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Impacts of Gratifications on Consumers' Emotions and Continuance Use Intention: An Empirical Study of Weibo in China

Ives Chacourre Wangninanon Gogan * [ID]**, Ziqiong Zhang and Elizabeth Damian Matemba**

School of Management, Harbin Institute of Technology, Harbin 150001, China; ziqiong@hit.edu.cn (Z.Z.); elizabethmatemba@hit.edu.cn (E.D.M.)

* Correspondence: gogan@stu.hit.edu.cn or ggives@hotmail.fr; Tel.: +86-156-638-119-50 or +229-974-877-41

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Abstract: Recently, several studies on information systems have applied the Uses and Gratifications theory to investigate individual use of social media, and have reported the role of different gratifications in predicting users' behaviors. However, no attention was given to the influence of these gratifications on users' emotional states (satisfaction and emotional commitment). To address this research gap, the current study integrates the Uses and Gratifications theory and the Stimulus-Organism-Response theory to provide a theoretical background for the impacts of gratification on consumers' emotional states and continuance use intention. The study has proposed a theoretical model that was tested on data collected from 252 Sina Weibo users in China. The results revealed that social gratification is the most important factor influencing users' satisfaction and emotional commitment. In addition, we report the roles that user satisfaction and emotional state provide in predicting users' continuance intention. The theoretical and practical implications of the proposed theory are also discussed.

1. Introduction

The fast development of the Internet and information science (IS) has paved the way for the development and growth of social media, including social networking sites (SNSs) and blogs. Since the launch in 1997 of the first online social network site, called First Degree, we have witnessed an ever-increasing growth of these social media [1]. SNSs refer to online information services that allow people to create a profile and to be connected with other users of the same system [1]. Users of SNSs can share texts, audio, videos, and images with other members of the platform. SNSs, also known as virtual communities, are online platforms where a group of people sharing the same interest come together and generate content without space or time constraints [2]. Therefore, SNSs redefine connection among individuals and provide a way in which such individuals can express themselves, share information, and socialize with others. Individual users as well as organizations and companies gain several benefits from the virtual communities on SNSs. For example, firms can better monitor customers and offer better customer service [3,4]. Consequently, the key role that social media plays in business sustainability can no longer be denied [5]. Further understanding of social media continuance use intention, therefore, can promote businesses sustainability. The market for SNSs is dynamic and fast-growing, and many SNSs offer similar services.

To deal with the competition, SNSs developers and managers need to update their knowledge on how to retain users [6]. Gaining user adoption and usage is an important step in achieving social

media success. However, retaining users for an extended period is yet another vital aspect that developers and managers should embrace [7]. Virtual community sustainability depends on users' continuance intention [2]. Therefore, it is reasonable to further our investigation into factors that predict individual users' continuance intention. Previous researchers have applied different theories, such as self-determination theory, the uses and gratifications (U&G) theory [8,9], the expectation confirmation theory [7], the IS success model [10], and the social identity theory [11,12] to investigate users' adoption and usage behavior. These studies focus on the technology-related aspect of the consumer experience. Such a focus has limited the spectrum of the findings [13,14]. Recently, many researchers have applied the U&G theory to investigate individual users' continued usage of social media, and have reported the significant impact of gratifications on users' adoption and continuance usage intention [2,6,15]. However, they have insufficiently considered the impact of these gratifications on the emotional state of individual users. Furthermore, these studies focus on the technological aspect of the consumption experience, thus limiting the scope of their findings [13,14]. In the context of SNSs, the decision to continue using a specific social media platform depends not only on the functional or utilitarian value of the platform to the user but also on the emotional attachment developed by users. These dependencies are crucial determinants for continuance intention and the sustainability of the platform.

Investigation of the following questions is important to further understand how users' emotional state, such as satisfaction and pleasure or emotional commitment, forms user continuance use intention: (1) what is the impact of gratifications on a user's emotional state (user satisfaction and user emotional commitment)?; and (2) how does this emotional state affect continuance use intention? To address these questions, this research integrates U&G theory and stimulus-organism-response (S-O-R) theory to provide a theoretical background for the impacts of gratification on users' emotional states and continuance use intention. Three major categories of gratifications were identified: hedonic gratification (entertainment value); social gratification (social value and social participation); and utilitarian gratification (information consumption, utilitarian value, and content participation). We considered these gratifications as stimuli, users' emotional state as the organism, and continuance intention as the response according to the S-O-R theory. Then, we investigated the influence of these stimuli on the organism and on how the organism impacts users' response. Survey data collected from 252 Weibo users (a social networking site based in China) were used to empirically test the proposed model.

Our study provides empirical evidence for how different gratifications affect users' emotional state in the context of online SNSs. Moreover, an investigation into the impact of users' emotional state (satisfaction and emotional commitment) on continuance intention will help us gain a deeper understanding of its key role in the formation of users' continuance use behavior. Finally, the current study makes a practical contribution to IS (information systems) literature and provides researchers and practitioners with important insights and understanding on SNSs use.

The next section of this paper reviews S-O-R theory and the uses and gratifications theory. The proposed research model, hypotheses, and methodologies are presented in the third section. Then, we present our results, and finally the paper is concluded with discussions on the findings and their theoretical and practical implications.

2. Theoretical Background

2.1. Uses and Gratifications Theory

U&G theory was first developed in the mass communications research field, where it has been widely used [6]. The theory posits that there exist social and psychological motives driving individual use of a particular type of media, and aims to identify them [16] with a focus on why individuals choose one type of media over the alternatives to gratify their needs [17]. According to the U&G theory, individuals are not passive users of media; rather, they are active in interpreting and integrating them into their own lives [6]. That is, they choose a type of media based on their goals driven by their

needs and motivations as individuals [18,19]. Need refers to something vital or desirable that a person lacks at a given time. In other words, a need is an essential element and signals the beginning of the process of generating consumer behavior [20]. The U&G theory suggests that the motivation to fulfill unsatisfied needs is a key element in the use of a particular type of media. Therefore, motivations are "reasons that influence people to act in a certain way in view to fulfill a need or desire" [21]. These motivations and needs determine people's choices of media, and are determined in the light of their evaluation of media based on the gratifications they offer. The individual motivation for media use also suggests an expectation of a gratification outcome. There are gratifications sought by media users that refer to the gains users expect from social media use, whereas the gratifications obtained are the actual benefits users acquired from media use [22]. The U&G theory emphasizes the motives of the social media user and his/her self-perceived needs. Different people can use the same media for different goals. Therefore, different users' needs can be gratified differently by the same media content [23]. Users' needs can affect their ideas on what they expect from a social media platform and which media meet their needs. That is, users have a clear idea of their motives and the gratifications expected from using a certain media. The U&G theory has heuristic value today because it provides social media scholars with a perspective through which a number of ideas about media adoption and use consumption, and even impact, can be viewed [24]. In the literature, the U&G theory has been widely employed by researchers in the field of traditional media, including cell phones [16], newspaper [25], instant messaging [26], Internet [27], and e-mail [28].

Recently, a growing number of IS researchers have applied the U&G theory to investigate individual user behavior in the context of social media, such as Facebook [29], Twitter [30], microblogging [31], and online SNSs [6,32,33]. Different gratifications were found by prior studies: hedonic gratification (fun, fantasy, and escapism) [34,35], utilitarian gratification (utility) [34,36], social gratification (social presence and social enjoyment) [36], and content gratification (information sharing, self-documentation, and self-expression) [6,37]. In summary, researchers have applied the U&G theory in different contexts to investigate how individuals use media.

2.2. Stimulus-Organism-Response (S-O-R) Theory

The S-O-R theory, introduced by Woodworth [38], posits that individual organic experiences (O) mediate the relation between the Stimulus (S) and the individual response (R). In other words, the environmental stimuli (S) lead to an individual internal organism (O) that results in his/her behavioral response [39]. In the S-O-R framework, the stimulus is assumed to have an influence on an individual's emotional state. This internal processing involves the cognitive and affective reactions of an individual, such as feelings toward stimuli [40]. The response represents the individual's behavioral outcome, which can be manifested in different forms, non-visible (conscious or unconscious) or detectable (internal or external) [40]. The S-O-R model has been applied in multiple fields, and notable examples include marketing [41], website design [42], retailing [43,44], and information systems [45,46] to explore the effect of diverse stimuli on various individuals' behavioral responses. Recently, researchers have applied the S-O-R theory to explore user loyalty to social network sites from a relational perspective [46]. In summary, the S-O-R theory has been applied to identify individual behavioral outcomes in different contexts, and the theory is suitable to explore individual user behavior in the context of SNSs.

2.3. U&G Theory and S-O-R Theory

The U&G theory posits that user behavior is influenced by different types of gratifications. This theory is useful to understand the use of media by individuals. It is also suitable to study motives for use in the context of SNSs [47]. The S-O-R theory also seeks to explain user behavior, but posits that there is a mediation element between what stimulates the user (stimulus) to choose a certain product or service and behavioral outcome (response). This mediation factor is referred to as the organism in the S-O-R theory. As mentioned earlier, recent studies have applied the U&G theory to investigate the effect of different gratifications on the use of different media. However, in the

formation of user behavior response (adoption or user continuance intention), there are some elements related to emotion that cannot be ignored. For instance, a satisfied user will have a strong desire to continue using a certain product or a service [46,48]. Prior studies that have insufficiently employed the U&G theory considered the effect of these gratifications on the user emotion, such as satisfaction or emotional commitment. To address this gap, this study integrated U&G and S-O-R theories to provide a theoretical background for exploring such an influence.

3. Research Model and Hypotheses

3.1. Research Model

According to U&G theory, several gratifications determine users' choices of media. These gratifications are also predictors of users' continuance intention according to U&G theory scholars. Prior U&G theory scholars have shown that if social media can meet users' needs through several gratifications, this can result in users' adoption and continuance intention. However, with the presence of social media in our daily lives, it is becoming important to determine the impact of these gratifications on users' emotional state. In the context of SNSs, users' continuance intention depends not only on the technological aspect of SNSs but also on users' attachment to the virtual community. Therefore, users' emotional state plays a key role for sustainable use. To carry out our investigation, this study integrates U&G theory with S-O-R theory to establish a theoretical model (Figure 1). We have identified different gratifications as stimuli according to the S-O-R theory, and have investigated their effects on user satisfaction and emotional commitment, referred to as the organism. Then, the effect of these organisms on user continuance intention, considered as response in the S-O-R theory, was investigated. So, this study differs from previous studies that only investigated the direct effects of different gratifications on users' behavior.
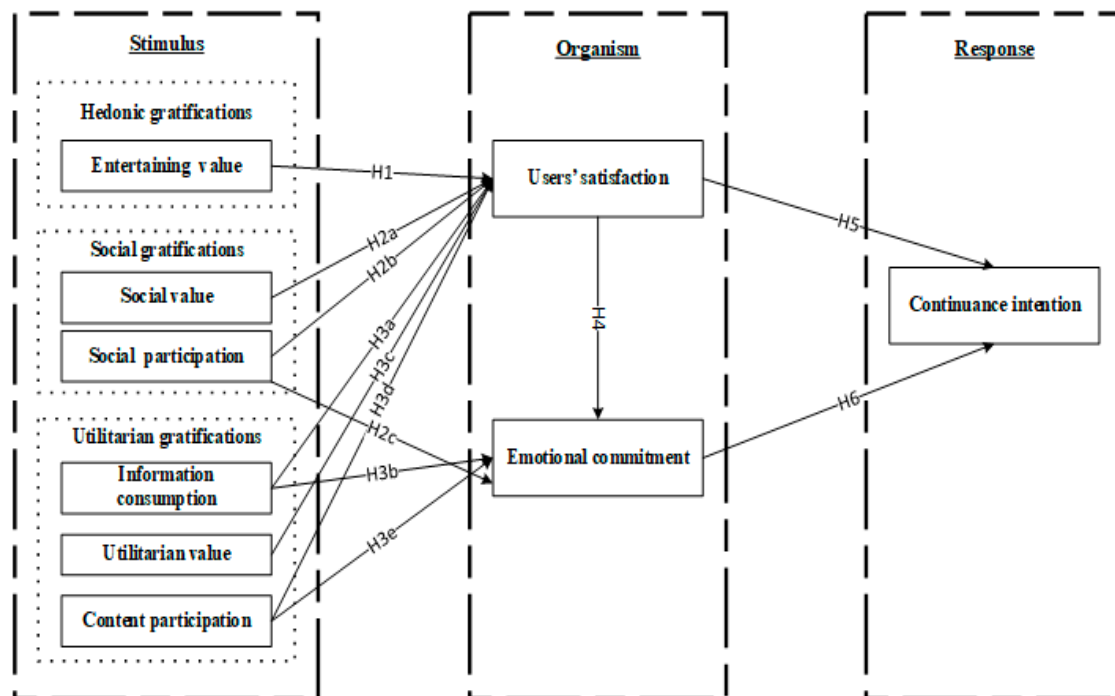

Figure 1. Proposed research model.

3.2. Hypotheses

3.2.1. Entertainment Value

Entertainment value reflects the values received from multiple senses, such as fantasy and emotive aspects. Apart from having utilitarian and social value to the user, SNSs can also have an entertainment value [49]. Users often use social media to reduce stress [50]. Thus, they choose a social media platform with high hedonic value [23,51–53]. Users will be attracted by a platform that provides some fun. Through the entertainment function of the SNS, the user's emotions can be stimulated, resulting in pleasure or satisfaction. Moreover, users can join or log on to the SNS for its entertainment value [54]. We include entertainment value in hedonic gratification because it reflects the idea of distracting oneself from daily tasks. Therefore, it is reasonable to hypothesize the following:

H1. *Entertainment value positively affects the satisfaction a user gets from using the social network.*

3.2.2. Social Value

Humans are in search of social relationships [41]. Online SNSs aim to be platforms that allow users to socialize with other members of a community. U&G scholars have shown that social interaction motivations, for example social relationship improvement, are key factors for social media users in choosing a particular type of social media. People use social media to connect with other people [55] so, if the SNS fails to have such value to users, it might negatively affect a user's satisfaction [55,56]. People with social integrative needs are motivated to use SNS, and they expect to gratify their needs for socializing with others. That is, a user may join a SNS because it provides an avenue to keep in touch with peers [54,57]. In addition, SNS can also serve as a "channel to initiate a conversation" [56] or to maintain a relationship. In this regard, users seek functional benefits to gratify their need for socializing [58]. These social gratifications that a user gains in SNS can stimulate him/her and affect his/her emotional state, such as pleasure and/or satisfaction. Therefore, we hypothesized the following:

H2a. *Social value positively affects the satisfaction a user gets from using the social network.*

3.2.3. Social Participation

Participation occurs when people get new friends or find old ones and exchange ideas with them [59]. If a SNS can successfully provide them with a platform that can allow them to carry out such activities, this can positively affect users' emotions. Previous studies that have applied U&G theory have shown that satisfying the need for socializing is a fundamental element driving social media usage [56]. With the integration of social media in our daily lives, it is becoming increasingly difficult to dissociate our emotions from these media [1]. Finding an old friend that he/she has not seen for a long time, for example, can make the user happy or pleased. In this study, we argue that users' participation in a virtual community is connected to their emotions. For example, when people have virtual friends they are attached to, the SNS becomes a bridge between them. Such a situation can make users emotionally committed to SNSs as a way to maintain a relationship. Consequently, users perceive a SNS as part of their lives and become attached to it. Based on these arguments, we hypothesized the following:

H2b. *Social participation positively influences the satisfaction a user gets from using the social network.*

H2c. *Social participation positively influences users' emotional commitment.*

3.2.4. Information Consumption

Information plays a crucial role in human life. For this reason, information consumption behavior has always been part of our daily lives. Our lives are influenced by information all the time. That is, our daily decisions are based on information we gather from different information sources [60].

Information consumption refers to reading content posted by other SNS users to satisfy information needs. Most social media offer this possibility to their users. U&G theory scholars have demonstrated that information needs gratifications are key determinants of a continuance intention [61]. Building on prior findings, we argue in this study that reading through other users' posts can also affect a user's emotional state. This can result in pleasure or emotional commitment. For example, if a user can gratify his/her need for information, this can result in a feeling of satisfaction, and repeating the action can lead to emotional commitment or can create an affective attachment to the SNS. Thus, we hypothesized the following:

H3a. *Information consumption positively influences the satisfaction a user gets from using the social network.*

H3b. *Information consumption positively influences user emotional commitment.*

3.2.5. Utilitarian Value

The utilitarian and functional aspects of the consumption experience have been the focus of marketing research for decades. This is indicated as task-related and rational [62]. One of the reasons that an individual chooses a particular SNS is the desire to gratify his/her cognitive needs [52,56]. Perceived usefulness and performance improvement are key motivations for using a certain technology [53,63,64]. The U&G theory assumes the same and posits that users tend to choose a particular SNS to address their cognitive needs [65]. In order to achieve their goals, customers are more concerned with consumption in an efficient and timely manner [66]. In online shopping studies, aesthetic stimuli from the web are considered as inducing online shoppers' cognitive, affective, and conative outcomes such as satisfaction, pleasure, or revisit intention [67]. We have identified utilitarian values in this research as utilitarian gratification, which indicates the extent to which people believe that a SNS can be useful for specific purposes, for example commutation. If a SNS can successfully meet these needs it will positively influence users' pleasure and satisfaction [46]. We, therefore, hypothesized that

H3c. *Utilitarian value positively affects the satisfaction a user gets from using the social network.*

3.2.6. Content Participation

Content participation occurs when a user comments, reposts, or uses other users' posts to create new content [59]. One of the reasons people consume social media is to gratify their cognitive needs (e.g., finding relevant content and commenting or reposting) [52]. Some users log onto SNSs in order to get content from other users or share their ideas. Content participation is often referred to as User-Generated Content (UGC). Most studies of users' activities in online SNS in relation to UGC emphasized user communication behavior based on a duality: consumption (lurking and reading) and posting. Content participation is a key reason for social media use. SNS platforms allow users to express themselves, and influence how others perceive them. With the integration of social media in our daily lives, it is obvious that content participation is a key determinant of users' satisfaction. A SNS platform that provides users with the possibility to fully express themselves can earn users' satisfaction and, even more, a sense of belonging that will lead to emotional commitment. In this study, we choose content participation because it is the essence of social media [56]. We, therefore, hypothesized the following:

H3d. *Content participation positively influences the satisfaction a user gets from using the social network.*

H3e. *Content participation positively influences users' emotional commitment.*

3.2.7. Satisfaction and Continuance Intention

The decision to retain or abandon a given service or product is the result of the satisfaction or dissatisfaction of the customer [68]. It is also noted that satisfied consumers have a higher tendency to purchase the same product or service and even resist offers from competitors [48]. Such consumers

also generate positive word of mouth. A high level of satisfaction, maintained consistently over a long period, leads to a prolonged relationship with the customer [46]. Several studies in E-Service found that customer satisfaction significantly and positively affects customer loyalty [46,48]. In addition, such satisfaction can create in customers an emotional commitment to the SNS. Therefore, we expect the following:

H4. *User satisfaction will positively affect a user's emotional commitment.*

H5. *User satisfaction will positively affect his/her continuance intention.*

3.2.8. Emotional Commitment and Continuance Intention

Emotional commitment can be referred to as an emotional attachment, a sense of identifying oneself or being involved in a group [69]. In an organization, emotional commitment is a critical predictor of continuance membership [69,70]. It also determines consumers' loyalty to a brand [71] and consumers' retention [72]. Scholars demonstrated that emotional commitment exists among the members of a virtual community [73,74]. Previous research on participation in virtual communities [75,76] has shown that emotional commitment is an important determinant of user behavior in virtual communities. A user with an emotional commitment to a virtual community will consider himself a stakeholder of the values and goals of the community [77,78]. Members of a virtual community can be developed because of the social relationship and interactions among them [74,79]. In the specific context of SNSs, users' emotional commitment is important for forming continuance intention because a user with a strong emotional commitment is likely to stick to the virtual community. Hence, we hypothesized the following:

H6. *A user's emotional commitment positively affects his/her continuance intention for using the online social network.*

4. Research Methodology

4.1. Sample and Data Collection

In order to test the model and the hypothesized relationships, we conducted an online survey for Weibo users. We adopted the survey method because the factors investigated in this study are related to the respondents' perceptions and psychology that can only be measured by self-report (entertainment value, social value, social participation, information consumption, utilitarian value, content participation, satisfaction, and emotional commitment). We also measured users' continuance intention in the survey. The respondents were university students in China. The survey link was sent to a class WeChat social networking group. Students were asked to click on the survey link to be redirected to the survey website. We coupled the survey with a response-driven approach. Each respondent was asked to fill out the survey form online and invite other potential respondents they know to complete the survey. As a network, invitees were also asked to send the survey to their contacts. To increase the response rate, weekly reminder messages were sent to the respondents that did not participate in the survey. We selected students as potential participants in our survey because students are more exposed to Internet technologies and can, therefore, be regarded as the first users of online social networks. In addition, previous studies have suggested that students are representative of the normal population of Internet users [47,80,81]. Thus, they were suitable subjects for the current study. Two hundred and fifty-five responses were collected. After eliminating three unengaged cases, we obtained 252 valid responses. No reward was offered to students who participated in the survey. The descriptive statistics of the respondents are shown in Table 1.

Table 1. Demographic characteristics of respondents (*n* = 252).

Demographic Characteristics	Frequency	Percentage
Gender		
Female	164	65.10%
Male	88	34.90%
Age		
Under 20	15	6.00%
20 to 25	175	69.40%
26 to 30	37	14.70%
31 to 35	12	4.80%
36 to 40	6	2.40%
Over 40	7	2.80%
Internet experience		
Less than 1 year	2	0.80%
1 to 5 years	45	17.90%
6 to 10 years	137	54.40%
11 to 15 years	46	18.30%
Over 15 years	22	8.70%
Weibo usage experience		
Less than 1 year	48	19.00%
1 to 2 years	50	19.80%
Over 2 years	154	61.10%

4.2. Measurement Development

All the constructs in the study were measured using multiple scales. The items were adapted from previous studies with wording modification where necessary to tailor the scales to the current study context and avoid response bias.

The items were measured using the seven-point Likert scale, ranging from strongly disagree to strongly agree. The survey was first developed in English and translated to Chinese by academic Chinese native speakers. The translation was then sent to three lecturers (PhD) in management sciences for corrections. Next, the questions were sent to a group of 10 students to get their comprehension of the items. Based on their feedback, we further improved the survey to eliminate ambiguity or poorly worded items. After this step, we ran a pilot test with data collected from 30 students. The feedback we received from the pilot test allowed us to amend some items. The final items, along with their corresponding constructs and original sources, used in the survey are described in Appendix A.

5. Data Analysis and Results

The empirical data in this research were analyzed using structural modeling equations (SEM) [82,83] supported by AMOS 23 (analysis of moment structures) software under the maximum likelihood estimator. The analysis proceeded in two stages. First, we estimated the measurement model, and second, we ran the structural model to confirm or disprove the hypotheses.

5.1. Measurement Model

To validate our measurement model, we assessed the overall model fit, the construct's reliability, and its validity. The overall model fit was assessed using the following fit indices: chi-square (X^2), degree of freedom (df), normed-fit index (NFI), normed chi-square to degree-of-freedom (CMIN/DF), adjusted goodness-of-fit index (AGFI), goodness-of-fit index (GFI) [84], comparative fit index (CFI) [85], root mean squared residual (RMR), and root mean square error of approximation (RMSEA) [86]. Our choice of these statistics fit index is based on the study by Hair et al. that recommends the use of different class fit indices. The mentioned fit indices provide information on how well the data fit our

model [87]. Table 2 presents the cut-off criteria applied to evaluate the goodness of fit with respect to our observed data. As presented in the table, for our data, the measurement model showed a good fit. We then assessed the reliability and validity of the constructs to test the proposed hypotheses.

Table 2. Fit indices for model measurement and structural model.

Fit Index	Threshold	Structural Model	Measurement Model
X^2	-	7.06	571.02
df	-	4.00	228.0
CMIN/DF	$\leq$3.0	1.77	1.90
GFI	$\geq$0.90	0.99	0.86
AGFI	$\geq$0.80	0.93	0.81
NFI	$\geq$0.90	0.99	0.92
CFI	$\geq$0.90	0.99	0.96
RMR	$\leq$0.05	0.02	0.09
RMSEA	$\leq$0.08	0.05	0.06

5.1.1. Construct Reliability

Reliability is the consistency of measurement. That is, the ability of an instrument to give stable and consistent results. The purpose of a reliability test is to confirm that the instrument really measures what it is supposed to measure consistently. On the other hand, validity deals with the design and methods of a study. It refers to the ability of an instrument to accurately measure a phenomenon. In the current study, we employed some commonly used indicators to assess the validity and reliability of our instrument: composite reliability (CR), discriminant validity, and convergent validity. Average variance extracted can be used to assessed convergence validity (AVE), while discriminant validity is determined through the maximum shared variance (MSV) and $\sqrt{AVE}$. In addition, we examined item standard factor loadings and their corresponding reliabilities. Item reliability is the square root of the factor loading, and gives information about the amount of variance in an item due to the underlying construct instead to error.

As Table 3 depicts, for our model measurement, items factor loadings were above the recommended cut-off value of 0.7, the item reliabilities were far above the recommended value of 0.5, and all constructs' composite reliability (Table 4) exceeded the recommended cut-off value of 0.7 [88,89] (Table 5). Thus, we conclude that the constructs were reliable.

Table 3. Standardized factor loadings and individual item reliabilities.

Item	Factor Loading (>0.70)	Item Reliability (>0.50)
Utilitarian value		
UV1	0.81	0.65
UV2	0.86	0.73
UV3	0.77	0.60
Social value		
SV1	0.86	0.74
SV2	0.89	0.80
SV3	0.89	0.80
Entertainment value		
EV1	0.75	0.56
EV2	0.84	0.71
EV3	0.92	0.86
Information consumption		
INFO CONS 1	0.86	0.74
INFO CONS 2	0.91	0.83
INFO CONS 3	0.91	0.83

Table 3. *Cont.*

Item	Factor Loading (>0.70)	Item Reliability (>0.50)
Social participation		
SP1	0.79	0.62
SP2	0.96	0.92
SP3	0.94	0.88
Content participation		
CP1	0.84	0.71
CP2	0.88	0.77
CP3	0.85	0.72
User satisfaction		
PLS1	0.97	0.94
PLS2	0.98	0.96
PLS3	0.94	0.88
Emotional commitment		
COMMIT1	0.85	0.72
COMMIT2	0.98	0.96
COMMIT3	0.91	0.83
Continuance intention		
CONT INT1	0.87	0.76
CONT INT2	0.89	0.79
CONT INT3	0.84	0.71

Table 4. Reliability and validity of constructs.

Latent Constructs	CR	MSV	AVE	$\sqrt{\text{AVE}}$
Utilitarian Value	0.85	0.49	0.66	0.81
Social value	0.91	0.49	0.77	0.88
Entertainment value	0.88	0.60	0.70	0.84
Information consumption	0.92	0.60	0.80	0.89
Social participation	0.92	0.61	0.80	0.90
Content participation	0.89	0.52	0.74	0.86
User satisfaction	0.97	0.66	0.93	0.96
Emotional commitment	0.94	0.73	0.84	0.91
Continuance intention	0.90	0.73	0.76	0.87

Table 5. Threshold values of reliability and validity of constructs [90].

Reliability	Convergent Validity	Discriminant Validity
CR > 0.70	AVE > 0.50	MSV < AVE
		$\sqrt{\text{AVE}}$ > Inter-construct correlations

5.1.2. Construct Validity

After confirming the construct reliability, we tested convergent and discriminant validities. As Table 5 shows, all constructs' AVE values were above the threshold value of 0.5, thus confirming convergent validity. The square root of the AVE for each construct was higher than the inter-construct correlation (Table 6). In addition, all constructs' MSV values were less than their corresponding AVE values (Table 4). Based on these findings, we concluded that the latent constructs in our study demonstrate discriminant validity [90,91].

Table 6. Square root of AVE and correlation between constructs.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Utilitarian Value	**0.81**								
Entertainment Value	0.50	**0.84**							
Information Consumption	0.51	0.77	**0.89**						
Social Value	0.70	0.58	0.56	**0.88**					
Continuance intention	0.58	0.74	0.7	0.60	**0.87**				
Social Participation	0.64	0.51	0.54	0.67	0.75	**0.90**			
Content Participation	0.63	0.56	0.46	0.70	0.62	0.72	**0.86**		
User satisfaction	0.57	0.71	0.72	0.64	0.80	0.72	0.60	**0.96**	
Emotional commitment	0.62	0.66	0.62	0.67	0.85	0.78	0.66	0.81	**0.91**

Note: Bold values in diagonal are the square root of the Average Variance Extracted (AVE) of each construct. Off-diagonal correlation coefficients between constructs.

5.2. Structural Model Analysis

In the previous section, we reported the fitness values for the measurement model. The model was found to achieve the recommended validity and reliability characteristics. Next, after testing the measurement model, we derived a structural model to test our hypotheses and the proposed model (Figure 1). We first assessed if the structural model presents a good model fit. Running the designed model in AMOS 23, we obtained the following values of the fit indices: $Chi^2 = 7.06$, Df = 4, CMID/DF = 1.77, GFI = 0.994, AGFI = 0.929, NFI = 0.996, CFI = 0.998, RMR = 0.02, RMSEA = 0.05. These values fall within the acceptable ranges (Table 2), hence giving evidence of a good model fit. This observation allowed us to proceed to the next step. From Figure 2, we observe that statistical outcomes accounted for 68%, 71% and 67% of the variance in user satisfaction, emotional commitment, and continuance intention—an indication of the good exploratory power of the model.

Table 7 presents the coefficient of the conceptualized paths and their related *p*-values. The results show that user satisfaction is influenced by entertainment value, information consumption, and social participation, implying that H1, H3a, and H2b are supported. Furthermore, the table suggests that social participation and content participation can significantly predict emotional commitment, and that user satisfaction and emotional commitment are significant predictors of continuance intention, supporting H2c, H3e, H5, and H6, respectively. In addition, a significant relationship in user satisfaction/trust was observed, hence supporting H4.

Table 7. Standardized estimates.

H#	Conceptualized Path	Standardized Estimate	*p*-Value	Remarks
H1	Entertainment value → User satisfaction	0.26	<0.001	Supported
H2a	Social value → User satisfaction	0.10	0.074	Not supported
H2b	Social participation → User satisfaction	0.40	<0.001	Supported
H2c	Social participation → Emotional commitment	0.24	<0.001	Supported
H3a	Information consumption → User satisfaction	0.23	<0.001	Supported
H3b	Information consumption → Emotional commitment	0.09	0.042	Not supported
H3c	Utilitarian value → User satisfaction	0.02	0.632	Not supported
H3d	Content participation → User satisfaction	−0.01	0.846	Not supported
H3e	Content participation → Emotional commitment	0.14	<0.002	Supported
H4	Satisfaction → Emotional commitment	0.48	<0.001	Supported
H5	Satisfaction → Continuance intention	0.56	<0.001	Supported
H6	Emotional commitment → Continuance intention	0.43	<0.001	Supported

However, insignificant relationships were found in the social value/user satisfaction, utilitarian value/user satisfaction, content participation/user satisfaction, and information consumption/emotional commitment pairs, meaning that H2a, H3c, H3d and H3b, respectively, were not supported.

5.3. Common Method Bias (CMB)

CMB is a threat to the validity of research findings when all the research data are collected from a single survey. It often occurs when the researcher has applied a multi-scale approach as in the case of our research. To avoid CMB threats in this research, we used some approaches proposed in [92]. For example, we carefully designed the questions to ensure that they were simple and accurate and contained no "yes/no" answers. In addition to these procedural attempts, we applied a statistical approach proposed by Podsakoff [92], which is the most common approach used by researchers to avoid CMB problems [84]. According to the researcher, if a single factor can explain more than 50% of the variance in the confirmatory factor analysis, there are CMB concerns. For the current research, we obtained 42.5%. This result indicates a possible lack of CMB.

6. Discussion

This study investigates the effect of different gratifications on users' satisfaction and emotional commitment and how these two factors affect users' continuance intention to use Weibo in China. The results show that most of our hypotheses in the proposed theoretical model were supported (Table 7). Also, the R-squared (R^2) values indicate that user satisfaction, emotional commitment, and continuance intention can be explained through satisfactory levels of variance, thus confirming the relevance and significance of our research model (Figure 2). Gratifications explained 68% and 71% of the variance in users' satisfaction and emotional commitment, respectively. A prior study investigated the effect of gratifications on continuance intention to use WeChat in China [6] and could explain 58% of the variance in continuance intention. In the current study, users' satisfaction and emotional commitment explained 67% of the variance in continuance intention. Our study's R^2 metric allows us to suggest a further investigation of these two factors and, more importantly, to explore the influence of other factors such as gender, age, or culture [93].

An observation of the paths' coefficients (Table 7) shows that three types of gratifications have a significant impact on user satisfaction: hedonic gratification (entertainment value), social gratification (social participation), and utilitarian gratification (content participation). Social gratification (content participation) was found to be the most important factor influencing Weibo users' satisfaction, followed by hedonic gratification (entertainment value) and utilitarian gratification (information consumption) (Figure 2). These findings are not surprising because the primary purpose of SNS is social interaction [1]. People use SNS to satisfy several social needs, and if a SNS can help them fulfill their needs for socializing online, this can result in a feeling of satisfaction [94,95]. Also, when a SNS platform is entertaining, users can find pleasure logging in and spending long time on it. A user will accept and use a SNS if it can satisfy his/her need for information [96]. Information systems, such as SNS, are designed to support users' needs. The need for information is not part of the fundamental needs of humans (breathing, food, water, sex, and sleep) as classified by Maslow [97]; however, when one of these needs cannot be satisfied right away, the need for information arises [96]. This might explain the influence of information consumption on user satisfaction. To our knowledge, no prior studies attempted to investigate the impact of gratification on SNS users' satisfaction. Our findings, therefore, open the way for further investigations. In this respect, social media developers should give more attention to designing platforms that allow users to meet their needs for social interaction, information, and entertainment. Considering the Weibo application, we recommend that similar platform (Twitter and Instagram) developers add new features in this regard to be more competitive. Unexpectedly, social value, utilitarian value, and content participation were not found to have a significant effect on user satisfaction. The reason may be that users have alternatives for information or socializing. The result may also be due to other factors that were not accounted for in the current study.

The path coefficients in Table 7 also reveal that users' emotional commitment is significantly influenced by utilitarian gratification (content participation) and social gratification (social participation), which appear to be the most critical factors influencing users' emotional commitment. Evidently, these two gratifications are related to users' emotions. Social media users are often

goal-oriented. Social interrogative motivations are fundamental drivers of various social media usages, such as improving or maintaining one's social network [55,56]. Sometimes, when a user changes city, the SNS might be the only way to keep in touch with old friends or get new ones. This can make the user emotionally committed to a particular SNS. In addition, nowadays people tend to base almost all their decisions on information gathered from social media. The fundamental question derived from these findings is how developers will revamp their platform to induce emotional commitment of users. Despite the relevance, this question has been receiving less attention to date. A further investigation of the impact of gratifications on social media users' emotional commitment will help developers in designing platforms for sustainable consumer post-consumption behavior. Contrary to our expectations, information consumption was not found to significantly influence emotional commitment. The possible reason for this non-significant effect may be due to the specific context of the current study (Weibo use in China). Another possible explanation regarding the non-significant effect of information consumption may be because Weibo users, who are mainly Chinese [98], are looking for information outside the Chinese culture or outside their geographical area. Weibo differs from other social network platforms such as Twitter in which users can easily connect with members from other countries (Table 8).
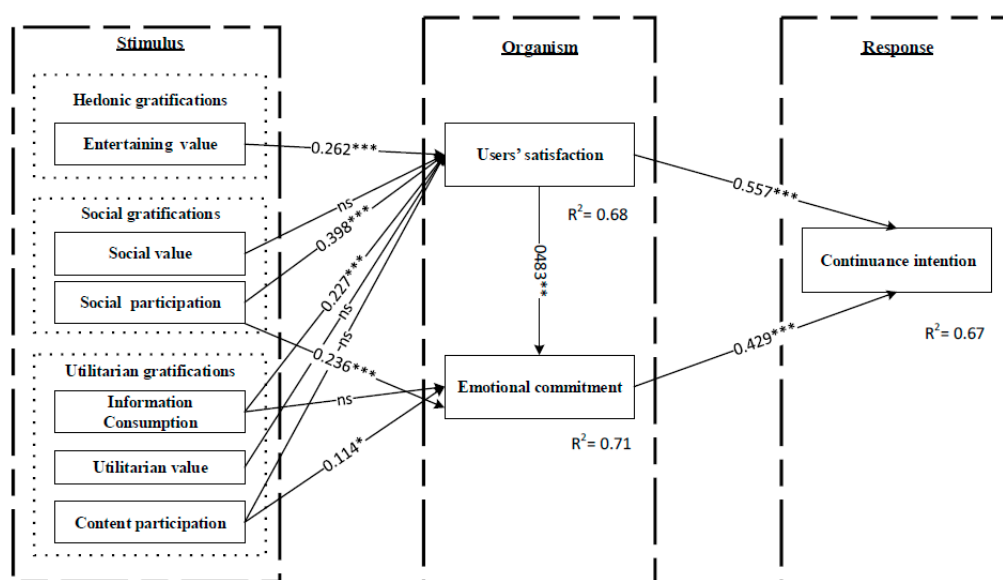

Figure 2. The structural model.

Table 8. Differences between Weibo and Twitter.

	Weibo	Twitter
Year Launched	2009	2006
General Language Support	Chinese & part English	Multiple languages
Post the Same Content in a Short Period of Time	Possible	Not possible
Retweeting/Comments	Can add personal comments	Can't add comments when retweeting
Polls	Are displayed as tweets and can engage directly by clicking	Not available
Game Center	Available	Not available
Groups	Available	Not available
Photo Albums	Available	Not available

Furthermore, of the proposed constructs, user satisfaction and user emotional commitment were found to have a significant impact on users' continuance intention to use Weibo. The significant effect of satisfaction on continuance intention is consistent with previous studies' findings [2,6,46,99,100].

Social media success depends on ongoing usage rather than initial adoption [101], and this study confirms that satisfaction is a key determinant of online social network continuance usage intention. In this regard, we suggest that social media developers give particular attention to designing platforms that gain online users' satisfaction. Along the same line, we found a significant influence of satisfaction on users' emotional commitment. In addition, the significant effect of user emotional commitment also highlights the importance and relevance of the current study. The reason people continue to use a SNS is not just the technology itself but also the relationships they develop with other users. In the context of social media, and specifically for SNS, users are free and can switch to any other SNS without cost or violation of any obligation. Therefore, emotional commitment plays a crucial role in the context of SNS. It reflects the extent to which users feel attached and involved in the community, and this factor determines their decision to stay with the platform. Consequently, we recommend that SNS developers and managers give particular attention to obtaining users' emotional commitment.

The preceding discussions give us confidence to integrate U&G and S-O-R theories in the SNS context to explore the effect of different gratifications on a user's emotional state. We can affirm that the different gratifications users gain from using a particular type of social media influence their emotional state. These emotional responses are crucial determinants for continued usage or dropout behavior.

7. Implications and Limitations

7.1. Implications for Theory

From a theoretical view point, our study's findings contribute to the IS literature in several ways. Firstly, while prior studies focus largely on initial adoption and gratifications in predicting continuance intention, this study steps forward to investigate the impact of gratifications on users' satisfaction as well as on users' emotional commitment.

Second, the findings of this study extend the use of S-O-R theory and U&G theory in the IS literature by investigating the role of different gratifications on a user's emotional state (user satisfaction and emotional commitment), and consider these gratifications as stimuli according to the S-O-R theory.

Third, in addition to users' satisfaction, our findings provide evidence that emotional commitment is an important factor that predicts users' continuance intention. This is due to the special context of SNS that incorporates both the technology itself and the relationship with the virtual community. In this context, users may develop a relationship with the virtual community members after the initial adoption. Users' continuance intention to use a specific SNS is, therefore, influenced by both factors related to technology and factors related to the relationships established in the virtual community. This finding is particularly worth highlighting as previous studies focused mostly on gratifications.

Fourth, our results show that users' satisfaction marks a good predictor of emotional commitment, followed by social participation and content participation. The abovementioned findings suggest that user satisfaction and some gratifications (social participation and content participation) can be used in explaining emotional commitment. Future research should pay more attention to these factors when studying the determinants of a sense of belonging in the context of SNS.

Finally, the relationship between information consumption and emotional commitment appeared to be non-significant. One possible explanation for this unexpected finding may be due to the particular characteristics of Weibo and the sample. As shown in Table 1, approximately 65% of the respondents were female and 69% of the respondents were aged 20 to 25. Females may be less motivated by information consumption or less emotionally attached to it.

7.2. Implications for Practice

The findings of this study provide practitioners with new insights on how to create attractive and pleasant platforms that may lead to user retention. The findings can also help in designing more efficient social networks, either locally or for a specific audience. SNSs' benefits are many, both for individual users and for organizations. However, if the SNS cannot retain users on their

platform, these benefits cannot be achieved. The current study reveals that users' satisfaction is a good predictor of continuance intention. In this regard, developers and webmasters of SNSs should regularly evaluate users' satisfaction. Entertainment value, social participation, and information consumption are found to be good predictors of user satisfaction. To increase the entertainment value, developers can regularly change the look of their platforms. They can also offer more convenient channels for information sharing, as the results reveal the significant role of information consumption in predicting user satisfaction.

Another factor that predicts users' continuance intention is emotional commitment. Developers should focus on earning users' emotional commitment because, in the context of SNSs, users' continuance intention depends on the technology itself and the commitment to the relationship developed on the platform.

In addition, this study reveals that social participation is the dominant factor that influences user satisfaction and emotional commitment. Therefore, SNS providers should improve their services by making platforms more interactive for users. Moreover, the results of our study may be applicable to other online social networking sites, such as Facebook, MySpace, Pinterest and Profit as well as to firms and organizations.

7.3. Limitations and Future Research

This study has some limitations, as does any research. Firstly, the data used in this study were collected from China, and hence the results may be limited to this country. Future research should consider whether culture has any moderating effect before generalizing our results to other countries. For example, a study that compares the individual and collectivistic culture aspects of Weibo usage will help us gain more insight [102]. Secondly, the sample used in this study included young students. Though they are representative of social media participants, this group cannot be used to generalize results across all ages and genders. Future research should consider investigating age and gender as moderators when predicting user pleasure and emotional commitment.

8. Conclusions

This study integrates the U&G and S-O-R theories to investigate the impact of gratifications on users' satisfaction and emotional commitment. Users' continuance intention to use SNSs was also empirically investigated. The findings of this research provide empirical evidence and insights relevant to social media literature by showing that gratifications impact users' satisfaction and emotional commitment, and also reveal the crucial roles of these emotions in forming continuance intention. Previous research on SNS continuance intention focused on technology-related aspects, thus limiting our understanding of SNS continuance intention. In addition, previous studies that investigated the impact of gratifications on the adoption or continuance intention failed to investigate the impact of these gratifications on users' satisfaction and emotional commitment. In the specific context of SNSs, the continuance intention depends not only on technology-related aspects but also on the emotional attachment to the relationship the user developed with other members of the platform. Therefore, the findings of the current research are important and relevant in terms of implications for research on social media sustainability and for practitioners.

Appendix A

Table A1. Survey items.

Construct	Item	Source
Utilitarian Value	(UV1) Weibo is useful for connecting with other people.	[103]
	(UV2) Weibo is a useful service for communication. (UV3) Using Weibo improves my efficiency in sharing information and connecting with others.	[104]
Social value	(SV1) Interacting on Weibo helps me to gain respect from other members. (SV2) Interacting on Weibo improves the way I am perceived by the other members. (SV3) Interacting on Weibo helps me in forming warm relationships with other members.	[105]
Entertainment Value	(EV1.) Using Weibo is fun. (EV2) I enjoyed being immersed in exciting new information on Weibo.	[53]
	(EV3) I enjoy using Weibo.	[106]
Content participation	(CP1) I assist other members of Weibo with their questions. (CP2) I take part in discussions about community issues on Weibo. (CP3) I actively participate in activities organized by the Weibo community.	[79]
Information consumption	(IC1) I accumulate broad knowledge through Weibo users' shared information. (IC2) I acquire a variety of information from people online using Weibo. (IC3) I obtain lots of useful information from people online using Weibo.	[106]
Social Participation	(SP1) I use Weibo to know what is happening with my friends. (SP2) I use Weibo almost every day as a sort of calendar to stay up to date and find out about what my friends are doing. (SP3) Using Weibo helps me stay connected with my friends.	[59]
User satisfaction	(Sat1) Interaction on Weibo makes me feel happy. (Sat 2) Interaction on Weibo makes me feel pleased. (Sat 3) Interaction on Weibo makes me feel contented.	[99]
Emotional Commitment	(COMMIT1) I am proud to belong to this online social network. (COMMIT2) I am very committed to my relationship with Weibo. (COMMIT3) I care about the long-term success of Weibo.	[99]
Continuance Intention	(CI1) I will recommend this online social network to my friends. (CI2) My intentions are to continue using Weibo rather than any alternative.	[106]
	(CI3) When a new type of Weibo is introduced, I will definitely try it.	[107]

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