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# Understanding Twitter Usage: What Drive People Continue to Tweet

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# UNDERSTANDING TWITTER USAGE: WHAT DRIVE PEOPLE CONTINUE TO TWEET

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## Abstract:

*In this study, we proposed a research model to investigate the factors influencing users' continuance intention to use Twitter. Building on the uses and gratification framework, we have proposed four types of gratifications for Twitter usage, including content gratification, technology gratification, process gratification, and social gratification. We conducted an online survey and collected 124 responses. The data was analyzed using Partial Least Squares. Our results showed that content gratifications and new technology gratification are the two key types of gratifications affecting the continuance intention to use Twitter. We conclude with a discussion of theoretical and practical implications. We believe that this study will provide important insights for future research on Twitter.*

*Keywords: Twitter, Micro-blogging, Web 2.0, Social Media, Continuance Intention, Uses and Gratifications, Motivations, User Satisfaction, Content Gratification, Process Gratification, Social Gratification, Technology Gratification*

## **1. INTRODUCTION**

According to the Pew Internet & American Life Project (Lenhart & Madden, 2007), more than half (55 percent) of all online American youths are using online social networking sites. Among these online social networking sites, Twitter is ranked as the fastest-growing site in the member community category. The number of Twitter users has jumped from 1.22 millions in 2008 to 73.5 millions in 2010 (Nielsen.com, January 2010).

Twitter was launched in October 2006. It is a free real-time short messaging service that enables users to send and read messages (tweets) through the Twitter website, short message service (SMS), mobile application, and various desktop applications. One important characteristic of Twitter is that it limits users to send updates in only 140-character. Despite the critics of the 140-character medium, there is an explosive growth and adoption of Twitter. For example, Barack Obama used Twitter during his 2008 presidential campaign to spread his messages to the American public. Some organizations, such as Dell, have had great success in using Twitter to inform their customers of discounts and news related to their products. Many social media marketers and researchers believe that Twitter has a lot of business values. In particular, marketers can easily use Twitter to find out what people are saying in real-time and what people are talking about their products (electronic word-of-mouth).

Twitter, an online social networking and micro-blog service, is a relatively new phenomenon. Academic research on Twitter usage is still very limited, and most existing studies tended to focus on the initial usage. In recent years, there are a significant number of new online social network sites. The ability to retain and lock members in competitive situations has become the most important concern for most online social network sites. In order to achieve long-term success and gain long-term benefits in a competitive environment, it is particularly important to conduct a study on the post-adoption of Twitter so as to understand the factors influencing continuance intention to use Twitter. Thus, the purpose of this study is to explore the reasons that drive Twitter users' continuance intention to use Twitter. This paper is organized as follows. In the next section, the theoretical background is introduced. The third section describes our research model and hypotheses. The fourth section presents the research method. Key findings are discussed in the fifth section. The last section concludes with a discussion of the theoretical and practical implications.

## **2. THEORETICAL BACKGROUND**

### **2.1 Information Systems Continuance and User Satisfaction**

In recent years, IS continuance has been a dominant research topic in the IS literature (Bhattacharjee 2001, Limayem et al. 2007; Limayem & Cheung 2008; Ortiz de Guinea & Markus 2009). In addition, a significant amount of studies showed that user satisfaction is an important factor of IS continuance intention (Cheung & Lee 2009; Lin, Wu, and Tsai 2005). User satisfaction is one of the most important concepts in the IS literature (DeLone & McLean 2003; Rai, Lang, & Welker 2002; Zviran & Erlich 2003). Researchers defined and studied user satisfaction broadly in two different ways. The first line of satisfaction research focuses on the factors that lead to satisfaction. The second line of satisfaction research delineated satisfaction based on the perceptual, evaluative, and psychological processes.

The expectation disconfirmation theory (EDT), proposed by Oliver, is a prominent theory from the marketing field that explains consumers' satisfaction with products or services. It describes a consumer's behavioural process from the initial pre-use expectations of a product to the post-use perceptions of the product (Spreng & Page, 2003; Patterson et al., 1997; Oliver, 1980). This theory has been widely adopted in the IS field (Bhattacharjee 2001; McKinney et al. 2002; Susarla et al. 2003; Woodroof & Kasper 1995). The EDT suggests that continuance intention is determined by the level of satisfaction with a system, which is determined by users' pre-use expectation on the system and post-use disconfirmation.

## 2.2 Uses and Gratifications

The uses and gratifications (U&G) framework is a media use paradigm from mass communications research that guides the assessment of user motivations of media usage and access. The main purpose of this paradigm is to explain the reasons that people choose a specific medium over alternative communication media and to elucidate the psychological needs that people use a particular medium. This paradigm assumes that users are goal-directed in their behavior and are aware of their needs. The framework has been applied to various media, including newspapers (Elliott & Rosenberg 1987), radio (Mendelsohn 1964), and television (Babrow 1987), cable television (Heeter & Greenberg 1985), VCR (Cohen, Levy & Golden 1988), mobile phone (Leung & Wei 2000), email (Dimmick, Kline & Stafford 2000), the Internet (Stafford, Stafford & Schkade 2004), virtual community (Cheung & Lee 2009), social network sites (Cheung et al. 2010; Shi et al. 2009) and mobile services (Nysveen, Pedersen & Thorbjornsen 2005).

Elliott and Rosenberg (1987) argued that whenever a new technology enters the stage of mass communication, the uses and gratifications paradigm will be applied to explain user underlying motivations and decisions to use the new communication tool. Stafford et al. (2004) further suggested that uses and gratifications can be used to explain continued use of something already chosen. In recent years, there are a growing number of studies using the uses and gratifications paradigm to explain user participation in virtual communities (Cheung & Lee 2009; Dholakia, Bagozzi & Pearo 2004; Sangwan 2005). Gratifications of using new communication technologies have been elicited by previous new media studies over the past few years (See Table 1). A review of the prior uses and gratifications research shows that there are three gratifications for using the Internet: content gratifications, process gratifications, and social gratifications. Recent adaptations of U&G research to the Twitter are incomplete and have not identified important new Twitter-specific gratifications.

Author(s) and Year	Medium	Uses and Gratifications Typologies
James, Wotring, and Forrest (1995)	Electronic bulletin board	Transmission of information and education Socializing Medium appeal Computer or other business Entertainment
Perse and Dunn (1998)	Home computers	Entertainment Escape Habit Passing time
Leung (2001)	ICQ	Affection Entertainment Relaxation Fashion Inclusion Sociability Escape
Papacharissi (2002)	Personal home pages	Passing time Entertainment Information Self-expression Professional advancement Communication with friends and family
Stafford, Stafford and Schkade (2004)	The Internet	Process: Resources, Search engines, Searching, Surfing, Technology, Web sites Content: Education, Information, Knowledge, Learning, Research Social: Chatting, Friends, Interactions, People
Ko, Cho and Roberts (2005)	The Internet	Information Convenience Entertainment

		Social-interaction
Didi and Larose (2006)	Internet news	Surveillance Escapism Pass time Entertainment Habit
Jun and Lee (2007)	Mobile media	Mobility/Convenience Fashion Information Entertainment/Relaxation Functional service Multimedia service Sociality
Perters, Amato and Hollenbeck (2007)	Wireless advertising	Process: Limited Time, Structuring Time, Entertainment Content: Cutting-Edge Information, Reminders and Notifications Ubiquitous Information, Information for Problem Solving Customized Content Socialization: Commercial Relationships, Personal Relationships
Mendes and Tan (2009)	User-generated content	Content: Information Consistency; Source Credibility; Argument Quality; Information Framing Process: Medium; Entertainment Social: Recommendation Consistency; Recommendation Rating
Cheung and Lee (2009)	Virtual community	Purposive Value Self-discovery Entertainment Value Social Enhancement Maintaining Interpersonal Interconnectivity
Haridakis and Hanson (2009)	YouTube	Convenient entertainment Convenient info seeking Co-viewing Social interaction

*Table 1. Selected New Media Uses and Gratifications Typologies 1995-2009*

### **3 RESEARCH MODEL AND HYPOTHESES**

Figure 1 presents the research model of this study. Integrating the expectation disconfirmation theory into the uses and gratification framework, we have proposed the hypotheses for the current investigation.

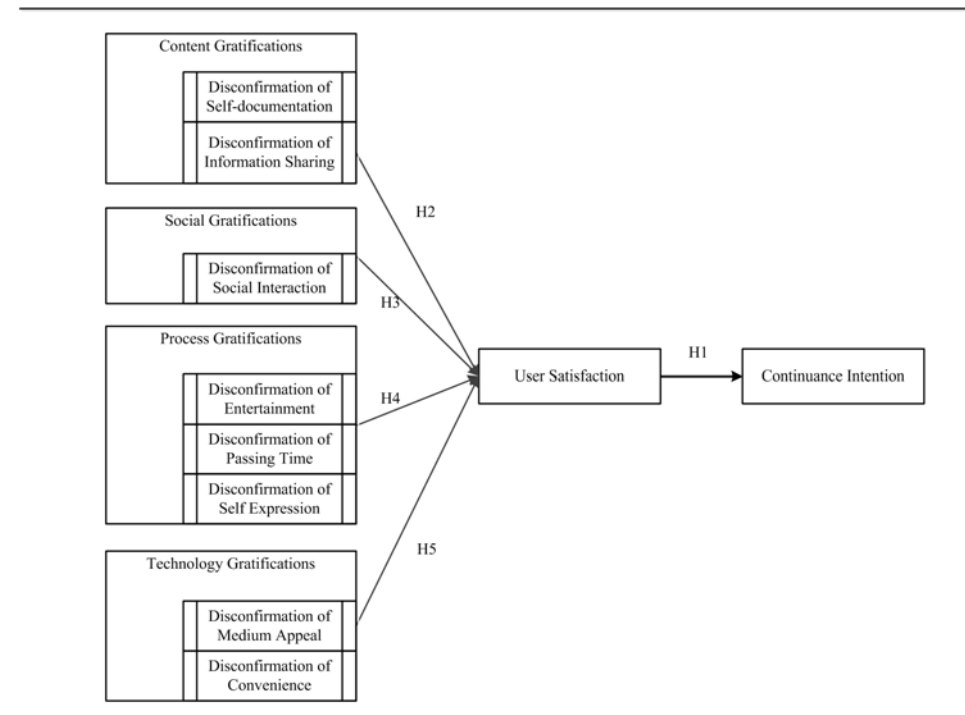


Figure 1. Research Model

### 3.1 Satisfaction and Continuance Intention Regarding Twitter

According to the IS continuance model (Bhattacharjee 2001), satisfaction has a direct impact on users' continuance intention of IS usage. This theoretical path has been examined in a significant number of IS studies (e.g., Cheung & Lee 2009; Lin, Wu, & Tsai 2005). Based on this line of arguments, we believe that user satisfaction with prior usage experience with Twitter will positively influence their continuance intention to use Twitter. When a user is satisfied with the usage experience with Twitter, there is a higher chance that he/she will continue to use it. Therefore,

*H1: Users' level of satisfaction with initial Twitter use is positively associated with their Twitter continuance intention.*

### 3.2 The Role of Gratifications of Using Twitter

Building on the existing literature, we have proposed eight motives of using Twitter. The eight motives include self-documentation, information sharing, social interaction, entertainment, passing time, self-expression, medium appeal, and convenience. Motivation can be referred as a user's pre-use expectation towards an information system. Disconfirmation is defined as the discrepancy between a user's expectation and perceived performance of the system/service, is considered to have a strong impact on user's gratification. Peters (2007) structured gratifications into three categories: content gratification, process gratification, and social gratification. In the current investigation of Twitter usage, it is reasonable to include technology gratification for new media. Integrating the expectation disconfirmation theory with the motivations of using Twitter, content gratifications, process gratifications, social gratifications, and technology gratifications are represented by the disconfirmations of motivations respectively (as shown in Table 2).

Construct	Sub-construct
Content Gratification	Disconfirmation of Self-documentation, Disconfirmation of Information Sharing
Process Gratification	Disconfirmation of Entertainment, Disconfirmation of Passing Time, Disconfirmation of Self-expression
Social Gratification	Disconfirmation of Social interaction
Technology Gratification	Disconfirmation of Medium appeal, Disconfirmation of Convenience

*Table 2. Disconfirmation of Motivation*

### 3.2.1 Content Gratification

Content gratification is derived from the use of mediated messages for their direct, substantive intrinsic value for the receiver (Cutler & Danowski, 1980). Content gratification is purposeful use of media (like in instrumental use). As mentioned before, we identified two types of disconfirmations of motivations that will derive content gratification, including the disconfirmation of self-documentation and the disconfirmation of information sharing. Thus, content gratification of Twitter resides in content of the information carried through Twitter. If a user's perceived quality of the information carried by Twitter is higher than or the same as his pre-use expectation, he will be satisfied with the content gratification and will thus continue to use Twitter.

*H2: Content gratification has a positive effect on their level of satisfaction with the use of Twitter.*

### 3.2.2 Social Gratification

Social gratification arises from "interactivity" with other parties through media. The interactivity is the degree that users can exchange with each other in the media (Williams et al. 1988). Twitter provides the function of following to keep connection with each other. It will bring social gratification by satisfying the need of social interaction. Rayburn indicated that media with a high degree of interactivity is more likely to satisfy and retain users (1996). Therefore, it is reasonable to presume that social gratification is a more pertinent element to get Twitter users' satisfaction.

*H3: Social gratification has a positive effect on their level of satisfaction with the use of Twitter.*

### 3.2.3 Process Gratification

Process gratification refers to searching for something or to pass time. Process gratification means user receives gratification mainly from being involved in the process of behavior, rather than from message content (Cutler & Danowski 1980). Process gratification is derived from the use of mediated messages for extrinsic values. In Twitter, it could be covered in three constructs: disconfirmation of entertainment, disconfirmation of passing time, and disconfirmation of self-expression. A user will perceive process gratification when user involved in the usage process, such as using Twitter for fun, then he will be satisfied with the process of using Twitter. Thus,

*H4: Process gratification has a positive effect on their level of satisfaction with the use of Twitter.*

### 3.2.4 Technology Gratification

Academic researchers have recognized that the online website as a technology tool, easy to use is one of the most important factors. Venkatesh et al. (2003) confirmed that facilitating conditions, which refer to perceptions of environmental factors that support the use of a system, become a valuable construct. Yet, the potential uses and associated technology gratifications arising from consumer are important to explore. Technology gratification is derived from the suitable and convenient environment provided by a system. Technology gratification would likely be adapted previously developed usage dimensions: disconfirmation of medium appeal and disconfirmation of convenience. Technology gratification of Twitter lies on the practical advantage of the mobile and technical innovations of Twitter applications. The production and publication of tweets are facilitated by convenient Twitter applications. Therefore, a user will perceive technology gratification when user

use Twitter in a suitable environment, then he/she will be satisfied and will continue to use Twitter. Thus,

*H5: Technology gratification has a positive effect on their level of satisfaction with the use of Twitter.*

## 4 RESEARCH METHOD

### 4.1. Data Collection

The target respondents of this study were Twitter users. An online survey was conducted for this study. The hyperlink to the online English questionnaire was posted on Twitter. The participation of this study was voluntary. HK\$50 supermarket vouchers were provided as lucky draw prizes for participants of the survey. A total of 124 usable questionnaires were obtained. Among these respondents, 54.03% were male and 45.97% were female. Most of the respondents (45.16%) were between 19 and 28 years old. And 92.74% of the respondents had a bachelor degree or above.

### 4.2. Measurement

The first step was to identify the dimensions and measures of content gratification, process gratification, social gratification, and technology gratification. All the items were adapted from prior studies with minor modifications to fit the research context. The items of the constructs are listed in Table 3. In order to measure the disconfirmation, we asked the respondents to “Compared with your pre-expectation, indicate your perception of the experience of using Twitter in performing the following functions”. Sub-constructs items used a seven-point scale anchored with “Much lower than your expectation” (-3), “Just the same as your expectation” (0) and “Much higher than your expectation” (3). Satisfaction items used seven-point differential semantic scales, while continuance intention items were measured on a seven-point Likert scale anchored with “strongly disagree” and “strong agree”.

Construct	Sub-construct	Items	Loading
Content Gratifications (CG) CR=0.896 AVE=0.591	Disconfirmation of Information Sharing (DIS)	DIS1: To provide information DIS2: To share information useful to other people DIS3: To present information on my interests	0.909 0.920 0.859
	Disconfirmation of Self-documentation (DSD)	DSD1: To keep a record of what I learn DSD2: To keep track of what I am doing DSD3: To document my life	0.846 0.929 0.880
Social Gratifications (SG) CR=0.874 AVE=0.699	Disconfirmation of Social Interaction (DSI)	DSI1: To connect with persons who share some of my values DSI2: To meet new people DSI3: To maintain a daily, personal connection with the friends and family	0.859 0.860 0.790
Process Gratifications (PG) CR=0.912 AVE=0.638	Disconfirmation of Entertainment (DENT)	DENT1: It's enjoyment DENT2: It's Entertainment	0.964 0.966
	Disconfirmation of Passing time	DPT1: It helps pass the time DPT2: I have nothing better to do	0.927 0.900
	Disconfirmation of Self-expression (DSE)	DSE1: To show my personality DSE2: To tell others about myself	0.944 0.924
Technology Gratifications (TG) CR= 0.935 AVE= 0.675	Disconfirmation of Medium appeal (DMA)	DMA1: I like a place where I can post things I want to say immediately DMA2: It is easiest, most cost-effective way to publish DMA3: It is easier for me to maintain	0.810 0.918 0.920
	Disconfirmation of Convenience (DCON)	DCON1: It is convenient to use. DCON2: I can get what I want for less effort. DCON3: I can use it anytime, anywhere. DCON4: It is easier to use.	0.868 0.854 0.892 0.873
Satisfaction		My overall experience of using Twitter is:	



(SAT) CR= 0.960 AVE= 0.858		SAT1: Very dissatisfied/ Very satisfied. SAT2: Very displeased/ Very pleased. SAT3: Very frustrated/ Very contented. SAT4: Absolutely terrible/ Absolutely delighted. Scale: seven-point semantic scales (-3 to 3)	0.922 0.944 0.894 0.944
Continuance Intention (CI) CR= 0.915 AVE= 0.783		CI1: I intend to continue using it rather than use any alternative technology CI2: My intentions are to continue using it rather than use any alternative technology. CI3: If I could, I would like to continue my usage. Scale: seven-point “disagree-agree” scales (1 to 7)	0.910 0.931 0.807

Table 3. Psychometric properties of measures

## 5 DATA ANALYSIS

Partial Least Squares (PLS) was used to analyze the research model. PLS has been widely used in IS research. PLS is a component-based structural equation modelling approach. In addition, PLS requires a small sample size, and has no restriction on normal distribution (Chin, 1998).

### 5.1 Measurement Model

Convergent validity is the degree to which concepts that should be related theoretically are interrelated in reality. Composite reliability (CR) and the average variance extracted (AVE) were examined for convergent validity of the items. A CR of 0.7 or above and an AVE of greater than 0.5 are acceptable (Fornell & Larcker 1987). The CR and AVE values and the item loadings are all shown in Table 3. The CR values ranging from 0.874 to 0.960, and AVE values ranging from 0.591 to 0.858, which meant that the results were acceptable.

	DSD	DIS	DSI	DENT	DPT	DSE	DMA	DCON	SAT	CI
DSD	<b>0.886</b>									
DIS	0.481	<b>0.897</b>								
DSI	0.608	0.647	<b>0.836</b>							
DENT	0.307	0.456	0.498	<b>0.965</b>						
DPT	0.385	0.229	0.234	0.281	<b>0.914</b>					
DSE	0.539	0.541	0.545	0.426	0.345	<b>0.934</b>				
DMA	0.494	0.512	0.490	0.323	0.399	0.671	<b>0.884</b>			
DCON	0.359	0.421	0.458	0.211	0.288	0.464	0.645	<b>0.872</b>		
SAT	0.247	0.428	0.304	0.219	0.065	0.278	0.376	0.340	<b>0.926</b>	
CI	0.355	0.450	0.425	0.327	0.217	0.393	0.378	0.401	0.632	<b>0.885</b>

Table 4. Correlation matrix of the constructs (Diagonal elements are square roots of the average variance extracted)

Discriminant validity is the degree to which constructs that should not be related theoretically are not interrelated in reality. It can be verified if the square root of the AVE for each construct should be greater than the correlation between constructs (Fornell & Larcker 1987). As shown in Table 4, discriminant validity is verified.

## 5.2 Structural Model

Figure 2 presents the PLS results of the structural model with the estimations of the path coefficients, the associated t-value of the paths and overall explanatory power. The results indicated that satisfaction explains 39.7% of the variance in Twitter continuance intention with a path coefficient of 0.630 (at 0.01 significance level). Satisfaction has a significant effect on the continuance intention to use Twitter. In addition, content gratification and Technology gratification have strong impact on satisfaction with path coefficient of 0.386 and 0.319 respectively (at 0.01 significant level). Content gratification and technology gratification are salient antecedents of satisfaction. Unexpectedly, social gratification and process gratification do not have a significant effect on satisfaction. Overall, content gratification and technology gratification explain 40.0% of the variance in satisfaction.

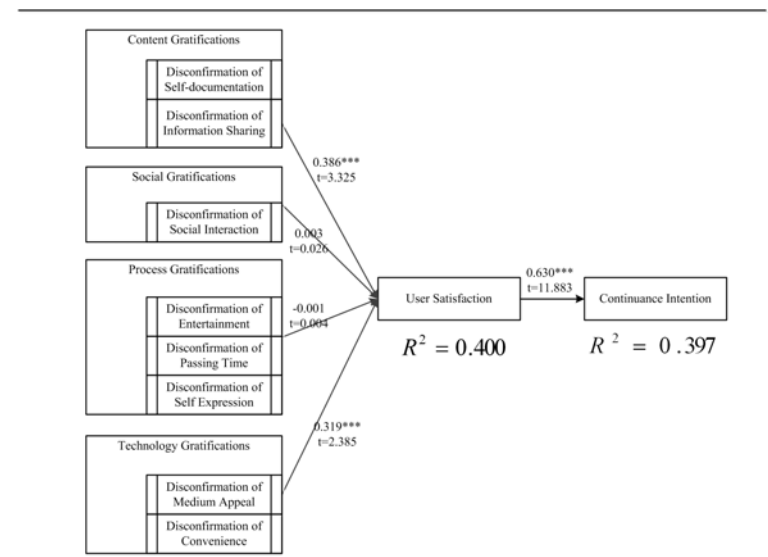


Figure 2 Result of Research Model (Note: \*\*\*p<0.01)

## 6 DISCUSSION AND CONCLUSION

The motivation of this study is to understand the continuance intention to use Twitter by integrating the uses and gratification framework with the eight disconfirmations of motivations of using Twitter. It is a first attempt to identify the factors affecting continued usage intention in the context of Twitter. The results confirm that satisfaction plays an important role in determining whether to continue using Twitter. In addition, the users' satisfaction with the use of Twitter is determined by the content gratification and technology gratification that can be derived from using Twitter.

The results indicated that the positive content gratification and technology gratification all significantly affect users' continuance intention to use Twitter which is mediated by their satisfaction with Twitter. Content gratification was presented by the disconfirmation of information sharing and the disconfirmation of self-documentation. Technology gratification was explained by the disconfirmation of medium appeal and the disconfirmation of convenience. The findings imply that Twitter fulfils users' needs for self-documentation, information sharing, medium appeal and convenience. The motivation of information sharing stresses the satisfaction gained from providing information to others in Twitter. Meanwhile, information needs can be met by sharing one's collection as a byproduct of self-documentation in Twitter. The motivation of medium appeal refers to ubiquitous accessibility, independent of the user's location and time of access provided by Twitter. Ubiquitous access of Twitter provides user a convenient environment, while the suitable platform designed by Twitter meets the motivation of convenience. In contrast, the positive process gratification and social gratification does not exhibit any significant impact on user satisfaction. The results may be explained by the characteristics of Twitter. Twitter was designed for sharing and seeking information; the function of interacting with friends was not included in the main design direction. As a result, Twitter does not fulfil the motivation of social interaction. The social gratification of Twitter is less significant in explaining user satisfaction. As useful information is the main purpose for people to use Twitter, it does not dedicate to develop functions for fun. Twitter does not provide an entertainment environment for play. Therefore, the process gratification was not significant to users' satisfaction with the use of Twitter.

We believe that this study provides important insights to both researchers and practitioners. This study makes theoretical contributions in several ways. First, the current study identifies the eight disconfirmations of motivations for Twitter and builds on the uses and gratification model and the expectation disconfirmation theory to explain the continuance intention of Twitter use. Second, this study categorizes four kinds of gratifications to understand the antecedents of satisfaction, including content gratifications, process gratification, and social gratification as previously found in studies of Internet usage, as well as an entirely new technology gratification that is unique to Twitter. This conceptualization improves the understanding of the gratifications in the Twitter context. Third, our findings confirm the effect of satisfaction in shaping users' continuance intention in the context of Twitter, providing support to the application of the uses and gratification theory in the current investigation.

Moreover, the findings of this study also provide some invaluable implications for practitioners. First, the findings of this study suggest that the post-usage satisfaction of users cannot be ignored. Twitter designers should devise strategies that can help to increase user satisfaction, which will be conducive to retaining and locking existing users. Second, the positive content gratification is an important factor that has an effect on the users' satisfaction level. It implies that users will be more likely to continue using Twitter if they perceive that Twitter can be used to satisfy their information needs. Therefore, Twitter designers should also help user to provide valuable information quickly and conveniently to increase users' satisfaction. Third, as satisfied users may help to bring in new users by word-of-mouth promotions, Twitter designers should attempt to fulfil the users' need in social gratification. Finally, the technology gratification is a new gratification arising from Twitter, the gratification should be getting IS designer attention in future product.

Although this study will be useful in both academic research and managerial applications, researchers should pay attention to a few issues. First, we primarily collected data in the Asia-Pacific region, our findings may not be generalized to other populations. Second, the sample size is relatively small. A larger sample size is recommended so as to use some advanced statistical packages in the future studies.

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