Computers in Human Behavior 55 (2016) 750–763

Contents lists available at ScienceDirect

Computers in Human Behavior

journal homepage: www.elsevier.com/locate/comphumbeh

Full length article

Key success factors for the launch of government social media platform: Identifying the formation mechanism of continuance intention

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ARTICLE INFO

Article history:
Received 17 May 2015
Received in revised form
9 September 2015
Accepted 4 October 2015
Available online xxx

Keywords:
Government social media (GSM)
Continuance intention
Uses and gratifications
Flow theory
Sense of belonging

ABSTRACT

Social media has flourished recently, and government agencies across different levels are experimenting with launching government social media (GSM) to socialize government services, processes, and data. Both researchers and practitioners are focusing on understanding the key success factors related to the launch of GSM. This study aims to identify the key success factors by exploring the formation mechanism of individuals' continuous usage intention. Through the theoretical lens of the uses and gratifications theory (UGT), we identify the gratification factors (i.e., information seeking, social activity, content consumption, collective intelligence, and network externality) that stimulate users' continuance intention toward GSM. Furthermore, we draw upon the stimulus–organism–response (SOR) framework to develop a model for exploring the effects of gratification factors (as stimulus in the SOR framework) on individuals' online experiential states (i.e., flow experience and sense of belonging) and, subsequently, their continuance intention. The results of our survey of 336 government microblogging residents indicate that usage continuance intention is in part determined by gratification factors. Furthermore, the associations among gratification factors and users' continuance intention can be mediated by the sense of belonging and flow experience.

1. Introduction

Currently, the buzzword permeating government agencies is Government 2.0, which is being lauded by both scholars and practitioners as the next generation of e-government (Nam, 2012). This term refers to the use of Web 2.0 technologies, especially social media, to socialize government services, processes, and data, facilitating two-way interactions between the government and its citizens (Chun, Shulman, Sandoval, & Hovy, 2010; DiMaio, 2009). In specific, different types of social media tools (e.g., Facebook and microblogging) are being increasingly adopted by government agencies in many countries (Bonsón, Torres, Royo, & Flores, 2012; Kavanaugh et al., 2012). Furthermore, the United Nations' E-Government Survey Report 2012 with respect to the adoption of social media tools, states that among the 193 member countries of the UN, 92 countries have adopted diverse social media applications.

Given that an increasing number of government agencies are experimenting with the use of social media (Hofmann, Beverungen, Räckers, & Becker, 2013), there is an emerging need to understand the continuous interaction of users and their participatory behavior. This idea is supported by consistent findings that active users are key factors in the success of Internet-based services (Al-Debei, Al-Lozi, & Papazafeiropoulou, 2013; Hsu, Tien, Lin, & Chang, 2015; H. Lin, Fan, & Chau, 2014; Shi, Lee, Cheung, & Chen, 2010; X. Zhang, Jin, Vogel, Fang, & Zhou, 2012). Government social media (GSM) services will also require continuous user participation to survive and flourish.

The research question we address here is to develop a better understanding of the dynamics that govern and stimulate the continuance intention to use a specific technology (in this case, the official social media launched by government agencies). This topic is compelling and has been studied extensively by researchers from various disciplines. However, to the best of our knowledge, there is limited research investigating the dynamics of usage continuance in the field of GSM platforms. To identify key success factors, we investigated what gratification determinants and how they impact

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http://dx.doi.org/10.1016/j.chb.2015.10.004
0747-5632/

users' GSM continuance intention. We conducted our study in two stages. First, we explored the gratification factors that stimulate users' continuance intention, which were obtained through the lens of the uses and gratifications theory (UGT) (Ko, Cho, & Roberts, 2005; Rubin, 1985). Then, we drew upon the stimulus–organism–response (SOR) framework (Bitner, 1992) to develop a model for exploring the dynamics that govern and stimulate users' continuance intention.

This study fills two major gaps in the existing literature. First, we extend the study of user behavior to the context of GSM platforms and identify gratification factors that motivate public users to participate in GSM platforms. Second, there have been several studies examining the direct effects of gratification on outcome variables such as behavioral intention and behavior, which suggest possible mediators in the relationship between gratifications and these outcome variables (Huang, Hsieh, & Wu, 2014; J. H. Kim, Kim, & Nam, 2010; Leung, 2009; J. Lin, 2014; Park, 2010; Stafford, Stafford, & Schkade, 2004). Specifically, scholars have indicated the need for research to examine the mediating role of users' online experiential states (Huang et al., 2014; J. H. Kim et al., 2010). Among the constructs describing users' online experiential states, flow experience is the term used most widely by scholars. However, the deficiency is that flow experience is mainly used to describe online experiences in the context of human–computer interaction (Finneran & Zhang, 2005). In fact, nearly every kind of computer-mediated technology provides users with a virtual environment, spanning both human–computer and human–human interaction contexts. In contrast to existing literature, our study introduces a sense of belonging to measure an individual's feeling of attachment to a government official social media platform. This is the individual's emotional response to environmental stimuli in the context of human–human interaction. Incorporating the constructs of both flow and sense of belonging, we have attempted to fully capture users' emotional responses (i.e., online experiential states) to the virtual environment of official social media. We hope this study can help researchers deepen their understanding of the mediating role of individual online experiential states and of the dynamics that govern users' continuance intention toward GSM platforms.

The remainder of this paper is structured as follows. In Section 2, we discuss the background and theoretical foundation related to this study and GSM. Following that, we present the proposed hypotheses along with the study model in Section 3. The methods of data collection and analysis used to test our hypotheses are presented in Section 4. The results and data analysis course of action are presented in Section 5. Section 6 is devoted to discussion of the empirical results and the implications of the current study for theory and practice. Moreover, we highlight the study limitations and link them with future research avenues in the same section.

2. Background and theoretical foundation

2.1. Research background

2.1.1. Government social media

Social media services such as Facebook and microblogging have flourished in recent years. These services offer online communities to Internet users, in which members perform different kinds of social activates by interacting with others, managing friendships, and communicating with government agencies (Bonsón, Royo, & Ratkai, 2015). More and more internet users are now members of different social media platforms. In order to reach the majority of the citizens who are users of different kinds of social media platforms, government agencies have been launching their own social media platforms to publish content and solicit comments from citizens (Ku, Chen, & Zhang, 2013). Scholars term the city governments who launch social media platforms as "civic laboratories," owing to their initiatory use of social media (Minner, Holleran, Roberts, & Conrad, 2015). They also have indicated the need for future research to place greater emphasis on investigating the key success factors for GSM platforms.

2.1.2. Government microblogging in china

The object of this study is government microblogging, which is the most popular type of social media used by government agencies in China. These agencies are pioneers when it comes to using social media to improve their services (Ma, 2013). In detail, by the end of 2011, there have been 50,561 official microblogs, with an increase of 776.58 percent compared with the beginning of the year. Therefore, there is urgent need to understand the dynamics that govern and stimulate the continuance intention to use government microblogging. In fact, there are two major types of government microblogging in China based on purpose and function, namely, government microblogging of government agencies and theme-based government microblogging. The former refers to government microblogging which is government-agency-centered, focusing on communicating the government agencies' daily activities with citizens, dispersing information about themselves. While the latter serves specific themes that change periodically. Typical themes covered by theme-based government microblogging include disaster management and policy making; the purposes are to publish information and to collect user responses related to the theme.

2.2. Theoretical foundation

2.2.1. The stimulus–organism–response (SOR) framework

The S–O–R model comes from the field of environmental psychology and is based on the logical assumption that various environmental cues act as stimuli (S) and influence individuals' cognitive or emotional responses (O), which causes their behavioral responses (R) (Bitner, 1992). This framework is widely used by scholars to investigate the relationship between environmental stimuli and behavioral responses, which can provide an optimization configuration scheme of environment variables. Scholars have extended the applicability of the S–O–R model to computer-mediated environments. Specifically, online stores have drawn the attentions of scholars. By introducing various characteristics of the online store environment into the model, researchers have explored their effects on the internal states of consumers and the subsequent impacts on their behavioral responses (Wang, Minor, & Wei, 2011; Wu, Cheng, & Yen, 2008). Similarly, a number of studies have investigated other computer-mediated environments, such as social networking sites (SNS), social commerce, and three-dimensional immersive virtual worlds (S.-H. Chang, Chih, Liou, & Hwang, 2014).

The S–O–R framework also serves as the foundation for our research model, when considering the computer-mediated environment provided to users by a GSM platform. We employed the S–O–R framework in our study as follows. We measured the environmental stimuli based on the gratification factors obtained through UGT. Research by Palmgreen and Rayburn confirmed an expectancy value conceptualization for gratification sought. They termed gratifications sought by users from a media object as "a function of an individual's belief that the object possesses certain attributes mediated by the subjective evaluations of those attributes" (Palmgreen & Rayburn, 1982). Therefore, gratifications sought can be seen as an individual's perceptions of the attributes of a media platform, which are all consistent with the meanings of environmental stimuli in the SOR framework. With respect to

internal states, we included both the flow experience and sense of belonging to capture users' emotional responses to the virtual environment of an official GSM platform.

2.2.2. Uses and gratifications theory (UGT)

UGT is the most widely used theoretical framework in communication literature. It attempts to explain the social and psychological needs that motivate audiences to select particular media (Ko et al., 2005; Rubin, 1985). The theory has been used to explain why people use different types of computer-supported technologies continuously, such as the Internet, social networking sites (SNS), and online communities (Alhabash, Chiang, & Huang, 2014; Dholakia, Bagozzi, & Pearo, 2004; Leung, 2013; Zolkepli & Kamarulzaman, 2015). When individuals' needs are fulfilled, the resultant gratifications shape their perceptions of technologies and motivate them to use the technologies again (Bryant & Miron, 2004; Castañeda, Frías, & Rodríguez, 2007). Thus, UGT is particularly suitable for studying continued use (McGuire, 1974) and is appropriate for the current study.

2.2.3. Flow experience state

Flow experiences describe people's feelings or psychological states when they are totally involved in an activity (Csikszentmihalyi & Csikszentmihalyi, 1992). With the advent of Internet-based activities, recently, scholars put forward the conceptualization of online flow, which describes a cognitive state experienced during internet-based activity (Hoffman & Novak, 1996). Previous researchers have noted that flow experience is a useful construct for describing computer-mediated environments in the context of human–computer interaction (Finneran & Zhang, 2005; Hoffman & Novak, 2009). There are different standpoints on the components of flow (Hoffman & Novak, 2009) because it is an elusive and broad concept. Moreover, its components are context-dependent and vary across activities. For now, the most comprehensive depiction of flow experience suggests that it includes the following dimensions: skill, control, interaction, importance, challenge, arousal, time distortion, and telepresence (Novak, Hoffman, & Yung, 2000). Scholars make their decisions about the elements of flow experience based on the activity and context of their study. Furthermore, Attention focus and enjoyment were the two most commonly and consistently used elements to measure flow by Zaman et al. (Zaman, Anandarajan, & Dai, 2010). We intend to include perceived activity into our study because government microblogging provides users a virtual world to communicate with others via a microblogging interface, where users' perception of interactivity is an important element of user experience. Prior researchers have included perceived interactivity in flow experience (J. Kim, Spielmann, & McMillan, 2012). Therefore, we adopted perceived enjoyment, attention focus, and perceived interactivity to measure flow experience in our study.

2.2.4. Sense of belonging

Government official social media is a group of internet-based applications that provide cyberspace for public sector agencies and their audiences to interact with each other. Therefore, such media can be seen as virtual communities. In these communities, the public sector agencies can publish such content as statements and policies, and solicit comments from citizens. Researchers studying the determinants of successful virtual communities suggest that a sense of belonging in users is important for the success of virtual communities (H.-F. Lin, 2008; H. Lin et al., 2014). Sense of belonging can be defined as "the experience of personal involvement in a system or environment such that persons feel like an integral part of that system or environment" (Cheung & Lee, 2012; Hagerty, Lynch-Sauer, Patusky, Bouwsema, & Collier, 1992). The concept can provide a good description of the psychological state experienced by a person or their emotional response to a computer-mediated environment in the context of human–human interaction. Hence, we introduce the construct of sense of belonging in our study model.

3. Research model and hypotheses

We employed the stimulus–organism–response (S–O-R) framework (Bitner, 1992), which suggests that virtual-world environmental stimuli influence participants' organismic experiences and subsequently affect response, and UGT to propose our research model. Fig. 1 shows the research model and the hypothesized relationships. We consider the perceptions of the attributes of GSM platforms represented by gratifications sought from using the platforms, as the environmental stimulus factors, flow experience and sense of belonging as the emotional reaction factors, and users' continuance intention as the response. In the following part of our study, we discuss our research model in detail.

3.1. Gratifications sought and continuance intention

Scholars have pointed out that UGT is suitable for explaining and predicting the continuance intention of an innovation on which users have initial use experience (Stafford et al., 2004). Further, it can give more information about the reason behind their continued use (Luo, Chea, & Chen, 2011), which in turn gives the promoters of the innovation some practical suggestion. Within the research context of social media, the empirical fact that gratifications obtained from using social media are positively associated with outcome variables, such as behavioral intention and behaviors, has been confirmed by the existing literature (Huang et al., 2014). Researchers have also uncovered why people tend to use different types of social media (Leung, 2013; Shao, 2009; Whiting & Williams, 2013). In detail, Ku et al. pointed that the gratifications sought from a social network service can predict and explain an individual's continued intention to use it (Ku et al., 2013). Furthermore, Lin suggested that certain gratifications sought may explain why an individual reads citizen journalism news (J. Lin, 2014). According to UGT, we contend that members purposefully utilize GSM platforms to meet their needs and may continue using them when they notice the gratifications obtained to be satisfactory. That is, the greater the extent of user gratification achieved by using a GSM platform, the more likely is a user to continue using that GSM platform. There are five categories of gratification, namely, information seeking, social activity, content consumption, collective intelligence, and network externality, which were captured by conducting in-depth interviews with some experienced users of GSM platforms and consulting the relevant literature. They are discussed in detail in section 5.1. Therefore, we hypothesize:

H1. All five gratification factors are positively associated with GSM users' continuance intention.

3.2. Online experiential state and continuance intention

3.2.1. Flow experience state and continuance intention

Researchers characterize flow as a specific experiential state that is so desirable that users wish to repeat it (Finneran & Zhang, 2005). Importantly, Hoffman and Novak extend the universal' applicability of flow to computer-mediated environments in order to describe individuals' experience states in the human–computer context (Hoffman & Novak, 1996). Scholars have suggested that flow is a positive experience and can lead a post-evaluation

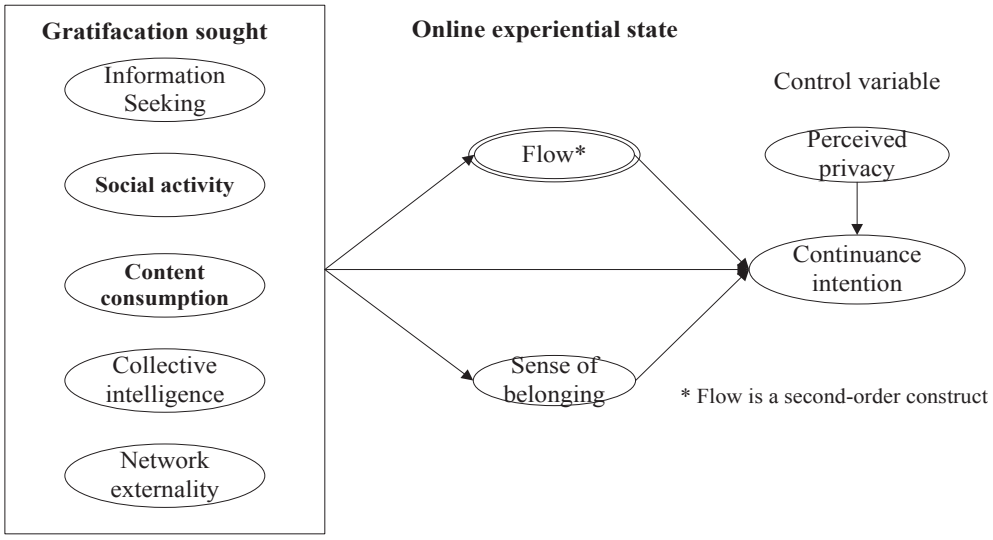

Fig. 1. Proposed research model.

judgment of satisfaction with computer-mediated environments and further repetition of the behavior in the environment (Finneran & Zhang, 2005; Zhou, Li, & Liu, 2010). Flow experience has been used widely in online environments such as online banking (G. Kim, Shin, & Lee, 2009), online gaming (Huang & Hsieh, 2011), and mobile instant messaging (Zhou & Lu, 2011). We can thus expect that flow experience will enhance users' continued intention to use a GSM platform. Thus, we propose that:

H2. Flow experience is positively related to the continued intention to use a government official social media platform.

3.2.2. Sense of belonging and continuance intention

Furthermore, when people contact government agencies through GSM, they also encounter a human–human interaction. Fortunately, sense of belonging measures a user's feeling of identification with or attachment to the virtual community, which can be used to depict the experience states of users in such a human–human interaction setting. Further, the positive relationship between sense of belonging and usage behaviors has been demonstrated in online community research (H.-F. Lin, 2008; H. Lin et al., 2014). In detail, Zhao et al. suggested that sense of belonging can motivate user participation in virtual communities (Zhao, Lu, Wang, Chau, & Zhang, 2012). Cheung et al. indicated that sense of belonging can drive consumers to spread electronic word-of-mouth via online consumer-opinion platforms (Cheung & Lee, 2012). Given this, we contend that when users have a stronger sense of belonging to a GSM and feel attached to the platform, it will motivate them to continue using the GSM. Thus, we hypothesize:

H3. Sense of belonging positively influences users' GSM continuance intention.

3.3. Gratifications sought and online experiential state

In fact, gratifications sought can be seen as individuals' perceptions of the attributes of a media platform, which are all consistent with the meanings of environment stimulus in the SOR framework. Naturally, the perception of environment stimulus, which is measured by the construct gratifications sought in this study, can affect a user's emotional reaction to environment stimulus. The idea has been verified by several scholars. Particularly, Huang et al. confirmed that social gratifications have significant effects on some elements of flow experience in the context of social network services (SNSs) (Huang et al., 2014). Animesh et al. uncovered that individuals' perceptions of the characters of Second Life are positively correlated with users' virtual experiences, which are described by telepresence, social presence, and flow (Animesh, Pinsonneault, Yang, & Oh, 2011). In the same vein, Lin et al. identified the antecedent role of individuals' perceptions of the attributes of SNSs in affecting their subsequent experience states, which were measured in terms of satisfaction and sense of belonging (H. Lin et al., 2014). In this study, we introduce the constructs of flow experience and sense of belonging to capture users' emotional reactions towards the environmental stimuli that are reflected by gratifications factors. Hence, we hypothesize:

H4a. All gratification factors positively influence users' flow experience in a GSM platform.

H4b. All gratification factors positively influence users' sense of belonging in a GSM platform.

3.4. Mediating role of online experiential state

As mentioned above, scholars have asked for examination of the mediating effects of users' online experiential states (J. H. Kim et al., 2010; Lovejoy & Saxton, 2012). In fact, Huang et al. confirmed the mediating effect of flow experience on the relationship between social gratification sought and continuous usage intention in the context of SNSs (Huang et al., 2014). Similarly, the findings of Lin' study showed that incorporating the construct of attitude into a model can lead to a higher explanatory power for the outcome variables than the model without attitude construct (J. H. Kim et al., 2010). But as discussed above, they only capture part of the emotional response to environmental stimulus. To the best of our knowledge, emotional response to the human–human interaction experience has not been studied so far. Drawing on the SOR framework and the hypotheses we built, we suggest that gratifications sought are positively associated users' emotional responses, which can subsequently play a significant role in explaining the continuance intention of the users of a GSM platform. We explored the mediating effect of emotional reactions (sense of belonging and flow experience) on the associations between gratification factors and continuance intention. Hence, we hypothesize:

H5a. Flow experience has a mediating role in the association

between gratification factors and continuance intention in the context of GSM platforms.

H5b. Sense of belonging plays a mediating role in the association between gratification factors and continuance intention in the context of GSM platforms.

3.5. Moderating role of classificatory difference of GSM

The main assumption of UGT is that an individual uses a media or technology to fulfill a certain need freely. Scholars have agreed with the fact that individuals use different kinds of media for diverse purposes. To understand whether classificatory differences of GSM platforms influence their users' continuance intention, this study investigates the moderating effect of classificatory difference on their users' continuance intention. As such, given that GSM platforms are launched for various purposes, we suggest that users of different GSM platforms may seek and obtain different gratifications. Furthermore, the differences among the GSM platforms in terms of nature may lead to different virtual environments, which may give users different kinds of experiences and, subsequently, give rise to different emotional reactions to environmental stimulus and affect a user's continuance intention. Hence, we hypothesize:

H6a. Classificatory differences among GSM platforms moderate the association between users' perceived gratifications and continuance intention.

H6b. Classificatory differences among GSM platforms moderate the association between individuals' flow experience and their continuance intention.

H6c. Classificatory differences among GSM platforms moderate the association between users' sense of belonging and continuance intention.

3.6. Control variable

As more and more users broadcast personal information on to the internet, especially through social media, Internet privacy is being discussed widely. It has become a growing issue for internet users in the context of online services such as e-commerce and SNSs. Scholars have come up with a consistent solution that individuals' perceptions of privacy are negatively associated with their intention to use different kinds of internet technology–based services (Ku et al., 2013; Madden et al., 2013; Shin, 2010; Shin & Kim, 2008; Smith, Dinev, & Xu, 2011). In the context of government official social media, this phenomenon may be more remarkable, in that government-related matters may receive greater concern because individuals are sensitive to such matters. Thus, we hypothesize:

H7. Perceived privacy negatively influences users' continuance intention with respect to GSM platforms.

4. Research methodology

4.1. Measurement development

The survey instrument was developed by incorporating and adapting previous valid and reliable scales, except for gratification factors, as shown in Appendix A. All items were measured on a 7-point Likert scale ranging from strongly agree (7) to strongly disagree (1).

4.1.1. Measurements development of gratification factors

In terms of gratifications sought from GSM platforms, previous findings on gratification are limited. To further our understanding of gratifications sought by using government official social media, we followed a two-stage approach to identify the gratifications sought by users. First, we conducted in-depth interviews of experienced users and managers or operators of GSM platforms to understand what gratifications users may seek from government official social media use. Each interviewee sets forth the gratifications sought by use of government official social media, and we thus obtained an initial pool of potential gratifications. Second, we consulted the relevant literature to capture other likely gratifications. Given the unanimously recognized idea that "functionally similar media may serve similar needs" (Kaye & Johnson, 2004), we expect that typical gratifications obtained from social media tools can be applied to the GSM context. Therefore, we considered the gratifications obtained from major social media tools (e.g., Facebook and Twitter (or microblogging)) as complementary components of gratifications sought (Chin, 1998; Kushin & Yamamoto, 2010; Whiting & Williams, 2013). In addition, we consulted the literature on identifying potential gratifications sought from using GSM platforms (Golbeck, Grimes, & Rogers, 2010; Hofmann et al., 2013). Finally, we obtained a total of 22 measurement items related to user gratification in GSM platforms.

A pilot study with 100 users was conducted to check the psychometric properties of the measurement scales. After the pretests, the instrument was shortened by removing items that loaded poorly on their corresponding constructs. We also consulted experts to improve our instrument and the wording of the measure instruments was refined to increase the clarity of the items. Finally, we were left with 15 measurement items.

4.1.2. Measurements of other principal constructs

As we mentioned above, we adapted most of the items from previous research. Because the respondents were Chinese, back translation method was used to ensure the translation validity. Flow experience is conceptualized as reflective second-order construct, and all the first-order constructs, namely perceived enjoyment, attention focus, and perceived interactivity were modeled using multiple indications. The indications were developed by adapting the scales of (Koufaris, 2002) and Novak et al. (2000). Following Koh, Kim, and Kim (2003) and Lin (2008), we formed the measures of sense of belonging. Perceived privacy was measured by adopting the items used by Ku et al. (2013). We measured construct of continuance intention adopting the scales employed by (Hausman & Siekpe, 2009; Li, Browne, & Wetherbe, 2006). Appendix A provides a summary of the multiple-item scales.

4.2. Research design and data collection

4.2.1. Respondents determining

The research model was tested using survey data. The research object in this paper is government microblogging in China. The launching of GSM platforms is an initial project, both for the government agencies and citizens, and to some extent, it is new to the majority of citizens. It is urgent for government agencies to have a sound understanding of the users' use, especially that of newcomers, and the way to ensure users' continued use. Government agencies are targeting college students as their potential users and trying their best to gain a better understanding of them. Indeed, students have the major proportion of the social media user base. They can have among them potential newcomers to GSM platforms (in this case government microblogging). Further, college students are often used as research samples by scholars studying political participation (Fornell & Bookstein, 1982; Kushin & Yamamoto,

2010). Therefore, we have focused on college students, with our data sample coming from college students from a large university located in northern China.

4.2.2. Research design

This study focuses on collecting survey responses from students having direct experience with government microblogging. But before conducting the study, a survey was employed asking whether respondents are the users of government microblogging. Prior to the study, we learned that most of the students had no direct experience with government microblogging. In order to look for the students with experience of using government microblogging, we employed a longitudinal field study methodology with repeated observations of the same field study participants from October 7th, 2014 to January 10th, 2015.

At the start of this field study, government microblogging was introduced in the university to familiarize students with government microblogging. The respondents were asked to use or follow the official microblog for two months and they were also informed that we were offering RMB 15 as an incentive for participation. An email invitation seeking subjects who were interested in our study was sent to all students of college of the Management & Economics, in the university. Of the students who showed interest in our study, 500 were randomly recruited. Survey data was collected in two phases. In the first phase, after introducing government official microblogging to the participating students, we asked them to complete a survey instrument that assessed their perceptions of anticipated gratifications (prior to actual usage) from the use of the government's official microblog and demographic information. Two months later, we conducted another survey in two steps. First, we measured the constructs of interest (e.g., gratifications obtained). Then, we performed a survey to assess users' psychological states (their perceptions of experience of using government microblogging, e.g., flow experience and sense of belonging) and their intention to continue using government official microblogging a day later. We conducted our survey in this way to reduce common method variance (CMV) (S.-J. Chang, van Witteloostuijn, & Eden, 2010).

4.2.3. Data collection

In all, Phase 1 and phase 2 questionnaires were matched by respondents' email address, resulting in 336 valid responses and an overall response rate of 67.2%; 198 of them were users of government agencies' official microblogging and 138 were users of theme-based government microblogging. Responses were not balanced in terms of gender distribution, with males accounting for 40.1% ($n = 135$) and females accounting for 59.9% ($n = 201$). Among the respondents who accepted interview, 155 were undergraduate students and 181 were graduate students. Table 1 shows the sample demographics.

5. Data analysis and results

Our study was conducted in two stages. In order to ascertain the gratifications sought from government official government microblogging, a factor analysis was employed in the first stage. In the second stage, a partial least squares (PLS) component-based structural equation modeling (SEM) test was conducted to test the research model and the proposed hypotheses.

5.1. Gratifications sought from government social media use

All the valid 336 responses were subjected to principal component analysis with varimax rotation to extract the gratifications related to government official social media use. The results showed that among the entire set of 22 proposed gratification items, 15 items strongly pertained to gratifications sought from using GSM. We classified these items into 5 different groups. The first factor included 4 items and was named “information seeking,” because all items representing the factor were related to searching for and obtaining diverse information. The second factor was represented by such items as “to give suggestions to the government,” “to offer information to the government about the users' needs,” and “to take part in various activities (e.g., policy making) on a government microblogging platform.” Naturally, we combined these items into a factor called “collective intelligence.” The third factor was named “consuming the content,” because all items associated with this factor were related to the motivation to consume content of different varieties via GSM platforms. The fourth factor was represented by sharing ideas and establishing relationships with others; therefore, we named it “social activity.” The final factor was named “network externality” because this factor represents peoples' perceptions of the fact that there government official social media are available to them increasingly. Today, they can easily contact public sector agencies when needed. The factor analysis results are summarized in Table 2.

5.2. Results of model

We employed the PLS method to test the research model. PLS is considered suitable for this study owing to its good prediction capability and minimal demands in terms of sample size and residual distributions (Chin, 1998; Fornell & Bookstein, 1982). Following Anderson and Gerbing (Anderson & Gerbing, 1988), we adopted a two-step approach to test the models. First, we conducted confirmatory factor analysis (CFA) to assess the measurement properties of the reflective latent constructs. Second, we performed a structural equation analysis to test the research hypotheses.

5.2.1. Measurement model evaluation

The psychometric properties of the measurement scales for the first-order factors were assessed in terms of convergent validity, discriminant validity, and reliability. Reliability was assessed based on Cronbach's alpha and composite reliability (CR) score. As can be inferred from Table 3, Cronbach's alpha and CR estimates of all constructs exceeded the recommended threshold value of 0.7, suggesting high construct reliability. The confirmatory factor analysis (CFA) showed that all items had loading on their corresponding factors above the recommended threshold of 0.7, indicating adequate convergent validity, as shown in Appendix A. As for discriminant validity, scholars have suggested that the square root of average variance extracted (AVE) of the constructs should exceed the inter-correlations among the constructs in the model (Chin, 1998; Fornell & Bookstein, 1982). The correlation matrix presented in Table 4 indicates that the square roots of AVE on the diagonal are greater than the corresponding off-diagonal inter-construct correlations. Thus the discriminant validity of all first-order factors was supported.

As with all self-reported data, there is potential for common method bias. To address this issue, we employed the two most used statistical remedies to examine the severity of common method bias. First, a Harman's single-factor test was conducted on first-order constructs. The results of this test showed that neither a single factor emerged from the factor analysis nor a general factor accounted for the majority of the covariance among the measures. Further, following Liang et al., we used PLS to determine common method variance. As shown in Appendix B, the results demonstrate that the ratio of substantive variance to method variance is approximately 75:1. In addition, most of the method factor loadings

Table 1
Demographics of the research sample.

Measure	Item	Count	Percentage (%)
Gender	Male	135	40.1
	Female	201	59.9
Age	18 or below	5	1.5
	>18 and ≤24	160	47.6
	>25 and ≤30	168	50.0
	>31	3	0.9
Education	Undergraduate	155	46.1
	Graduate or above	181	53.9
Type of government microblogging	Theme-based government microblogging	138	41.1
	Government microblogging of government agency	198	58.9
Average frequency of use	At least 1 time per day	108	32.1
	4-5 days per week	80	23.8
	2-3 days per week	71	21.1
	1 time per week	34	10.1
	Less than 1 time per week	43	12.8

Table 2
Results of factor analysis with overall sample (n = 336).

Factors[a]	F1	F2	F3	F4	F5
Variance explained (%)	19.518	16.794	15.834	13.727	11.451
Cronbach's Alpha	0.865	0.834	0.826	0.828	0.853
Information seeking1	**0.721**	0.17	0.363	0.115	0.243
Information seeking2	**0.831**	0.178	0.165	0.139	0.146
Information seeking3	**0.826**	0.172	−0.039	0.194	0.171
Information seeking4	**0.624**	0.304	0.449	0.105	0.079
Collective intelligence1	0.219	**0.69**	0.22	0.212	0.341
Collective intelligence2	0.215	**0.725**	0.254	0.278	0.214
Collective intelligence3	0.33	**0.704**	0.19	0.177	0.224
Content consumption 1	−0.011	0.401	**0.61**	0.417	0.003
Content consumption 2	0.279	0.177	**0.77**	0.262	0.24
Content consumption 3	0.229	0.201	**0.768**	0.171	0.276
Social activity 1	0.169	0.088	0.35	**0.757**	0.26
Social activity 2	0.335	0.412	0.2	**0.641**	0.098
Social activity 3	0.166	0.466	0.163	**0.676**	0.249
Network externality1	0.28	0.316	0.183	0.268	**0.738**
Network externality2	0.254	0.335	0.295	0.198	**0.757**

Each item within the construct is highlighted in bold.
[a] The five factors are as follows: F1,information seeking; F2, Collective Intelligence; F3, content consumption; F4, social activity; and F5, Network Externality.

are insignificant, and the indicators' substantive variances are considerably greater than their method variances. Thus, we can conclude that common method bias is unlikely to be a serious concern.

5.2.2. Structural model evaluation

The path coefficients and explained variances of the structural model are shown in Fig. 2. The PLS results of the structural model, including the standardized path coefficients, significance, and variance explained (R2) are shown in this figure. The model explained 66.6% of the variance in continuance intention, 65.6% of the variance in flow experience, and 65.1% of the variance in sense of belonging. The path coefficients from the five components of gratifications sought (e.g., information seeking, social activity, content consumption, collective intelligence, and network externality) to continuance intention were not significant, except for information seeking, indicating that H1 was not supported. However, they had significant effects on flow experience and they jointly explained 65.5% of the variance in it, except that the relationship between information seeking and flow experience was not significant, suggesting H4a was largely supported. As such, four of the five components (except for social activity) had significant effects on sense of belonging, jointly explaining 65.1% of the variance in sense of belonging and suggesting H4b was largely supported. Subsequently, the constructs of sense of belonging and flow experience had significant effects on continuance intention for government microblogging, indicating both H2 and H3 were supported. As expected, perceived privacy was negatively associated with continuance intention significantly, suggesting H7 was supported.

Table 3
Measurement model statistics.

Construct	AVE	Composite reliability	Cronbach's alpha
Collective intelligence	0.751	0.900	0.834
Social activity	0.744	0.897	0.828
Attention focus	0.835	0.910	0.802
Content consumption	0.744	0.897	0.826
Continuance intention	0.707	0.924	0.896
Information seeking	0.711	0.908	0.865
Perceived enjoyment	0.847	0.917	0.819
Perceived interactive	0.712	0.881	0.799
Network externality	0.872	0.932	0.853
Perceived privacy	0.807	0.926	0.880
Sense of belonging	0.658	0.906	0.870

To test hypotheses H5a and H5b, following Baron and Kenny's suggested procedures (Baron & Kenny, 1986), we examined in four steps the existence of the mediating effects of both flow experience and sense of belonging on the relationships between gratifications factors and continuance intention. In the first step, we included continuance intention as the dependent variable in a regression equation and gratifications factors as predictors. We could thus explain 54.4% of the variance in continuance intention. Four of the five gratification factors, except for network externality, were related significantly to continuance intention. In the second step, we used the mediators (i.e., flow experience and sense of belonging) as the dependent variables and gratifications as predictors. Nearly all path coefficients were significant, except the path coefficient from information seeking to flow state and that from social activity to sense of belonging. Then, we used continuance intention as the dependent variable and the mediators as the predictors. The result uncovered that both flow state and sense of belonging had strong effects on continuance intention. In the last step, the effects of four gratification factors on continuance intention after controlling for the mediator were all non-significant, except for the path coefficient from information seeking to continuance intention. The results showed that sense of belonging completely mediated the associations between gratifications and continuance intention, except for social activity. Sense of belonging partially mediated the relationship between information seeking and continuance intention. Regarding flow experience, it mediated the relationships between the gratification factors and continuance

Table 4
Construct correlations and discriminant validity.

Constructs	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Collective intelligence (1)	**0.866**										
Social activity (2)	0.728	**0.863**									
Attention focus (3)	0.527	0.55	**0.914**								
Content consumption (4)	0.647	0.682	0.587	**0.862**							
Continuance intention (5)	0.657	0.602	0.619	0.586	**0.841**						
Information seeking (6)	0.631	0.574	0.446	0.577	0.645	**0.843**					
Perceived enjoyment (7)	0.584	0.534	0.722	0.668	0.645	0.508	**0.92**				
Perceived interactive (8)	0.734	0.702	0.587	0.65	0.679	0.587	0.688	**0.844**			
Network externality (9)	0.718	0.654	0.535	0.621	0.576	0.609	0.588	0.669	**0.934**		
Perceived privacy (10)	−0.69	−0.66	−0.6	−0.66	−0.71	−0.54	−0.65	−0.71	−0.65	**0.898**	
Sense of belonging (11)	0.723	0.65	0.603	0.692	0.754	0.612	0.756	0.795	0.703	−0.811	**0.811**

For the second-order factor of flow, both path coefficients were above the recommended threshold of 0.7 and all were significant at the 0.001 level. The path coefficients from flow to its' first-order factors, namely, Attention focus, perceived enjoyment, and perceived interactivity were 0.852, 0.904, and 0.886, respectively. The composite reliability (0.915) and Cronbach's alpha (0.892) were above the suggested threshold of 0.70. Overall, these results provided support for reflective measurement models of flow.
Note: Average variance extracted values are in diagonal and in bold.

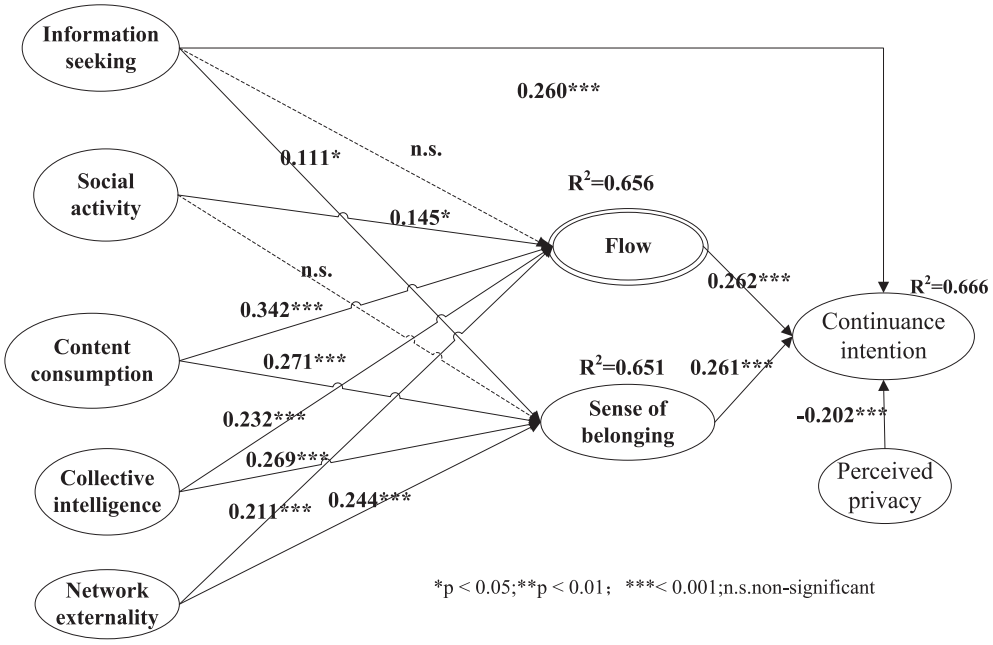

Fig. 2. Path coefficient of PLS analysis with overall sample (n = 336). Note: Only significant paths from gratification factors to continuance intention are shown in this figure.

intention completely, except for sense of belonging, which did not match the conditions. Referring to the significant test statistics of a Sobel test, as in Tables 5 and 6, we could say that the indirect effects of the IVs on the DVs through the mediators are significantly different from zero, suggesting the mediating effects really exist. Tables 5 and 6 summarize the test results of sense of belonging and flow state, respectively.

5.2.3. Moderating effects of classificatory difference of government microblogging

To answer hypotheses H5–H5b, we conducted a model comparison to examine whether any differences exist between the users of the government microblogging of government agencies and the users of theme-based government microblogging. Regarding model comparison, two PLS analyses were conducted to explore the standardized path coefficients and path significance of

Table 5
Mediating effects of sense of belonging.

IV	M	DV	IV->DV	IV->M	IV + M->DV	Sobel test z-statistic
Collective intelligence	SOB	CI	0.260***	0.268***	0.097 ns	2.971**
Social activity	SOB	CI	0.188*	0.047 ns	0.058 ns	0.585 ns
Information seeking	SOB	CI	0.314***	0.111*	0.256***	1.986*
Content consumption	SOB	CI	0.133**	0.270***	−0.063 ns	3.713***
Network externality	SOB	CI	0.038 ns	0.245***	−0.107 ns	3.167**

Note: SOB, sense of belonging; DV, dependent variable; IV, independent variable; M, mediator; CI, continuance intention. ***Significance: p < .001. **Significance: p < .01. *Significance: p < .05.

Table 6
Mediating effects of flow experience.

IV	M	DV	IV ->DV	IV ->M	IV + M->DV	Sobel test z-statistic
Collective Intelligence	flow	CI	0.260***	0.219***	0.152 ns	2.754**
Social activity	flow	CI	0.188*	0.143*	0.047 ns	1.781 ns
Information seeking	flow	CI	0.314***	0.071 ns	0.28***	1.322 ns
Content consumption	flow	CI	0.133**	0.322***	−0.025 ns	3.498***
Network externality	flow	CI	0.038 ns	0.194***	−0.055 ns	2.895**

Note: SOB, sense of belonging; DV, dependent variable; IV, independent variable; M, mediator; CI, continuance intention. ***Significance: $p < .001$. **Significance: $p < .01$. *Significance: $p < .05$.

the research model. A summary of the PLS results is given in Table 7. As can be inferred from this table, there are differences in the path coefficients between the two samples and some of them are at significant levels. All coefficients from gratification factors to continuance intention, from gratification factors to experience states, and from experience states to continuance intention were different among the users of the two samples at different statistical significance levels. These results supported hypotheses H5a to H5b. we discuss the results in detail in the following part of the paper.

6. Discussion

This study aimed to identify the formation mechanism of user' continuance intention in the context of GSM platforms and further inform both researchers and practitioners about the key success factors for the launch of government official social media. Next, we discuss some interesting findings.

First, among the five components of gratification sought (e.g., information seeking, social activity, content consumption, collective intelligence, and network externality), only information seeking had a significant, direct effect on continuance intention, resulting in rejection of H1. As for information seeking, the result suggests that users place extraordinary value on information in government official social media platforms. This finding supports government agencies' use of social media tools to publish information (e.g., statements and policies). The information may be credible for citizens because it is announced by government agencies themselves and the information is always the latest. The result is also consistent with the findings about the gratifications users can seek from using social media (Whiting & Williams, 2013), which points out that information seeking is of great importance for users when they chose to use a particular computer mediated communication technology.

Second, the result of the proposed model shows that nearly all the five gratification components are associated with flow experience significantly, except for information seeking. Regarding information seeking, users employ GSM to obtain the latest information. When they know the information, they may not use the official social media anymore at that time. This may explain the insignificant path coefficient from information seeking to flow experience. When users use GSM to seek the gratification of collective intelligence, users are interacting with the government agencies by giving advice or commenting on their topics of interest. The result is that users are involved in the activity and they can experience flow. The reason can be applied to social activity, which may give the user the sense of interacting with others. As for content consumption, users may be attracted by the diverse contents in government official social media and, subsequently, experience flow. Network externality in this study is measured by users' perceptions of the growing number of GSMs, which is consistent with direct externality, a construct borrowed from Katz & Shapiro (Katz & Shapiro, 1985). With regard to network externality, a user's utility increases with the number of users (Strader, Ramaswami, & Houle, 2007). Users' continued intention intensifies when they perceive many government agencies making their presence felt on social media platforms and anticipate more government agencies to join social media in the future, which will lead the users to experience flow. The result is consistent with the findings of Zhou, who suggested that perceptions of network externality can lead to the enhancement of flow experience (Zhou & Lu, 2011).

In the same vein, nearly all gratification factors affect sense of belonging significantly, except for social activity. Sense of belonging measures users' identification with or attachment to a virtual community. However, in the context of government official social media platforms, users' feelings depended largely on their perceptions of government agencies rather than their perceptions of other users in the platforms. Social activity represents the gratification of interaction with others, which explains the insignificant association between social activity and sense of belonging. Other gratification factors are perceptions of the attributes of GSM. Based on the argument, our results are supported by the findings of prior studies (Tsai & Pai, 2014; Zhao et al., 2012). Zhao et al. determined that the perceptions of characters of virtual communities from the perspective of social capital can cultivate a sense of belonging in users (Zhao et al., 2012). Further, Tsai noted that the fulfillment of users' needs determines their cognitive and affective social identity, which is similar to sense of belonging in this study (Tsai & Pai,

Table 7
PLS analysis of moderating effects and hypotheses test.

Path	Path coefficient			Hypotheses test t-statistic
	Overall sample n = 336	Group A n = 138	Group B n = 198	
Network externality ->Continuance intention	−0.100 ns	0.049 ns	−0.178*	Not significant in group 1
Information seeking ->Continuance intention	0.260***	0.298***	0.273***	152.74***
Perceived privacy ->Continuance intention	−0.202***	−0.061 ns	−0.337**	Not significant in group 1
Flow state ->Continuance intention	0.262***	0.162 ns	0.376***	Not significant in group 1
Sense of belonging ->Continuance intention	0.261***	0.287***	0.148 ns	Not significant in group 2

Note: Group A represents users of theme-based government microblogging; Group B represents users of government agencies' official microblogging. ***Significance: $p < .001$. **Significance: $p < .01$. *Significance: $p < .05$.

2014). Collectively, the results from our study confirmed that gratifications that represent individuals' perceptions of the attributes of GSM platforms can contribute to users' experience states (sense of belonging and flow experience) and, subsequently, affect their behaviors or behavioral intention. Therefore, we will discuss the mediating effects of users' experience states in the following text.

As we can see from the test of investigating mediating effects of online experiential states, sense of belonging can completely mediate the associations between users' continuance intention and three components of gratification, namely collective intelligence, content consumption, and network externality. Furthermore, sense of belonging can partially mediate the effect of information seeking on users' continuance intention. Similarly, flow can mediate the effects of four components of gratification on the relationships between them and users' continuance intention, except for information seeking.

Furthermore, as can be seen from Table 8, information seeking has the most significant impact on continuance intention, followed by flow state, sense of belonging, content consumption, collective intelligence, network externality, and social activity, in terms of their total effects on continuance intention. Expectedly, perceived privacy has a negative effect on continuance intention. The result, consistent with studies by many researchers (Fogel & Nehmad, 2009; Ku et al., 2013), suggests that in the context of government microblogging, perceived privacy has an important negative role on users' continuance intention. As for information seeking, the empirical results suggest that users place extraordinary value on information in government official social media platforms. Both sense of belonging and flow state are important predictors of continuance intention, as can be interpreted by drawing upon the stimulus–organism–response (S–O-R) framework. The SOR framework suggests that participants' organismic experiences (in this case flow and sense of belonging) can affect response such as users' behaviors or behavioral intention. The findings are consistent with prior research. Particularly, previous research has demonstrated the important impact of experience states on continuance intention and usage behavior (H. Lin et al., 2014; H. Lin, Fan, & Wallace, 2013). The gratification of content consumption is a predictor of continuance intention, indicating that user can be attracted by the diverse content provided by government agencies. The empirical result that collective intelligence can explain users' continuance intention informs government agencies of the potential of official social media from the viewpoint of pooling collective intelligence (Bonsón et al., 2015). As for network externality, users' continued intention intensifies when they perceive many government agencies creating their presence on social media platforms and they access more utilities. Last, the positive influence of social activity on continued intention suggests that users' continued intention is elevated when they believe they can make friends and interact with others. All positive effects of gratification factors on users' continuance intention indicate that the typical gratifications from other social media tools can be applied to the GSM setting.

Interestingly, we find that hypotheses H6a, H6b, H6c are supported. The path coefficients that are not significant among the three samples are not included in the table. As for the effect of network externality on continuance intention, the empirical result is that the path coefficient is not significant in group A, which is composed of users of theme-based government microblogging. However, in group B, network externality has negative effect on users' continuance intention. Group B represents the users of the government agencies' official microblogging. The result indicates that the more the number of government agencies' official microblogging users perceived, the less likely are they to continue using government agencies' official microblogging. The result confuses us at first. However, it may be ascribed to the fact that government agencies in China are notable pioneers in the use of social media to improve their services. Given the high speed of the diffusion of government official microblogging and the fact that government agencies are experimenting with social media, government microblogging may provide services of low quality and bad experience to the users, which creates bad impression about government official microblogging and, in turn, reduces users' continuance intention. Regarding the path coefficient from information seeking to continuance intention, it is stronger in group A than in group B, and the difference is statistically significant. The result suggests the effect of information seeking on continuance intention is stronger among users of theme-based government microblogging. The fact that the purpose of theme-based government microblogging is to publish the latest information about a theme may answer the difference. The interesting finding is that perceived privacy has no significant effect on continuance intention among users in group A, while the path coefficient in group B is significant, with a negative relationship. Theme-based government microblogging is done to promote certain themes, and these themes change periodically. This type of government microblogging offer users a platform where they can talk about the theme and share ideas with each other. The true purposes of this kind of official microblogging is to publish information or get response from users, which indicate that users can set out what is in their mind without being concerning about privacy or safety. The result of investigating the moderating effects of classificatory difference of government microblogging shows that the path coefficient from flow state to continuance intention is significant only in group B, while the effect of sense of belonging on continuance intention is significant only in group A. In fact, flow experience describes people's feelings when they are totally involved in an activity. It can be seen as intrinsic motivation in motivation theory, which is an emotional response to a perfect experience. Compared with theme-based government

Table 8
Total effects table for overall sample.

Relationships between constructs	Path coefficient
Information seeking ->Continuance intention	0.289***
Flow state ->Continuance intention	0.262***
Sense of belonging ->Continuance intention	0.261***
Content consumption ->Continuance intention	0.160***
Collective intelligence ->Continuance intention	0.131***
Network externality->Continuance intention	0.119***
Social activity ->Continuance intention	0.038*
Perceived safety ->Continuance intention	−0.202***

Note: ***Significance: p < .001. **Significance: p < .01. *Significance: p < .05.

Table 9
Total effects table for Group A.

Relationship between constructs	Path coefficient
Information seeking ->Continuance intention	0.365***
Sense of belonging ->Continuance intention	0.287*
Content consumption ->Continuance intention	0.122**
Collective intelligence ->Continuance intention	0.118*
Flow state ->Continuance intention	0.162 ns
Network externality ->Continuance intention	0.160 ns
Social activity ->Continuance intention	0.105 ns
Perceived safety ->Continuance intention	−0.061 ns

Note: ***Significance: p < .001. **Significance: p < .01. *Significance: p < .05.

Table 10
Total effects table for Group B.

Relationship between constructs	Path coefficient
Flow state ->Continuance intention	0.376***
Information seeking ->Continuance intention	0.272***
Content consumption ->Continuance intention	0.182***
Collective intelligence ->Continuance intention	0.145*
Sense of belonging ->Continuance intention	0.148 ns
Social activity ->Continuance intention	0.024 ns
Network externality ->Continuance intention	−0.088 ns
Perceived safety ->Continuance intention	−0.337**

Note: ***Significance: p < .001. **Significance: p < .01. *Significance: p < .05.

microblogging, government agencies' microblogging has greater opportunities to craft an environment in which users can experience flow. However, the theme-based government microblogging can offer users a platform to share their ideas and take part in policy making, which gives the user the sense of belonging to the community. The characteristics of government microblogging answer the difference we discussed above.

6.1. Contributions to research and practice

This study contributes in several ways to social media research. First, we extend social media research to the GSM setting, where limited research has been done to date. To the best of our knowledge, this is the first study to investigate users' behaviors in the context of GSM platforms. We conducted in-depth interviews and consulted previously published gratification research to identify a detailed set of gratification items that users value when using government official social media.

Most importantly, to the best of our knowledge, our combination of UGT and the SOR framework is groundbreaking. We identify UGT-based gratification factors for use as the environmental stimuli in the SOR framework, supported by the expectancy value conceptualization for gratifications sought (Palmgreen & Rayburn, 1982). Compared with the method in which environmental stimuli are measured by individual perceptions of the technological or spatial characteristics of certain objects (Animesh et al., 2011; Huang et al., 2014; H.-F. Lin, 2008; J. Lin, 2014; H. Zhang, Lu, Gupta, & Zhao, 2014), gratification factors focus on higher level constructs in the users' perceptional system. This is because the perception of a gratification factor is based on an individual's perception of the attributes of certain objects. By identifying the gratification factors, we can more comprehensively explore the multidimensional attributes of a given computer-mediated technology to meet the gratification sought by individuals. Further, scholars can identify a comprehensive measurement of the antecedents of organismic experiences, through the lens of UGT.

Second, the implications of our research suggest that a sense of belonging is a strong emotional determinant of continuance intention. This indicates the need for researchers to place greater emphasis on measuring individual experience states in a computer-mediated environment with the context of human–human interaction. Furthermore, we verified the mediating effects of users' online experiential states on the relationship between gratifications sought and user behaviors.

This study also contributes to practice. By identifying gratification factors and how they impact the formation of users' continuance intention, the results of this study can provide insights to government agencies to optimize the management of their GSM platforms. Further, key success factors are dependent on the types of GSM platform used.

Our results suggest that creators and operators of official government social media should focus on meeting user needs and cultivating an environment in which users can experience flow and a sense of belonging. Regarding theme-based government microblogging, our results indicate that information seeking has the most significant effect on continuance intention, followed by a sense of belonging, content consumption, and collective intelligence, as listed in Table 9. Government agencies should use these findings to publish information and collect user responses. To better take advantage of this type of government microblogging, government agencies should also enhance users' sense of belonging. In fact, content consumption is not significantly associated with users' continuance intention. However, it can enhance a user's sense of belonging and further strengthen his/her continuance intention. Therefore, the managers of theme-based government microblogging should make efforts to improve content quality. As for government agencies' microblogging, our results indicate that flow experience has the most significant effect on continuance intention, followed by information seeking, content consumption, and collective intelligence, as listed in Table 10. Government agencies should cultivate an environment in which users can experience flow. Importantly, government agencies should also improve users' perception of safety because a lack of perceived safety negatively affects continuance intention. Finally, we note that the construct of network externality significantly and negatively impacts users' continuance intention. However, the total effect is not significant because it is positively related to flow experience. Thus, cultivating an environment that provides users with a greater chance to experience flow can offset the negative effect of network externality.

6.2. Limitations and future research

The limitations of this study should be taken into account before generalizing its findings. First, the current study uses college students as the research sample, and the reason for doing so has been discussed above. Thus, the results must be treated with caution in terms of their generalizability to other GSM user populations. Future studies should validate the research model among these populations. Second, the object of our study is government microblogging in China. Thus, further research is required to establish whether the patterns of effects are generalizable globally across different types of social media utilized by government agencies.

Furthermore, we classify GSM platforms in a straightforward way. In fact, GSM platforms are of diverse types. Each type has its own specific characteristics and challenges. Thus, there is urgent need to investigate user behaviors on each GSM type and explore the role of classified differences on user behavior patterns.

7. Conclusion

In summary, the study identifies the formation mechanism of users' continuance intention in the context of government social media platforms, based on UGT and S–O-R framework. Specifically, we developed a research model to fully capture the impacts of gratification factors on users' online experiences and subsequent continuance intention. We discovered that individuals continue to use a GSM platform because they experience sense of belonging and flow from the usage experience. Furthermore, all gratification factors, except for information seeking, are throng determinants of users' continuance intention through the mediating roles of sense of belonging and flow experience. Given that government agencies are experimenting with launching GSM platform, our study provides initial insights into key success factors. Further, we contribute to theory by applying and extending existing social presence and information system (IS) continuance.

Appendix A
Questionnaire items.

Construct	Items	Loading
Information seeking(Papacharissi & Rubin, 2000)	1.I use the government microblogging to be updated about current issues and events	0.866
	2.I use the government microblogging to know what could happen to me in reality, especially informational news	0.871
	3.I use the government microblogging to get the latest information about the upcoming policy	0.809
	4.I use the government microblogging to know government information and government agencies' daily activities	0.825
Collective intelligence(new)	1. I can offer information to the government agencies that of their needs	0.870
	2. I can give advising information to the government agencies	0.875
	3. I can take part in the activities (e.g., policy making) on the government microblogging	0.855
Content consumption	1. The content on the government microblogging is very interest (e.g. Utterance humor)	0.903
	2. The content is in a variety of forms (e.g., picture, video et al.)	0.889
	3. The content on the government microblogging is rich	0.791
Social activity (Stafford, 2009)	1. I use government microblogging to seek relationships with others	0.828
	2. I use government microblogging to share ideas with others	0.873
	3. I use government microblogging to meet people with my interest	0.886
Network externality (C.-P. Lin & Bhattacherjee, 2008)	1. More and more government agencies are using government microblogging	0.928
	2. More and more government microblogging is launched on the third-party platforms	0.940
Perceived enjoyment (Koufaris, 2002)	1. I feel that using this government microblogging is interesting	0.918
	2. I feel that using this government microblogging is enjoyable	0.922
Attention focus (Koufaris, 2002)	1. When using this government microblogging, I was intensely absorbed in the activity	0.914
	2. When using this government microblogging, my attention was focused on the activity.	0.914
Perceived interactivity (Novak et al., 2000)	1. Communication on government microblogging is prompt	0.831
	2. Live interaction with government agencies via government microblogging is great	0.857
	3. Government agencies on their official microblogging are responsive, and I can receive timely feedback from them	0.844
Sense of belonging (Koh et al., 2003; H.-F. Lin, 2008)	1. I am very attached to the government microblogging.	0.785
	2. I feel I am a member of the government microblogging	0.819
	3. I feel government agencies on their official microblogging platforms are my close friends.	0.850
	4. I feel a strong sense of belonging to the government microblogging platforms	0.771
	5. I feel others on the government official microblogging are my close friends.	0.828
Continuance intention (Hausman & Siekpe, 2009; Li et al., 2006)	1. I plan to keep using this government microblogging in the future	0.823
	2. I intend to continue using this government microblogging in the future	0.848
	3. I expect my use of this government microblogging to continue in the future	0.826
	4. I will spend more time in using government microblogging in the future	0.870
	5. I will recommend it to others	0.836
Perceived privacy (Ku et al., 2013)	1. It bothers me when this government microblogging asks me for much personal information.	0.902
	2. I am concerned that this government microblogging is collecting too much personal information about me	0.899
	3.I am concerned about submitting information to this government microblogging	0.894

Appendix B
Common method bias analysis.

Construct	Indicator	Substantive factor R_1^2 loading (R_1)		Method factor R_2^2 (R_2)	
Information seeking	Item 1	0.833***	0.694	0.042	0.002
	Item 2	0.947***	0.897	−0.092*	0.008
	Item 3	0.661***	0.437	0.198***	0.039
	Item 4	0.933***	0.870	−0.149**	0.022
Collective intelligence (new)	Item 1	0.831***	0.691	−0.004	0.000
	Item 2	0.870***	0.757	0.003	0.000
	Item 3	0.886***	0.785	0.000	0.000
Content consumption	Item 1	0.978***	0.956	−0.059*	0.003
	Item 2	0.891***	0.794	0.057*	0.003
	Item 3	0.864***	0.746	0.046	0.002
Social activity	Item 1	0.848***	0.719	−0.063	0.004
	Item 2	0.878***	0.771	0.009	0.000
	Item 3	0.823***	0.677	0.031	0.001
Network externality	Item 1	0.920***	0.846	−0.047	0.002
	Item 2	0.857***	0.734	0.016	0.000
Perceived enjoyment (PE)	Item 1	0.687***	0.472	0.150	0.023
	Item 2	0.723***	0.523	0.051	0.003
Attention focus (AF)	Item 1	0.986***	0.972	−0.201*	0.040
	Item 2	0.877***	0.769	−0.061	0.004
Perceived interactivity	Item 1	0.720***	0.518	0.070	0.005
	Item 2	0.605***	0.366	0.241***	0.058
	Item 3	0.839***	0.704	0.013	0.000
Sense of belonging	Item 1	0.978***	0.956	−0.249***	0.062
	Item 2	0.917***	0.841	0.005	0.000
	Item 3	0.924***	0.854	−0.005	0.000
	Item 4	0.928***	0.861	−0.019	0.000

(*continued on next page*)

Appendix B (*continued*)

Construct	Indicator	Substantive factor R_1^2 loading (R_1)		Method factor R_2^2 (R_2)	
	Item 5	0.900***	0.810	0.019	0.000
Continuance intention	Item 1	0.854***	0.729	−0.048	0.002
	Item 2	0.862***	0.743	−0.041	0.002
	Item 3	0.978***	0.956	0.089	0.008
	Item 4	0.761***	0.579	0.085	0.007
	Item 5	0.914***	0.835	−0.051	0.003
Perceived privacy	Item 1	0.962***	0.925	−0.154*	0.024
	Item 2	0.729***	0.531	0.139*	0.019
	Item 3	0.842***	0.709	−0.023	0.001

Acknowledgment

This research is financed by the National Natural Science Foundation of China (Grant No. 71271147) and Tianjin Social Science Planning Project (Grant No. TJGL15-025) which is gratefully acknowledged.

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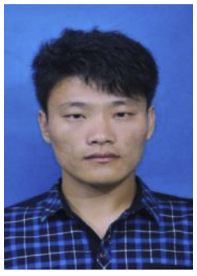

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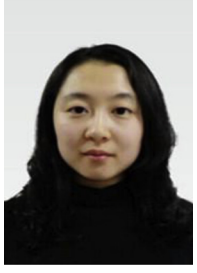

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