (SNSs) has profoundly affected people's online social life. In the cyber-environment, SNSs have become important channels that enable users to conduct social interactions with each other,[1] and meanwhile keeping in touch with others through SNSs has been accepted by more and more people. For example, according to Statista, WeChat, the most popular SNS in China, has 1132 monthly active users by the 2nd quarter 2019, accounting for most Chinese Internet users.[2] Howover, not all SNS users are willing to actively update status, make comments, or engage in other direct exchanges. Some scholars have found that a great number of them are very quiet when they use SNSs. They just browse and observe posted content without any attempts to interact socially with other users,[3,4] so their behaviors can be called passive SNS use.

For SNS users, different usage behaviors are associated with potential benefits and drawbacks.[4] Researchers have found that when using SNS passively, users' subjective well-being would be undermined, but this might not happen when users are actively engaging with SNS.[5,6] A number of studies suggest that some adverse outcomes, such as social anxiety symptoms,[7] loneliness,[8] and envy,[9] are resulted from passive SNS use. More specially, it has been found that passive SNS use is negatively correlated with subjective well-being, which could be mediated by self-esteem.[4] Besides, Ding demonstrated a significantly negative correlation between passive SNS use and subjective well-being, as which could be

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mediated by envy.[10] Apart from the undesirable outcomes of passive SNS use that have been indicated by previous studies, researchers also paid attention to the antecedents of passive SNS use. Some of them have found that privacy concern and impression management concern are two important factors contributing to passive SNS use.[11] These two types of concern would not only directly motivate passive usage behaviors, but also indirectly influence passive SNS use because of the mediating effect of fatigue perceived in the SNS usage process. Therefore, it is not difficult to find that both the antecedents and outcomes of passive SNS use seem unfavorable.

Compared with first adoption or registration, users' continuance intention is more important for the sustainability and prosperity of any SNS, and that is why some researchers argued that active users and their activities after registration are crucial to the success of SNS.[12] Because of this, exploring factors which are detrimental to the long-term usage intention of SNS and then trying to avoid them is important for the survival and long-term development for SNS providers. According to previous literature, users' subjective well-being has been identified as a positive factor affecting their loyalty or continued usage.[13] Users who have strong sense of subject well-being during the process of SNS usage are usually more willing to keep using SNS in the long run. However, as mentioned above, many studies have found that passive SNS use usually results in some undesirable outcomes which are likely to threaten users' subjective well-being. To avoid vitiating subjective well-being by passive SNS use, it is necessary to understand the detailed mechanism underlying this process and then take measures to eliminate the negative effects caused by passive SNS usage behaviors. Nevertheless, to the best of our knowledge, few researchers to date have fully examined how SNS users' continuance intention can be influenced by passive SNS use. More straightforwardly, although it seems to reach an agreement that passive SNS use will impair users' subjective well-being, whether users' continuance intention will be affected by passive SNS use and whether the relationship between subjective well-being and continuance intention is moderated by passive SNS use need further investigation.

First and foremost, the present paper aims to explore the relationships among passive SNS use, subjective well-being, and continuance intention. After that, it will reveal the mechanism underlying SNS users' continuance intention via considering the roles of privacy concern and impression management concern. These explorations can help SNS providers to better understand the factors affecting users' continuance intention in the case of passive SNS use, and then formulating effective strategies for retaining users and avoiding passive usage behaviors. The remainder of this paper is organized as follows. Section 2 introduces the theoretical basis by reviewing relevant literature and develops the hypotheses, on the basis of which the research model for this study is established. Then in Section 3 and Section 4, the overview of the methodology and the results of the empirical study are reported respectively. Finally, Section 5 concludes this paper by discussing the findings, providing implications, and then presenting its limitations and suggesting the directions for future studies.

Literature Review and Hypotheses

Subjective Well-Being

Well-being means optimal psychological functioning and experiences.[14] Generally speaking, two types of well-being are classified: objective well-being and subjective well-being.[15] Objective well-being is related to the culturally relevant domains. By contrast, subjective well-being essentially implies individuals' cognitive and affective evaluation of their life. It mainly deals with the hedonic perspectives of life, such as positive affect (eg, happiness) and life satisfaction. For individuals with high level of subjective well-being, their consciousness and feelings about life will include perceptions of positive emotions and high satisfaction.[16] In the case of SNS usage, some researchers regarded subjective well-being as individuals' own evaluation of their happiness and satisfaction with their online social life.[13] When someone experiences a high quality of social networking services, high level of subjective well-being can be perceived.

For most individuals, pursuing happiness is one of the main goals in their life. People will be self-determined and intrinsically motivated to keep on doing some things when they feel happy about doing them.[17,18] In terms of SNS usage, Lin and Lu's findings further demonstrated that enjoyment which is closely related to happiness is the most influential factor in enhancing users' continuance intention.[19] In addition, satisfaction plays a decisive role in strengthening IS continuance intention.[20] Previous literature has shown that if individuals are satisfied with online interactions, their desire to participate in virtual communities is more likely to be stimulated.[21] From the above literature, it can be

concluded that happiness and satisfaction are two important factors motivating SNS users' continuance intention. As subjective well-being is usually assessed by these two factors, it is logical to put forward the following hypothesis:

H1. Subjective well-being correlates positively with continuance intention.

Passive SNS Use

Posting and viewing are basic elements in the ongoing life of all virtual social networks.[22] Based on the two elements, SNS usage behaviors can be categorized into active SNS use and passive SNS use.[8] Active usage behaviors include initiating direct interactions with others, such as posting status updates, making comments, or just clicking "liking". While during the process of passive SNS use, users always browse SNSs and consume information from them, but seldom do direct communications.[6] From these descriptions, it can be concluded that the classification of SNS usage behaviors depends on whether the user engages in direct communications with other SNS users. As argued by Burke et al,[8] passive participations are linked to weaker ties with SNS friends. These usage behaviors will lead to some negative symptoms, which would render users uncomfortable and dejected. Therefore, examining the antecedents and consequences of passive SNS use will not only deepen our understanding of it, but also help users to avoid or reduce this pattern of SNS usage.

A variety of undesirable outcomes resulting from passive SNS use, such as loneliness,[8] social anxiety,[7] and envy,[6] will lead to declines in satisfaction with online social life. According to IS studies, satisfaction is an important determinant of users' continuance intention. For example, Bhattacherjee argued that satisfaction was a stimulus to continuance intention, and at the same time, it was the key to explaining users' continuance or discontinuance of IS after their initial acceptance.[20] As SNSs can be regarded as a pleasure-oriented IS,[23] for SNS users, satisfaction decline will be detrimental to their continuance intention. To avoid undesirable experiences caused by passive SNS use, the frequency of SNS usage may be reduced. Moreover, some individuals may turn to other social networking sites where they are pleased to have active social interactions with other users to acquire more satisfaction. All of these would undermine users' continuance intention, which leads to the following hypothesis:

H2. Passive SNS use correlates negatively with continuance intention.

A number of researchers have discovered that passive SNS use has potential threat to users' subjective well-being. For example, passive activities on Facebook were associated with weaker ties with SNS friends and increased loneliness.[8] Moreover, a social comparison of users is likely to be triggered because of passive SNSs use, which in turn increases envy and reduces subjective well-being.[10] Similarly, high level of passive SNS use will result in greater depressive symptoms and poorer self-perceptions, which may also be harmful to subjective well-being.

In addition, as mentioned above, passive SNS use may reduce users' happiness and satisfaction, and then their continuance intention is likely to be negatively affected. Therefore, it can be predicted that when passive SNS usage behaviors increase, the relationship between subjective well-being and continuance intention will be gradually weakened because such passive behaviors will lead to some negative consequences that cause low subjective well-being and meanwhile make users feel that if they continue using the SNS, the benefits they expected will not be acquired. In such a context, the promoting effect of subjective well-being on continuance intention is likely to be lower given that users may give a less positive appraisal to the SNS. Thus, the following two hypotheses are formed:

H3. Passive SNS use negatively influences subjective well-being.

H4. Passive SNS use will moderate the relationship between subjective well-being and continuance intention such that the relationship will be weaker if passive SNS usage behaviors increase.

Privacy Concern

Privacy is the freedom to choose one's own movement across the boundary that distinguishes one's self as being and functioning alone versus one's self as a separate individual interacting and functioning with others.[24] Accessibility and controllability are the main factors that determine one's privacy.[25] The former one is related to the ease with which one's

private information can be attained by others, and the latter one indicates an individual's capability to establish and maintain boundaries around such information. Social media users normally provide some private information of their own accord and sacrifice a certain degree of both accessibility and controllability.[26] Therefore, compared with previous types of media, a larger scale of data can be accumulated by different types of social media. When registering SNS accounts, users are usually encouraged to submit some personal information (eg, real names, emails, locations, and other identities) to their profiles. Besides, as open social platforms, a variety of "footprints" can be tracked when users conduct social interactions and/or share information.[27] With the progress of data mining technologies and applications, it is not difficult to detect one's daily life by analyzing personal information they submitted or some content they posted. In other words, the possibility of private information leakage exists. Against this background, privacy concern can be sensed, and SNS users will be worried about whether some private information they casually released through that SNSs will be used or collected in ways they did not predict.

Users tend to focus on privacy protection and take measures to ensure that their personal information is not improperly collected, stored, and used when they are more concerned with their privacy. Previous literature has indicated that users having deeper privacy concern face higher possibility of triggering social network fatigue[28] which will then result in dissatisfaction.[29] This process will make users feel uncomfortable and even exhausted, and gradually their subjective well-being is likely to be undermined. In addition, when individuals suffer privacy concern, some privacy-protecting strategies will be taken. Bulgurcu et al found that for Facebook users, privacy concern may lead to some specific behavioral outcomes which include limiting socialization.[30] As more and more individuals have regarded SNSs as a part of routine activities in their lives, totally abandoning them because of privacy concern is not an easy thing. At this time, using SNSs passively can be a good choice. To avoid disclosing too much private information and meanwhile to keep connected with their online friends, users can browse SNSs or consume information from them but not conduct too many direct exchanges. In view of this, this paper develops the following two hypotheses:

H5a. Privacy concern correlates negatively with subjective well-being.

H5b. Privacy concern correlates positively with passive SNS use.

Impression Management Concern

People usually employ various impression management tactics to deliver socially desirable images to others in a public setting. Impression management was interpreted as "the process by which individuals attempt to control the impressions others form of them" (p. 34).[31] Previous research has indicated that individuals with larger social networks, higher levels of social constraint, and greater interpersonal stress are more likely to be sensed.[32,33] More and more individuals have incorporated SNSs, one of the most vital channels to help people maintain contact with one another in the Internet age, into their daily life.[34] Huge online social networks have been established. Therefore, when using SNSs, impression management concerns are likely to exist. A target audience is usually imagined by SNS users when they post something, but the real audience for a particular post may consist of various persons.[35] This situation can be called "context collapse" which increases SNS users' concern about how to establish and maintain one's impression in online social networks by conveying right images to right audiences. In addition to close friends and family members, many users' friend lists on SNSs also usually include distant relationships such as colleagues, business partners, and even strangers. Generally speaking, compared with close friends, distant relationships are more sensitive to inappropriate behaviors, and thus there is an increasing need for SNS users to adjust their behavior to meet the expectations of those unfamiliar users.[36] Under such background, impression management concerns can be triggered because SNS users worry about being unable to effectively control the images they present.

Sometimes extra time and efforts may be needed to manage impressions. This is because users are likely to concern about whether their posts or shares are suitable for all SNS friends, or whether some displays of emotion or status updates will tarnish their image, especially for some remote relationships.[37] This process will make users feel tired and uncomfortable, and thus their subjective welling-being is likely to be negatively affected. Besides, to effectively manage impressions online, when using SNSs, some users may consider whether some contents they post (eg, status updates and comments) or behaviors (self-disclosure) are appropriate for different sorts of SNS friends. These processes will induce much hesitation and are difficult to control for the reason that it is not easy to distinguish whether some relationships are

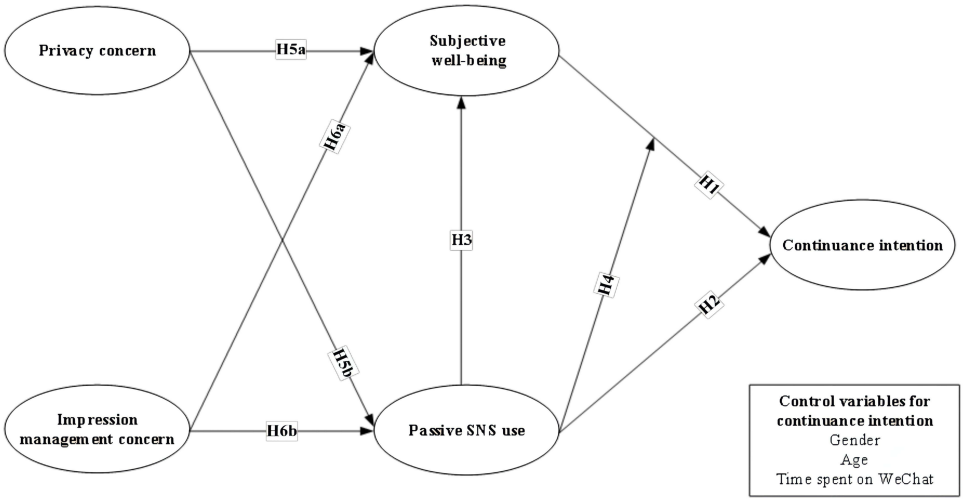

Figure 1 Hypothetical research model.

close or distant, and whether some contents are appropriate or not.[38] To lower impression management concerns, reducing active participations is probably a solution. Therefore, this study proposes the following two hypotheses:

H6a. Impression management concern negatively influences subjective well-being.

H6b. Impression management concern positively influences passive SNS use.

In summary, the current research intends to explore the relationships among passive SNS use, subjective well-being, and continuance intention. At the same time, antecedents of subjective well-being and passive SNS use are examined based on the perceived concern in the SNS usage process. According to the above analysis and predictions, a hypothetical research model was established, as shown in Figure 1.

Methodology

Research Setting and Participants

In this paper, WeChat users were selected as the target population for data collection. WeChat is the most popular SNS in China and is accessible worldwide. It allows users to create and share information via the social network. Its functions are similar to those of Instagram and mobile Facebook that enable users to post messages on any topic and follow others to receive updates or make comments. Therefore, WeChat can be considered as a proper SNS for this empirical study. Questionnaires were distributed and data were collected both via an online questionnaire website (www.wenjuan.com/). Online questionnaires were randomly distributed at a large university in southeastern China. Using contact information obtained from the students' affairs division, we sent an URL survey link to some students. Given that university students account for the largest proportion of social media users in China,[39] this sample selection is appropriate to some extent.

Respondents were required to answer all questions according to their own experience of using WeChat. If they were not interested in the survey or did not have WeChat usage experience, they were allowed to ignore the investigation. To encourage participation, some incentive measures were also taken. Totally, 419 respondents participated in this survey. After removing 24 incomplete responses and 6 responses stating that the respondents had no previous experience of using WeChat, The 389 usable employee survey responses received constituted a 92.8% response rate. Male and female respondents accounted for 43.3% (n = 169) and 56.6% (n = 220) of the sample, respectively. The largest age group was 20–29, accounting for 52.7% (n = 205). Finally, most respondents spent more than 2 hours everyday on WeChat, accounting for 44.7% (n = 174). Table 1 presents the detailed sample demographics.

Measures

The measuring instrument used in this paper was adapted from previous literature to ensure content validity. Its measurement items can be divided into five parts, namely, privacy concern, impression management concern, subjective

Table 1 Sample Demographics

Measure	Item	Frequency	Percentage (%)
Gender	Male	169	43.3
	Female	220	56.6
Age	< 20	27	6.9
	20–29	205	52.7
	30–39	107	27.5
	40–49	39	10.0
	>50	11	2.8
Education	University/college	219	56.3
	Graduate school	170	43.7
Time spent on WeChat (per day)	< 30min	21	5.4
	30–60 min	87	22.4
	1–2 h	107	27.5
	> 2 h	174	44.7

well-being, passive SNS use, and continuance intention. All the items were measured using a 7-point Likert scale with a range from 1 ("strongly disagree") to 7 ("strongly agree"). Given that all the original measurement items were in English, the entire survey was translated from English into Chinese and then back-translated[40] into English by two independent bilingual individuals. In addition, to access the logical consistency and comprehensibility of the questionnaire, 20 experienced SNS users and 5 IS scholars were invited for a pilot test. Some ambiguous items were reworded to ensure clarity. All survey questions are shown in the Appendix of this paper.

Privacy Concern

This study used the scale compiled by Dinev and Hart,[41] which includes four items. The representative items were "I am concerned that the information I submit on WeChat could be misused", "I am concerned that a person can find private information about me on WeChat." In this study, the Cronbach's α for this scale was 0.894.

Impression Management Concern

This study used the scale compiled by Oh and LaRose,[42] which includes four items. The representative items were "I am concerned about saying socially inappropriate things on WeChat." "I am concerned what is appropriate and inappropriate when posting on WeChat." In this study, the Cronbach's α for this scale was 0.865.

Subjective Well-Being

This study used the scale compiled by Diener et al,[43] which includes four items. The representative items were "In most respects, my online social life on WeChat is close to my ideal." "The conditions of my online social life on WeChat are excellent." In this study, the Cronbach's α for this scale was 0.799.

Passive SNS Use

This study used the scale compiled by Verduyn et al,[6] which includes four items. The representative items were "I am very quiet on WeChat." "I rarely comment on friends' posts or status." In this study, the Cronbach's α for this scale was 0.885.

Continuance Intention

This study used the scale compiled by Bhattacherjee.[20] Which includes three items. An example of the items was: "I intend to continue to use WeChat rather than discontinue its use." In this study, the Cronbach's α for this scale was 0.796.

Control Variables

We also assessed demographic variables (gender, age) that might affect the hypothesized relationships. Gender is measured using dummy variables: 0 for men and 1 for women. Age is measured in five categories: 20 years old below, 20–29 years old, 30–39 years old, 40–49 years old, 50 years old above. Time spent on WeChat is measured in four categories: Under 30 minutes, 30–60 minutes, 60–120 minutes, 120 minutes above.

Common Method Variance

As the data we collected are purely self-reported, a threat of common method bias (CMB) is likely to exist. Therefore, Harman's single factor test[44] was adopted to check the data. All the variables were loaded into an exploratory factor analysis via SPSS 22.0. The results show that the largest factor accounts for 30.651% of the overall variance, less than half of all explained variance (71.783%). Therefore, this study did not suffer from serious CMB problem.

Results

Partial least square (PLS) SEM was used to examine the hypothetical model. PLS-SEM is more suitable for exploratory model analysis which sets no requirement for normal distribution and a relatively small sample size will suffice.[45] The present study is a prediction-oriented research and thus we employed PLS-SEM as the data analysis technique. A two-step approach for data analysis recommended by Anderson and Gerbing[46] was followed to test the measurement model and structural model respectively.

Measurement Model

First, we tested internal consistency of the five constructs. Cronbach's α and composite reliability (CR) can be viewed as two criteria.[47] As shown in Table 2, the values of Cronbach's α, which range from 0.791 to 0.894, are higher than the threshold of 0.7 suggested by Nunnally.[48] In the meanwhile, all the values of CR are higher than 0.8, which are also above the suggested threshold of 0.7.[47] This means that the measurement items of each construct have good reliability and stability.

Convergent validity was then checked with two criteria suggested by Fornell and Larcker.[47] Specifically, the values of all indicator loadings are supposed to be significant and exceed 0.7, and the average variance extracted (AVE) of each construct is supposed to be larger than 0.5. As displayed in Table 2, the indicator factor loading of each item in the measuring model exceeds 0.7. Meanwhile, the values of AVE range from 0.623 to 0.759. Therefore, the constructs in this study possesses great convergent validity. Finally, the cross loadings and the square roots of AVEs recommended by Chin[49] and Fornell and Larcker[4] respectively were tested to assess discriminant validity. As shown in Table 3, the loading of each measurement item onto its assigned latent variable is higher than that on any other construct. Moreover, the diagonal elements in Table 2 are the square roots of AVE for the constructs. They are larger than any correlations between that construct and other constructs. All of this clearly demonstrates that the constructs have acceptable discriminant validity.

Table 2 Reliability and Validity

Construct	α	CR	AVE	1	2	3	4	5
1. Continuance intention	0.796	0.880	0.710	**0.843**				
2. Impression management concern	0.865	0.907	0.709	0.024	**0.842**			
3. Passive SNS use	0.885	0.920	0.743	−0.165	0.366	**0.862**		
4. Privacy concern	0.894	0.927	0.759	−0.122	0.380	0.378	**0.871**	
5. Subjective well-being	0.799	0.868	0.623	0.480	−0.270	−0.262	−0.284	**0.790**

Note: Bold numbers: The square roots of AVE for the constructs.
Abbreviations: α, Cronbach's Alpha; CR, composite reliability; AVE, average variance extracted.

Table 3 Loadings and Cross-Loadings of Measurement Items

	CIN	IMC	SWB	PSU	PVC
CIN1	**0.826**	0.026	0.362	−0.173	−0.063
CIN2	**0.852**	0.042	0.411	−0.113	−0.130
CIN3	**0.850**	−0.004	0.435	−0.133	−0.112
IMC1	0.035	**0.872**	−0.235	0.346	0.332
IMC2	0.007	**0.875**	−0.292	0.338	0.346
IMC3	0.016	**0.849**	−0.215	0.296	0.311
IMC4	0.028	**0.769**	−0.130	0.227	0.285
SWB1	0.294	−0.102	**0.708**	−0.166	−0.160
SWB2	0.322	−0.313	**0.786**	−0.243	−0.248
SWB3	0.442	−0.208	**0.847**	−0.179	−0.273
SWB4	0.434	−0.207	**0.810**	−0.236	−0.203
PSU1	−0.125	0.348	−0.228	**0.855**	0.333
PSU2	−0.177	0.282	−0.262	**0.859**	0.331
PSU3	−0.110	0.306	−0.177	**0.846**	0.294
PSU4	−0.151	0.325	−0.229	**0.887**	0.342
PVC1	−0.078	0.301	−0.251	0.290	**0.868**
PVC2	−0.073	0.314	−0.235	0.327	**0.887**
PVC3	−0.165	0.361	−0.268	0.319	**0.839**
PVC4	−0.106	0.346	−0.238	0.375	**0.891**

Abbreviations: CIN, continuance intention; IMC, impression management concern; SWB, subjective well-being; PSU, passive SNS use; PVC, privacy concern; Bold numbers, Loadings of measurement items.

Structural Model

All the paths in the research model were assessed via 5000 bootstrap runs to check significance. The results of structural model analysis are exhibited in Figure 2. The model explains 27.6% of the variance in continuance intention. In addition, the explained variance of passive SNS use and subjective well-being is 20.1% and 12.7%, respectively. Among all structural paths, subjective well-being correlates positively with users' continuance intention ($\beta = 0.474$, $p < 0.001$), supporting H1. Passive SNS use can negatively affect subjective well-being ($\beta = -0.141$, $p < 0.05$). Therefore, H3 is supported. Besides, privacy concern correlates negatively with subjective well-being ($\beta = -0.173$, $p < 0.01$), and meanwhile passive SNS use can be positively influenced by privacy concern ($\beta = 0.279$, $p < 0.001$). Hence, H5a and H5b are verified. In addition, impression management concern negatively affects subjective well-being ($\beta = -0.152$, $p < 0.05$), and it is positively related to passive SNS use ($\beta = 0.260$, $p < 0.001$), thus supporting H6a and H6b. However, the results of data analysis also demonstrate that passive SNS use has no significant effect on continuance intention ($\beta = -0.012$, $p > 0.05$), so H2 is not validated.

To examine the moderating effect of passive SNS use (H4), we calculated an interaction effect (subjective well-being × passive SNS use) and then tested whether this interaction could positively affect continuance intention. For the purpose of alleviating multicollinearity, each measurement was mean-centered before interaction, and then the significance of the new interaction variable was estimated by Smart PLS 3.2.7. The result demonstrates that the interaction between subjective well-being and passive SNS use is positively associated with continuance intention ($\beta = -0.185$, $p < 0.001$). Thus, H4 is verified. To elucidate the significance of the moderating effect further, the interactive terms were decomposed in this paper according to the procedure of Aiken and West.[50] The result of simple slope test is plotted in Figure 3, which further indicates the moderating role of passive SNS use in the relationship between subjective well-being and continuance intention.

Discussion

The above analysis has led to some interesting findings. First, the results of this research suggest that passive SNS use exerts a moderating effect on the relationship between subjective well-being and continuance intention. This suggests that

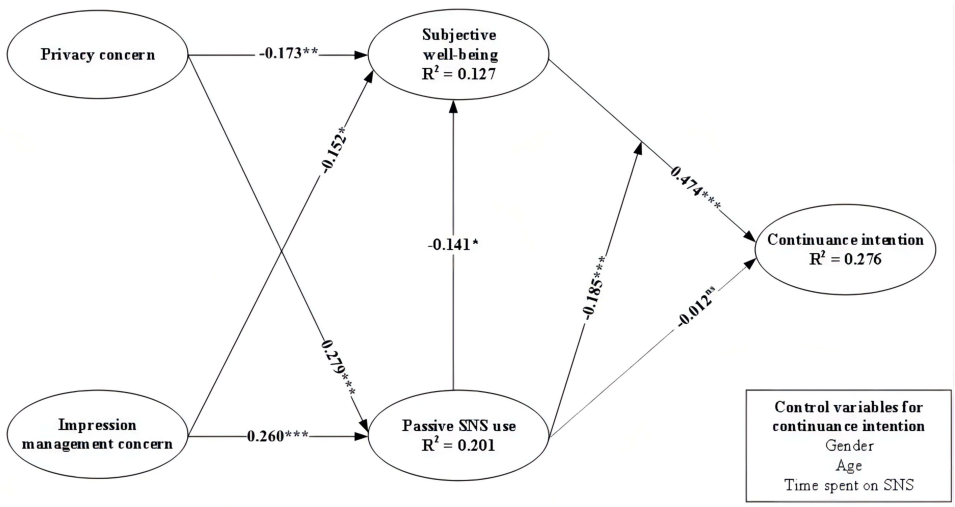

Figure 2 Results of the research model.

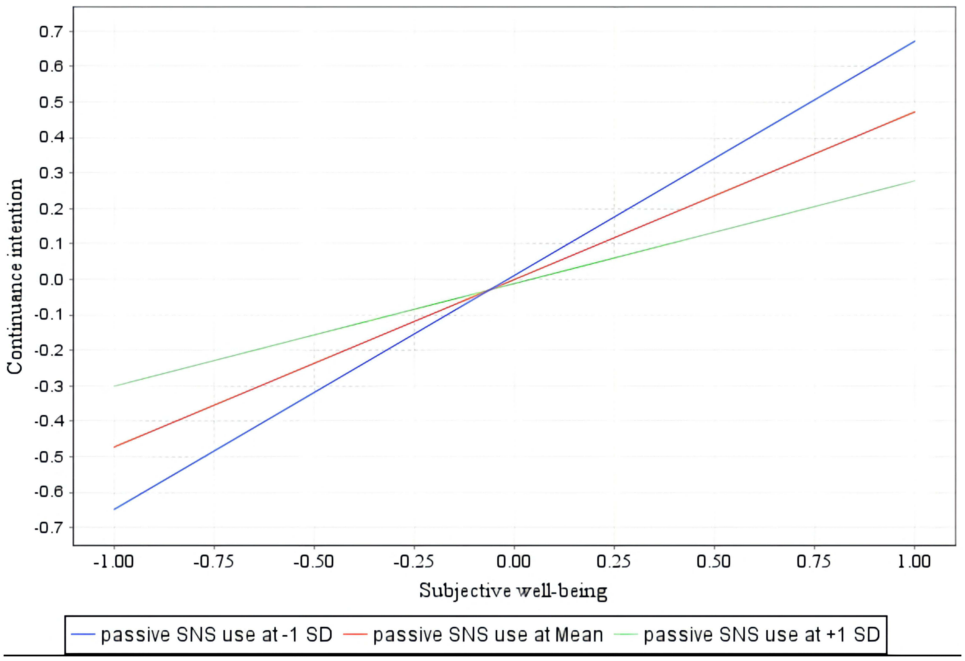

Figure 3 Moderating effect of passive SNS use.

for SNS users, although subjective well-being is crucial to promoting their continuance intention, when passive SNS usage behaviors increase, the positive relationship between subjective well-being and continuance intention will be weakened. Consequently, the promoting effect of subjective well-being on continuance intention will be very low if people always use SNSs passively. This can be regarded as another factor that undermines SNS users' continuance intention.

Second, unexpectedly, passive SNS use is not able to directly undermine users' continuance intention. One possible reason is that when a growing number of people devote considerable time and effort to engaging in SNSs, lots of social capital has been accumulated on SNSs, and the perceived social network size is continuously expanding. In China, many people have to spend more than 2 hours on WeChat per day (44.7%), On the one hand, many Chinese enterprises arrange jobs through wechat, on the other hand, people communicate with friends through wechat, and sometimes use wechat to

establish different groups, where people can discuss work, gossip, grab red envelopes and so on. Therefore, network externalities will emerge, which can stimulate an increased sense of value from using SNSs.[19] Perhaps a serious of negative experiences will be caused because of passive SNS usage behaviors, but compared with multiple benefits acquired from SNSs, these undesirable consequences are not influential. Therefore, most users especially adolescent ones will not have the willingness to totally give up using SNSs. Because of this, the continuance intention will not be significantly threatened. This study also confirmed that the gender, age and duration of SNS users did not significantly affect their continuance intention.

Third, the findings of this study not only confirm the antecedents of passive SNS use, but also show why users' subjective well-being is affected during the process of passive SNS usage. In our research model, subjective well-being can be undermined by impression management concern and privacy concern. It further reveals that concerns perceived by SNS users will make them feel uncomfortable and depressed, which will threaten their subjective well-being. Although previous literature has shown that impression management concern and privacy concern are antecedents of passive SNS use,[11] the findings of the current study further indicate how SNS users' subjective well-beingwould be undermined from the perspectives of passive SNS use and its relevant factors.

Implications

The findings of this study have some theoretical and practical implications. From a theoretical perspective, firstly, this study shows the mechanisms underlying SNS users' continuance intention from the aspects of passive SNS use and subjective well-being, which will facilitate our comprehension about how they affect users' continuance intention. Our finding suggests that passive SNS use cannot directly and significantly influence users' continuance intention, but it exerts a negative moderating effect on the relationship between subjective well-being and continuance intention. Although some previous studies have demonstrated the negative effect of passive SNS use on subjective well-being, this study further reveals that the positive effect of subjective well-being on continuance intention also suffers from its negative moderation. This will increase the understanding about the role of passive usage behaviors in SNS usage. Secondly, this study contributes to the relevant literature by indicating antecedents of subjective well-being and passive SNS use from the perspectives of perceived concern during the SNS usage process. For SNS users, reducing active participation is an option when they feel anxious about how to convey socially desirable images to others.

Likewise, to avoid disclosing too much privacy and keep connected with their online friends, passive SNS use can be a solution. The two types of concern are also factors detrimental to users' subjective well-being. All of these findings will help researchers arrive at a clearer picture of why users have the motivation to use SNSs passively and how users' subjective well-being is undermined, which will further influence users' continuance intention.

This study can provide some practical implications as well. Judging from the results of this empirical study, it can be concluded that reducing passive SNS usage behaviors and enhancing subjective well-being will be beneficial for users' continuance intention. Therefore, as SNS providers, alleviating users' privacy concern and impression management concern during their SNS usage are needed. Both these types of concerns are likely to cause the passive pattern of SNS usage, and meanwhile users' subjective well-being can also be threatened by them. To avoid the two types of concern, SNS providers should ensure that users are protected from undesired intrusions, and enable them to acquire complete permission to set a personal boundary regulation process to control the levels of disclosure for close and distant relationships respectively. Nowadays almost all SNS providers have developed privacy protection system for their users, and some of these systems also take impression management concern into consideration. Compared with some existing complicated systems, providing users with options to set a time limit for their content posted on SNS viewable by others may be an approach to overcoming concerns regarding privacy and impression management. This can be regarded as an effective method for controlling users' previous contents, which will effectually prevent their audiences from accessing or collecting private, informal, or even indecent information.

Limitations and Suggestions for Future Research

We acknowledge that some limitations exist in this research. The first one is that this study selected WeChat users, which are comprised mostly of Chinese, as the research sample to represent SNS users. However, due to cultural differences, Chinese

users may have some special behaviors and attitudes toward SNS usage. Moreover, respondents were recruited mainly from university students. Such a narrow selection and focus is likely to result in generalizability issues of the findings. Therefore, research in the next stage should invite users from some worldwide SNSs (eg, Facebook, WhatsApp) and diversified demographic groups (eg, working staff, elderly people) to carry out the survey. Second, this study examined the antecedents of passive SNS use and subjective well-being only from the perspectives of privacy concern and impression management concern. In the future, more comprehensive perspectives or dimensions are needed to be taken into consideration.

Conclusion

For SNS users, subjective well-being is crucial to promot their continuance intention, and undermined by impression management concern and privacy concern The findings of the present study highlight the moderating role of passive SNS use in the process of SNS usage, which facilitates the understanding regarding how users' continuance intention can be influenced when they use SNSs passively. This study can help SNS providers to better understand the factors affecting users' continuance intention in the case of passive SNS use, and then formulating effective strategies for retaining users and avoiding passive usage behaviors.

Ethics Statement

This study was reviewed and approved by the Internal Review Board of School of business administration, Anhui University of Finance and Economics and in accordance with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. In the questionnaire, we explicitly informed the participants of the objectives of the study and guaranteed their confidentiality and anonymity. All participants were free to choose whether or not to answer questions, and we asked the participants to send us a consent form. Informed consent was obtained from all individual participants included in the study.

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Disclosure

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References

1. Chai S, Kim M. A socio-technical approach to knowledge contribution behavior: an empirical investigation of social networking sites users. *Int J Inf Manage*. 2012;32(2):118–126. doi:10.1016/j.ijinfomgt.2011.07.004
2. Statista 2019. Number of monthly active WeChat users from 2nd quarter 2012 to 2nd quarter; 2019. Available from: https://www.statista.com/statistics/255778/number-of-active-wechat-messenger-accounts/. Accessed October 20, 2022
3. Tosun LP. Motives for Facebook use and expressing "true self" on the Internet. *Comput Human Behav*. 2012;28(4):1510–1517. doi:10.1016/j.chb.2012.03.018
4. Chen W, Fan CY, Liu QX, Zhou ZK, Xie XC. Passive social network site use and subjective well-being: a moderated mediation model. *Comput Human Behav*. 2016;64:507–514. doi:10.1016/j.chb.2016.04.038
5. Tandoc EC, Ferrucci P, Duffy M. Facebook use, envy, and depression among college students: is facebooking depressing? *Comput Human Behav*. 2015;43:139–146. doi:10.1016/j.chb.2014.10.053
6. Verduyn P, Lee DS, Park J, et al. Passive Facebook usage undermines affective well-being: experimental and longitudinal evidence. *J Exp Psychol Gen*. 2015;144(2):480–488. doi:10.1037/xge0000057
7. Shaw AM, Timpano KR, Tran TB, Joormann J. Correlates of Facebook usage patterns: the relationship between passive Facebook use, social anxiety symptoms, and brooding. *Comput Human Behav*. 2015;48:575–580. doi:10.1016/j.chb.2015.02.003
8. Burke M, Marlow C, Lento T. *Social Network Activity and Social Well-Being. The 28th International Conference on Human Factors in Computing Systems, April 10–15, 2010, 2010*. New York, NY: ACM; 1909. doi:10.1145/1753326.1753613
9. Krasnova H, Wenninger H, Widjaja T, Buxmann P. Envy on Facebook: a hidden threat to users' life satisfaction? Proceedings of the 11th International Conference on Wirtschaftsinformatik (WI2013); 2013; Leipzig, German. doi:10.7892/boris.47080
10. Ding Q, Zhang YX, Wei H, Huang F, Zhou ZK. Passive social network site use and subjective well-being among Chinese university students: a moderated mediation model of envy and gender. *Pers Individ Dif*. 2017;113:142–146. doi:10.1016/j.paid.2017.03.027
11. Zhu X, Bao Z. Why people use social networking sites passively: an empirical study integrating impression management concern, privacy concern, and SNS fatigue. *Aslib J Inf Manag*. 2018;70(2):158–175. doi:10.1108/AJIM-12-2017-0270
12. Yin G, Zhu L, Cheng X. Continuance usage of localized social networking services: a conceptual model and lessons from China. *J Glob Inf Technol Manag*. 2014;16(3):7–30. doi:10.1080/1097198X.2013.10845640

13. Chiu CM, Cheng HL, Huang HY, Chen CF. Exploring individuals' subjective well-being and loyalty towards social network sites from the perspective of network externalities: the Facebook case. *Int J Inf Manage*. 2013;33(3):539–552. doi:10.1016/j.ijinfomgt.2013.01.007
14. Ryan RM, Deci EL. On happiness and human potentials: a review of research on hedonic and eudaimonic well-being. *Ann Rev Psychol*. 2001;52:141–166. doi:10.1146/annurev.psych.52.1.141
15. Cummins R. On the trail of the gold standard for life satisfaction. *Soc Indic Res*. 1995;35(2):179–200. doi:10.1007/1-4020-3742-2_18
16. Diener E, Oishi S, Lucas RE. Subjective well-being: the science of happiness and life satisfaction. In: Snyder CR, Lopez SJ, editors. *Oxford Handbook of Positive Psychology*. New York: Oxford University Press; 2009.
17. Deci EL, Ryan RM. *Intrinsic Motivation and Self-Determination in Human Behavior*. New York: Springer Science; 1985.
18. Sheldon KM, Houser-Marko L. Self-concordance, goal-attainment, and the pursuit of happiness: can there be an upward spiral? *J Pers Soc Psychol*. 2001;80:152–165. doi:10.1037//0022-3514.80.1.152
19. Lin K-Y, Lu H-P. Why people use social networking sites: an empirical study integrating network externalities and motivation theory. *Comput Human Behav*. 2011;27(3):1152–1161. doi:10.1016/j.chb.2010.12.009
20. Bhattacherjee A. Understanding information systems continuance: an expectation-confirmation model. *MISQ*. 2001;25(3):351–370. doi:10.2307/3250921
21. Dholakia UM, Bagozzi RP, Klein LR. A social influence model of consumer participation in network and small group-based virtual communities. *Int J Mark*. 2004;21(3):241–263. doi:10.1016/j.ijresmar.2003.12.004
22. Pagani M, Hofacker CF, Goldsmith RE. The influence of personality on active and passive use of social networking sites. *Psychol Mark*. 2011;28(5):441–456. doi:10.1002/mar.20395
23. Sledgianowski D, Kulviwat S. Using social network sites: the effects of playfulness, critical mass and trust in a hedonic context. *J Comput Inf Syst*. 2009;49(4):74–83. doi:10.1080/08874417.2009.11645342
24. Laufer RS, Wolfe M. Privacy as a concept and a social issue: a multidimensional developmental theory. *J Soc Issues*. 1977;33(3):22–42. doi:10.1111/j.1540-4560.1977.tb01880.x
25. Rachels J. Why privacy is important. *Philos Public Aff*. 1975;4:323–333.
26. Min J. Personal information concerns and provision in social network sites: interplay between secure preservation and true presentation. *J Assoc Inf Sci Technol*. 2016;67(1):26–42. doi:10.1002/asi.23376
27. Lohr S. The age of big data; 2012. Available from: http://www.nytimes.com/2012/02/12/sunday-review/big-datas-impact-in-theworld.html?pagewanted=all&_r=0:NewYorkTimes. Accessed October 20, 2022
28. Bright LF, Kleiser SB, Grau SL. Too much Facebook? An exploratory examination of social media fatigue. *Comput Human Behav*. 2015;44:148–155. doi:10.1016/j.chb.2014.11.048
29. Zhang S, Zhao L, Lu Y, Yang J. Do you get tired of socializing? An empirical explanation of discontinuous usage behaviour in social network services. *Inf Manag*. 2016;53(7):904–914. doi:10.1016/j.im.2016.03.006
30. Bulgurcu B, Cavusoglu H, Benbasat I. Understanding emergence and outcomes of information privacy concerns: a case of Facebook. Proceedings of 31st International Conference on Information Systems; 2010; Saint Louis, Missouri, USA.
31. Leary MR, Kowalski RM. Impression management: a literature review and two-component model. *Psychol Bull*. 1990;107(1):34–47. doi:10.1037/0033-2909.107.1.34
32. Wasserman S, Faust K. *Social Network Analysis: Methods and Applications*. Vol. 8. Cambridge, UK: Cambridge University Press; 1994. doi:10.2307/2077235
33. Riley D, Eckenrode J. Social ties: subgroup differences in costs and benefits. *J Pers Soc Psychol*. 1986;51(4):770–778. doi:10.1037/0022-3514.51.4.770
34. Lin H, Fan W, Chau PYK. Determinants of users' continuance of social networking sites: a self-regulation perspective. *Inf Manag J*. 2014;51(5):595–603. doi:10.1016/j.im.2014.03.010
35. Marwick AE, Boyd D. I tweet honestly, I tweet passionately: twitter users, context collapse, and the imagined audience. *New Media Soc*. 2011;13(1):114–133. doi:10.1177/1461444810365313
36. Buck R, Losow JI, Murphy MM, Costanzo P. Social facilitation and inhibition of emotional expression and communication. *J Pers Soc Psychol*. 1992;63(6):962–968. doi:10.1037/0022-3514.63.6.962
37. Zhu Y, Bao Z. The role of negative network externalities in SNS fatigue: an empirical study based on impression management concern, privacy concern, and social overload. *Data Technol Appl*. 2018;52(3):313–328. doi:10.1108/DTA-09-2017-0063
38. Jeong Y, Kim Y. Privacy concerns on social networking sites: interplay among posting types, content, and audiences. *Comput Human Behav*. 2017;69:302–310. doi:10.1016/j.chb.2016.12.042
39. Kantar 2015. Report on social media influence in China; 2015. Available from: http://cn.kantar.com/media/633232/2014.pdf. Accessed October 20, 2022
40. Mcgorry SY. Measurement in a cross-cultural environment: survey translation issues. *Qual Mark Res*. 2000;3(2):74–81. doi:10.1108/13522750010322070
41. Dinev T, Hart P. An extended privacy calculus model for e-commerce transactions. *Inf Syst Res*. 2006;17(1):61–80. doi:10.1287/isre.1060.0080
42. Oh HJ, LaRose R. Impression management concerns and support-seeking behavior on social network sites. *Comput Human Behav*. 2016;57:38–47. doi:10.1016/j.chb.2015.12.005
43. Diener E, Emmons RA, Larsen RJ, Griffin S. The satisfaction with life scale. *J Pers Assess*. 1985;49:71–75. doi:10.1207/s15327752jpa4901_13
44. Harman HH. *Modern Factor Analysis*. Chicago: University of Chicago Press; 1976.
45. Chin WW, Marcolin BL, Newsted PR. A partial least squares latent variable modeling approach for measuring interaction effects: results from a monte carlo simulation study and an electronic-mail emotion/adoption study. *Inf Syst Res*. 2003;14(2):189–217. doi:10.1287/isre.14.2.189.16018
46. Anderson JC, Gerbing DW. Structural equation modeling in practice: a review and recommended two-step approach. *Psychol Bull*. 1988;103(3):411–423. doi:10.1037/0033-2909.103.3.411
47. Fornell C, Larcker DF. Evaluating structural equation models with unobservable variables and measurement error. *J Mark Res*. 1981;18(3):39–50. doi:10.1177/002224378101800312
48. Nunnally JC. *Psychometric Theory*. New York: McGraw-Hill; 1978.
49. Chin WW. Issues and opinions on structural equation modeling. *MISQ*. 1998;22(1):7–16.
50. Aiken LS, West SG. *Multiple Regression: Testing and Interpreting Interactions*. Newbury Park, CA: Sage; 1991.