# Social network service use on mobile devices: An examination of gratifications, civic attitudes and civic engagement in China

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## Abstract

As mobile social network services have been integrated in many people's daily lives, this study investigated the relationships between gratifications-sought, social network service use on mobile devices, civic attitudes and civic engagement in Mainland China. Data were gathered in a survey of 760 university students. Results showed that gratifications for technological convenience (accessibility), information exchange (cognition needs), and social interaction (recognition needs) significantly predicted civic engagement. The results also demonstrated that civic attitudes and social network service use on mobile devices are positively related to civic engagement. These findings well demonstrated the important role of mobile-based communication in connecting citizens to civil society.

## Introduction

### Penetration of mobile devices in Mainland China

The rapid diffusion of mobile devices and vast penetration of wireless Internet services are generating a large mobile-based netizen group in Mainland China. At the end of June

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2011, the number of Chinese 'mobile netizens,' who adopt web services through mobile devices,[1] reached 318 million, 66 percent of the total number of netizens in China (China Internet Network Information Center (CNNIC), 2011a). Equipped with intelligent hardware and user-friendly software, mobile devices greatly broaden one-to-one conversation into diverse interactions. Citizens can conveniently search information online, read daily news, maintain social connections, and publish messages on virtual forums.

Among various online services, social network services (SNSs) show a special affinity for mobile devices. Among Chinese mobile netizens, 41.1 percent adopt traditional SNSs, such as Renren web and Kaixin web (Chinese Facebook equivalents), and 34 percent use microblogs (e.g. Sina Weibo, Tencent Microblog), a new SNS launched in 2009 (CNNIC, 2011a). This indicates that SNS use on mobile devices (engaging social interactions on SNSs via mobile applications) is now a popular communication medium in China. This kind of mobile technology enables people to instantly record and share social events through interpersonal network ties.

## The supportive role of mobile technology in civic engagement

Studies on civic engagement in Mainland China have indicated that new communication technology helps improve social mobilization in a community (e.g. Perry, 2008). Due to strict control from the government, collective resistance from grassroots in China frequently outbreaks and develops in online environments. In order to lower the potential risk of political repercussions, netizens in China prefer online expression of opinion, rather than having direct conflicts with the authority in offline social settings. In this sense, SNS use on mobile devices offer an effective channel for public discussion and civic mobilization in China.

One example in recent years was the Guo Meimei event. In June 2011, a young woman in Mainland China, named Guo Meimei, claimed that she was the General Commercial Manager of the Red Cross Society of China (RCSC) and continuously showed off her extravagant lifestyle on Sina Weibo, a Chinese microblog website. Because of her position in a non-profit organization, netizens questioned her high income, and then quickly turned to criticizing RCSC management. Although the RCSC later denied the existence of the position and Guo's employment, netizens still insisted that the RCSC should disclose more detailed information about its operation, for example, opening records about use of public funds. Following this event, other scandals involving charities in China were revealed. Charitable organizations, such as the China Women's Development Foundation, China Youth Development Foundation, and Henan Soong Ching Ling Foundation, faced fierce criticism from the public for their opaque financial operations. These scandals affected public donations. In a survey conducted by *New Weekly*, a local magazine, 82 percent of netizens were not willing to donate to the RCSC (Li, 2011). Blood was also in short supply in Beijing after the scandal (Xu, 2011). Many other charities in China also faced crises of confidence and funding shortfalls (Wang, 2011).

This chain of events well illustrated some characteristics of public outcry in Mainland China. Firstly, the Internet served as an important platform for identifying social problems and launching initial criticism on the organization. Secondly, social media,

especially microblogs, helped spread the latest news and assemble scattered individual attitudes into powerful public opinion through interpersonal networks. The convenient use of SNS applications on mobile devices facilitated the development of the event. Finally, the online protest eventually expanded to offline resistance. Since this case is a typical example of public events in China, this study selects it as the background in examining the significant role of new communication technology (e.g. SNS use on mobile devices) in fostering civic engagement in Chinese society.

### Unfolding the social–psychological origins of SNS use on mobile devices in public events

Although the important role of mobile technology is repeatedly mentioned by Chinese scholars, we still understand little about what the motives of SNS use on mobile devices are and how they associate with people's behavior in public events. Driven by these questions, this study regards gratifications-sought and civic attitudes as two important antecedents for SNS use on mobile devices. Gratification is the psychological need for mobile technology adoption, whereas civic attitude is the social brief that regulates people's confidence in civic participation, often times through interaction on media platforms. With gratifications and civic attitudes as antecedents, it is the aim of this study to show how these motives, together with SNS use on mobile devices, associate with online and offline civic engagement in Mainland China. To summarize, we expect that this research can yield potential contributions on understanding the social and psychological impetuses for citizens' civic activities through a new mobile technology. Theoretically, it will broaden the scope of the uses and gratifications (U&G) approach by addressing a unique group of gratifications for SNS use on mobile devices, and pointing out subsequent social behavior of adopting this new medium. Practically, it will help us understand how this new mobile technology is socially shaped in a given social context, by collecting first-hand data on the practice of civic engagement in Mainland China.

## Literature review

### Gratifications-sought on mobile SNS use

The U&G approach has shown an important route in understanding motives for media use, especially the social and psychological origins of needs that generate expectation of media use and result in other consequences (Blumler and Katz, 1974). It sees audiences as active communicators and underscores mediated communication as being socially and psychologically constrained (Rubin, 2002: 525–526). This approach has been widely applied to examine different types of media adoption (e.g. use of mobile phone, computer, and SNS). We find theoretical and methodological support from a series of previous studies.

In studying mobile technology adoption, Leung and Wei (2000) found that two categories of motives, instrumental and intrinsic factors, significantly predict cell phone use. The former includes mobility, immediacy, and instrumentality; the latter contains affection and sociability. Wei and Lo (2006) also revealed that information-seeking, social

utility, affection, fashion/status, mobility, and accessibility are crucial components of gratifications in mobile phone use in Taiwan.

Previous studies on computer-based communication and SNS emphasized similar socio-psychological origins. Papacharissi and Rubin (2000) found five primary motives of Internet use (interpersonal utility, pass time, information-seeking, convenience, and entertainment). Stafford et al. (2004) underscored that social gratification is a unique dimension in strengthening interactions between people. Leung (2007) added relationship maintenance and social recognition as two motive categories for Internet adoption. In SNS studies, Joinson (2008) identified motives for Facebook use, including social connection, shared identities and social investigation. Leung (2009) proposed four kinds of gratifications for generating content online: recognition needs, cognitive needs, social needs, and entertainment needs.

Based on the above review, we can logically cluster the gratifications related to SNS use on mobile devices into four categories. The first category is the gratifications for technological convenience. Accessibility (accessing and respond to information anytime and anywhere) is the most important convenience brought by mobile devices. Wei and Lo (2006) adopted this gratification to emphasize that cell phones facilitate immediate responses to the latest conversation. The second category highlights the gratifications for information exchange. For example, cognition needs motivate individuals to seek information from their social environment and obtain related cognitive understanding. Nir (2010) demonstrated that individual differences in cognition needs influence subsequent perception on public opinion. Thirdly, gratifications for social interaction (including recognition and affection needs) are characterized in SNS adoption. Recognition needs indicate the motive for maintaining the sense of belonging in social groups. Affection shows how feelings emerge in affinity ties affect people's media adoption. In social interactions, recognition needs and affection can positively influence media use (e.g. Leung, 2006, 2007; Leung and Wei, 2000; Wei and Lo, 2006). Finally, the category of gratifications for recreation is also pointed out in previous studies. For example, needs for entertainment (such as seeking relaxation and fun) is a driving force of new media use (e.g. Leung, 2009; Papacharissi and Rubin, 2000). Similarly, seeking fashion/status is another kind of recreational need in fostering mobile phone adoption (e.g. Katz and Sugiyama, 2008).

We apply these four gratification patterns as critical psychological factors for new media adoption, and investigate how these motives associate with SNS use on mobile devices.

> *RQ₁: How do the four categories of gratifications-sought relate to the use of SNS on mobile devices?*

## Civic engagement: Online and offline

Civic engagement is a multifaceted concept related to individual and collective behavior in issues of public concerns (e.g. Campbell, 2004; Levinson, 2010; Theiss-Morse and Hibbing, 2005). It includes a range of activities, such as individual voluntarism,

organizational involvement, and electoral participation. Current studies in Mainland China have emphasized that the new communication technology opens up a broader forum for public discussion and citizen participation. For example, the Internet provides chances for citizens to discover unofficial information (MacKinnon, 2008). The Internet has also encouraged online activism, allowing citizens to express discontent and challenge dominant discourse (e.g. Hu, 2012; Yang, 2009).

In this study, we expect *online and offline civic engagement* as two dimensions of civic engagement. As mentioned at the beginning, civic engagement in Mainland China takes distinct forms in online and offline social settings. Since citizens enjoy more freedom online, they participate more actively in seeking information and open discussion on the Internet. As to the offline engagement, this research includes activities of interpersonal discussion with real-life friends, volunteer activities, and donation behavior. This distinction is also supported by cues-filtering theory in computer-mediated studies. Online interaction reduces social cues, such as 'nonverbal cues' (e.g. facial expression and gestures) and 'identity makers' (e.g. status, gender and age), which can be easily recognized in offline interaction (Walther and Parks, 2002). In order to underscore the different nature of interaction, this study separately examines citizens' engagement in online and offline environments.

Gratifications is not only limited to new media adoption, but also associated with civic behavior. Campbell and Kwak (2010) demonstrated that mobile-based communication is linked to civic engagement. In particular, individuals with higher levels of information exchange tended to be more civically and politically engaged. Other scholars also suggested that gratifications for information exchange foster participation by increasing individuals' attention to public events and deliberate processing of information (e.g. Shah et al., 2005). Accessibility, the gratifications for technological convenience, can improve citizens' capacity of instant response to ongoing public affairs whenever and wherever. Gratifications for social interaction, such as affection and recognition, can strengthen social network ties, and further mobilize citizens sharing common interests (Coleman, 1990; Ling, 2004, 2008). As to recreational gratifications, it has unstable associations with civic engagement. For example, Campbell and Kwak (2010) found a weak and positive connection between personal recreation and civic engagement. This result conflicted with previous studies in politics, which usually regard entertainment as a negative factor, because it distracts an individual's attention from public affairs (e.g. Shah et al., 2001). In order to examine the corresponding relationship between civic engagement and different types of gratifications-sought, we propose the following hypotheses and research question:

> $H_{1a}$: Seeking gratifications for technological convenience (such as for accessibility) in SNS use on mobile devices is positively related to online and offline civic engagement.
>
> $H_{1b}$: Seeking gratifications for information exchange (such as for cognition needs) in SNS use on mobile devices is positively related to online and offline civic engagement.

*$H_{1c}$: Seeking gratifications for social interaction (such as for affection and recognition needs) in SNS use on mobile devices is positively related to online and offline civic engagement.*

*$RQ_2$: How is seeking gratifications for recreation (such as entertainment and fashion/status) related to SNS use on mobile devices and civic engagement?*

## Civic attitudes

Among the various predictive factors of civic engagement, studies have shown the significant role of civic attitudes. Civic attitudes refer to 'a sense of public civic awareness and commitment' (Pattie et al., 2003). Beck and Jennings (1982) demonstrated an attitude–behavior link between adolescents' civic orientations and political participation. Hart and Kirshner (2009) identified that civic attitudes are the central factor in fostering civic engagement of urban Americans. Three dimensions of civic attitudes are identified in this study: civic identity, self-efficacy, and confidence in charitable organizations.

*Civic identity* is a sense of communal belonging. It is constructed through citizens' communication and interaction with others in public events (e.g. Gastil et al., 2008). Developing civic identity can strengthen the connection within community and entail social entitlements and responsibilities. *Self-efficacy* is the second dimension. Bandura (1977) defined the notion as an individual's assessment of his or her own ability to perform a particular behavior. In studies of civic engagement, self-efficacy reflects citizens' belief or perception of knowledge and skill in society (Leung, 2009). Lastly, confidence in a public institution is a type of public trust formed in people's experience of community life. Taylor (2010) suggested that confidence in public service institutions can significantly influence citizens' public actions. Linking the context of this study, we propose *confidence in charitable organizations* as the last dimension of civic attitudes.

Cyber communities connected through SNSs are indispensable platforms for expressing public opinion and attitudes. This indicates that individuals' existing civic attitudes also connect to their virtual activities in SNS platforms. In the previous section, we discussed that gratifications are internal needs driving individuals to adopt certain media channels. However, in a given social moment, people's interaction is not simply subject to psychological motives, but also associated with their long-lasting attitudes toward a particular public event. Hence, we view civic attitudes as another critical antecedent of SNS use on mobile devices and civic engagement. Therefore, we propose:

*$H_2$: There is a positive relationship between civic attitudes and SNS use on mobile devices.*

*$H_3$: There is a positive relationship between civic attitudes and civic engagement.*

Finally, we expect a bidirectional relationship between SNS use on mobile devices and civic engagement, which means that media use can predict participation, and participation is also associated with media use. Thus, we expect:

*$H_4$: There is a positive relationship between SNS use on mobile devices and civic engagement.*
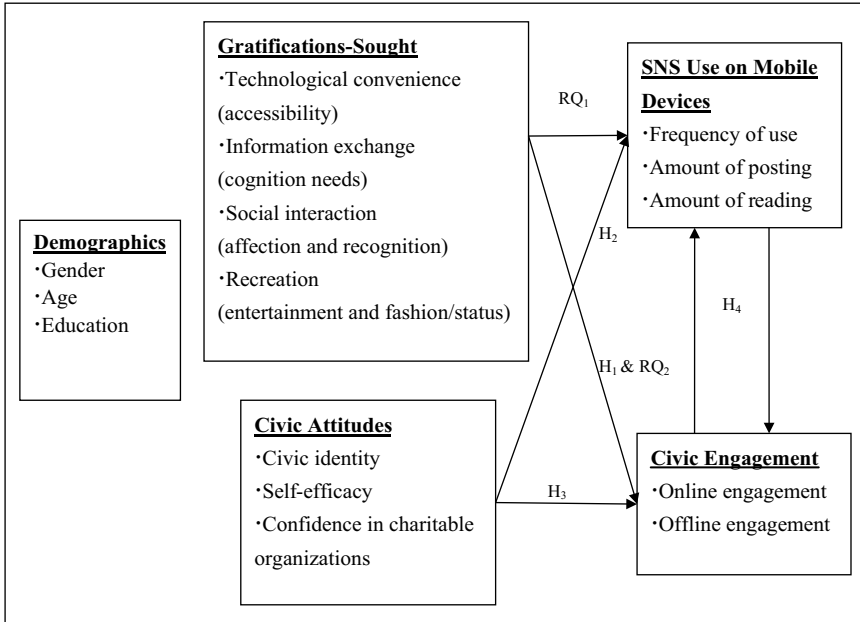
**Figure 1.** Proposed model for university students' gratifications-sought, social network service (SNS) use on mobile devices, civic attitudes and civic engagement.

In addition, demographic variables (age, gender, and education) are considered in this research. Thus, we also explore the following questions:

> *$RQ_3$: How can demographics, gratifications-sought, and civic attitudes predict the use of SNSs on mobile devices?*
> *$RQ_4$: How can demographics, gratifications-sought, civic attitudes, and SNS use on mobile devices predict (a) offline and (b) online civic engagement?*

The conceptual framework of this study is shown in Figure 1. Demographics, gratifications-sought, and civic attitudes are expected to be significantly correlated to SNS use on mobile devices, and further linked to civic engagement. A reciprocal relationship is also expected between the two dependent variables: SNS use on mobile devices and civic engagement.

## Method

### Sampling

According to the Statistics Bureau of Guangdong Province (2011), more than 100 million Guangdong residents are mobile phone users. Especially in Guangzhou, Zhuhai, and Shenzhen, the highly developed regions in China, the average penetration rate of mobile

phones is about 70.4 percent (CNNIC, 2011b). These three cities provide an ideal population for this research.

Data were gathered by multistage cluster sampling. Firstly, from a pool of the 98 regular institutions of higher learning in Guangzhou, Shenzhen, and Zhuhai, five universities were randomly selected, according to the list published by the Department of Education of Guangdong Province (2011). Then four classes from each university were randomly drawn. In the final stage, the questionnaire was administered to students enrolled in 20 classes during a 12-day span from 19 to 30 November 2011. Among 905 targeted students, 760 questionnaires were completed (response rate: 84 percent). A screening question was asked to ensure that all respondents used SNSs on mobile devices.

Of the sample, 404 (53.2 percent) were men, and 354 (46.4 percent) were women. The mean age was 21.4 (*SD* = 10.38, ranging from 17 to 35); 742 (97.6 percent) were undergraduates, including 276 (36.3 percent) first-year students, 171 (22.5 percent) second-year students, 184 (24.2 percent) third-year students, and 111 (14.6 percent) final-year students; 18 (2.4 percent) were postgraduates, including 16 (2.1 percent) graduate students and two (0.3 percent) PhD students. Among these students, 291 (38.3 percent) were from Guangzhou, 209 (27.5 percent) were from Zhuhai, and 260 (34.2 percent) were from Shenzhen.

## Measures

### Gratifications-sought

Based on the motives identified in previous studies (e.g. Leung and Wei, 2000; Wei and Lo, 2006), a focus group with 12 university students was conducted in order to discover young adults' gratifications for SNS use on mobile devices. The feedback revealed similar categories of gratifications-sought summarized in the literature reviewed above (e.g. accessibility was a frequently mentioned reason for using SNSs on mobile devices). By adopting the 21 gratification items generated from the focus group, our survey used a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree), to assess respondents' evaluation of gratification statements. All items were finalized through a pilot test and were carefully translated into Chinese to ensure reliability and validity.

Factor analysis successfully yielded six gratification factors, accounting for 69.88 percent of variance (see Table 1). Gratifications for technological convenience, *accessibility* (eigenvalue = 2.22, Cronbach's alpha = .73, variance explained: 10.55 percent), included four items (e.g. 'to respond to friends' message' and 'add new friends anytime and anywhere') (*M* = 3.29, *SD* = .74). Gratifications for information exchange, *cognition needs* (eigenvalue = 2.69, Cronbach's alpha = .82, variance explained: 12.82 percent), contained four items (e.g. 'broaden knowledge base' and 'understand events happening') (*M* = 3.72, *SD* = .72). Gratifications for social interaction contained affection and recognition needs. *Affection* (eigenvalue = 2.59, Cronbach's alpha = .82, variance explained: 12.33 percent) consisted of four items (e.g. 'let others know I care for them' and 'get feeling that people care about me') (*M* = 3.64, *SD* = .75). *Recognition needs* (eigenvalue

**Table 1.** Principal components factor analysis of gratifications-sought items with Varimax rotation.

| Gratifications-sought items | M | SD | F1 | F2 | F3 | F4 | F5 | F6 |
|---|---|---|---|---|---|---|---|---|
| **Cognition needs** | | | | | | | | |
| 1. To broaden knowledge base | 3.79 | .88 | .82 | | | | | |
| 2. To understand events happening | 3.88 | .87 | .78 | | | | | |
| 3. To find out what is going on in society | 3.93 | .86 | .71 | | | | | |
| 4. To refine my thinking | 3.29 | .97 | .61 | | | | | |
| **Affection** | | | | | | | | |
| 5. To let others know I care for them | 3.53 | .94 | | .78 | | | | |
| 6. To get the feeling that people care about me | 3.63 | .99 | | .75 | | | | |
| 7. To share common topics with friends | 3.74 | .89 | | .66 | | | | |
| 8. To share position, opinion, and personal values | 3.68 | .88 | | .61 | | | | |
| **Fashion/status** | | | | | | | | |
| 9. To look cool | 2.65 | .98 | | | .84 | | | |
| 10. To look stylish | 2.71 | 1.01 | | | .83 | | | |
| 11. To look fashionable | 3.06 | 1.00 | | | .76 | | | |
| **Recognition needs** | | | | | | | | |
| 12. To establish personal identity | 2.93 | 1.01 | | | | .80 | | |
| 13. To gain respect and support | 2.97 | .96 | | | | .72 | | |
| 14. To enhance sense of belonging by creating or joining groups | 2.87 | 1.04 | | | | .71 | | |
| **Accessibility** | | | | | | | | |
| 15. To respond to friends' messages | 3.72 | .96 | | | | | .73 | |
| 16. To add new friends anytime and anywhere | 3.50 | 1.04 | | | | | .68 | |
| 17. To respond to strangers' requests | 2.79 | 1.05 | | | | .45 | .64 | |
| 18. To be available to friends anytime and anywhere | 3.16 | .95 | | | | | .60 | |
| **Entertainment** | | | | | | | | |
| 19. To kill time | 3.50 | 1.10 | | | | | | .83 |
| 20. To escape from study pressure | 2.90 | 1.10 | | | | | | .77 |
| 21. To have fun | 3.65 | .91 | | | | | | .69 |
| Eigenvalue | | | 2.69 | 2.59 | 2.55 | 2.48 | 2.22 | 2.15 |
| Cronbach's alpha | | | .82 | .82 | .90 | .83 | .73 | .75 |
| Variance explained (%) | | | 12.82 | 12.33 | 12.14 | 11.80 | 10.55 | 10.24 |

Scales for gratifications-sought items were from 1 = strongly disagree to 5 = strongly agree.

= 2.48, Cronbach's alpha = .83, variance explained: 11.80 percent) consisted of three items (e.g. 'to establish personal identity' and 'to gain respect and support') ($M$ = 2.92, $SD$ = .87). Finally, two needs of recreational gratifications, *entertainment* and *fashion/status*, were also found in our study. *Entertainment* (eigenvalue = 2.15, Cronbach's alpha = .75, variance explained: 10.24 percent) contained three items (e.g. 'kill time' and 'escape from study pressure') ($M$ = 3.35, $SD$ = .85). *Fashion/status* (eigenvalue = 2.55, Cronbach's alpha = .90, variance explained: 12.14 percent) consisted of three items (e.g. 'look cool' and 'look stylish') ($M$ = 2.80, $SD$ = .91).

In sum, these four broad categories of gratifications-sought, as illustrated in six specific factors, were consistent with the theoretical expectations described by previous research (e.g. Katz and Sugiyama, 2008; Leung, 2006, 2007, 2009; Nir, 2010; Stafford et al., 2004; Wei and Lo, 2006). Gratifications for technological convenience (i.e. *accessibility*) were demonstrated to be a unique dimension of motive in SNS use on mobile devices. Gratifications for information exchange (i.e. *cognition needs*), as a typical kind of instrumental gratification (Leung and Wei, 2000), were the most robust motive. Gratifications for social interaction and recreation were also indispensable components of SNS use on mobile devices.

## Civic attitudes

Adopting past measures on civic attitudes (Gastil et al., 2008; Gastil and Xenos, 2010; Pattie et al., 2003), this study developed a three-dimensional index of civic attitudes: confidence in charitable organizations, civic identity, and self-efficacy.

Factor analysis also successfully extracted these dimensions, accounting for 77.48 percent of the variance (see Table 2).The first factor, *confidence in charitable organizations* (eigenvalue = 2.20, Cronbach's alpha = .82, variance explained: 31.43 percent), contained three items (e.g. 'charitable organizations in China do a good job in helping others in need') ($M$ = 2.78, $SD$ = .99). The second factor, *civic identity* (eigenvalue = 1.68, Cronbach's alpha = .80, variance explained: 24.01 percent), contained two items (e.g. 'helping others is a citizen's responsibility') ($M$ = 3.72, $SD$ = .61). The third factor, *self-efficacy* (eigenvalue = 1.54, Cronbach's alpha = .67, variance explained: 22.04 percent), also had two items (e.g. 'I have a pretty good understanding of charitable organizations') ($M$ = 2.32, $SD$ = .89).

## SNS use on mobile devices

SNS use on mobile devices was measured in three dimensions: (1) frequency of use; (2) amount of posting; and (3) amount of reading.

*The frequency of SNS use on mobile devices.* Respondents were asked: 'How frequently do you use the following SNSs on mobile devices?'[2] (Tencent, Netease, Sohu, and Phoenix microblogs; Renren, Kaixin, Pengyou, and Douban websites)'. Frequency categories ranged from '1' (never) to '5' (always). The eight items were then combined as one variable to represent the overall frequency of SNS use (Mean = 1.57, $SD$ = .50, alpha = .65).

**Table 2.** Principal components factor analysis of civic attitudes items with Varimax rotation.

| Civic attitudes items | M | SD | F1 | F2 | F3 |
|---|---|---|---|---|---|
| **Confidence in charitable organizations** | | | | | |
| 1. Charitable organizations in China do a good job of helping others in need | 2.74 | 1.09 | .90 | | |
| 2. Charitable organizations in China play a major role in making our communities better | 2.96 | 1.12 | .89 | | |
| 3. Charitable organizations in China use donations appropriately | 2.63 | 1.24 | .74 | | |
| **Civic identity** | | | | | |
| 4. Creating social welfare is my responsibility | 3.65 | .78 | | .91 | |
| 5. Helping others is a citizen's responsibility | 3.77 | .72 | | .91 | |
| **Self-efficacy** | | | | | |
| 6. I have a pretty good understanding of charitable organizations | 2.29 | 1.06 | | | .86 |
| 7. I think I am better informed about charitable organizations than most people | 2.34 | 1.00 | | | .85 |
| Eigenvalue | | | 2.20 | 1.68 | 1.54 |
| Cronbach's alpha | | | .82 | .80 | .67 |
| Variance explained (%) | | | 31.43 | 24.01 | 22.04 |

Scales for civic attitudes items were from 1 = strongly disagree to 5 = strongly agree.

*Amount of posting.* Frequencies of 'sharing information with others,' 'initiating a discussion by using text/voice,' and 'participating in others' discussion' were asked by using a five-point scale, from '1' = never to '5' = always (Mean = 2.68, $SD$ = .89, alpha = .76).

*Amount of reading.* Frequencies of 'accepting messages from online friends,' 'browsing textual news,' and 'browsing photos/videos' were asked. A five-point scale, ranging from '1' (never) to '5' (always), was applied (Mean = 3.25, $SD$ = .85, alpha = .75).

A composite measure for the SNS use on mobile devices was created by combining the above three dimensions (Mean = 2.50, $SD$ = .60, alpha = .69).

## Civic engagement

In a networked society, an exhaustive and comprehensive measure for civic engagement should include netizens' online and offline participation. In this study, online engagement was measured ($M$ = 1.90, $SD$ = .84, alpha = .89) by asking respondents the degree to which they used SNSs on mobile devices to participate in four types of online activities (e.g. 'search information' and 'forward news reports') related to the charity credibility crisis (i.e. the Guo Meimei event). For offline engagement ($M$ = 1.69, $SD$ = .75, alpha = .82), four questions were asked on the degree to which they attended four types of offline activities (e.g. 'talk with relatives or friends about charity credibility crises' and 'contact the public official of local charitable organizations about the details of donation'), using a five-point scale ranging from '1' (never) to '5' (always).

A composite measure for the civic engagement was created by combining the two dimensions ($M = 1.80$, $SD = .75$, alpha = .86).

# Findings

## Gratifications-sought and SNS use on mobile devices

Results in Table 3 show that except entertainment, the other five gratifications (accessibility, cognition needs, affection, recognition needs, and fashion/status) were positively and significantly correlated with the composite level of SNS use on mobile devices. These five gratifications also maintained strong correlations nearly with all the three components of SNS use on mobile devices (frequency of use, amount of posting, and amount of reading). Thus, the relationship posed in $RQ_1$ was well established. It indicated that the more the respondents find gratifying, the more frequently they use SNSs on mobile devices.

## Hypotheses testing

$H_1$ hypothesized that the three categories of gratifications were positively related to civic engagement. As shown in Table 4, gratifications for technological convenience (accessibility), information exchange (cognition needs), and social interaction (affection and recognition needs) were all significantly and positively related to online and offline engagement. Thus, $H_{1a}$, $H_{1b}$, and $H_{1c}$ were all supported. As to $RQ_2$, fashion/status maintained a significant relationship with all levels of civic engagement, but entertainment failed to establish this association.

For $H_2$, as shown in Table 3, all three indicators in civic attitude were significantly related to SNS use on mobile devices. In particular, confidence in charitable organizations ($r = .11$, $p < .01$) and self-efficacy ($r = .18$, $p < .001$) were significantly and positively related with the frequency of SNS use on mobile devices. Civic identity and self-efficacy were positively related to the amount of posting and amount of reading. Thus, $H_2$ was largely supported.

For $H_3$, Table 4 shows that there was a significant relationship between confidence in charitable organizations and offline engagement ($r = .18$, $p < .001$); self-efficacy was positively related to online engagement ($r = .27$, $p < .001$) and offline engagement ($r = .27$, $p < .001$). However, no significant relationships were found between civic identity and online or offline engagement. Thus, $H_3$ was only partially supported.

Finally, bivariate results in Table 4 suggest all SNS uses on mobile device indicators (frequency of use, amount of posting, and amount of reading) were significantly correlated with online and offline engagement, which fully supported $H_4$.

## Predicting SNS use on mobile devices

Table 3 shows the hierarchical regression analysis, in which demographic variables were entered first, followed by gratifications-sought predictors secondly and civic attitudes lastly. Results revealed that gratifications-sought were the most powerful block in

**Table 3.** Hierarchical regression analyses of social network service (SNS) use on mobile devices.

| | SNS use on mobile devices (composite) | | Components | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | | Frequency of use | | Amount of posting | | Amount of reading | |
| | *r* | β | *r* | β | *r* | β | *r* | β |
| **Block 1:** **Demographics** | | | | | | | | |
| Gender (Female = 1) | .10** | .06 | .04 | .02 | .08* | .05 | .10** | .06 |
| Age | .01 | .03 | .10** | .07 | −.01 | .01 | −.04 | .01 |
| Education | .00 | .07* | .14*** | .16*** | −.02 | .04 | −.06 | .01 |
| △$R^2$ | | .01* | | .02** | | .01 | | .01** |
| **Block 2:** **Gratifications-sought** | | | | | | | | |
| *Technological convenience* | | | | | | | | |
| Accessibility | .24*** | .24*** | .11** | .10** | .20*** | .20*** | .23*** | .24*** |
| *Information exchange* | | | | | | | | |
| Cognition needs | .21*** | .22*** | .01 | .02 | .16*** | .17*** | .28*** | .27*** |
| *Social interaction* | | | | | | | | |
| Affection | .29*** | .28*** | .03 | .05 | .27*** | .26*** | .31*** | .30*** |
| Recognition needs | .15*** | .13*** | .18*** | .15*** | .15*** | .13*** | .06 | .06 |
| *Recreation* | | | | | | | | |
| Entertainment | .02 | .02 | −.09* | −.10** | .01 | .01 | .08* | .08** |
| Fashion/status | .14*** | .11*** | .05 | .01 | .16*** | .14*** | .09* | .09** |
| △$R^2$ | | .23*** | | .07*** | | .19*** | | .24*** |
| **Block 3: Civic attitudes** | | | | | | | | |
| Confidence in charitable organizations | .08* | .00 | .11** | .09** | .07 | −.01 | .04 | −.04 |
| Civic identity | .16*** | .04 | .03 | .03 | .14*** | .03 | .19*** | .04 |
| Self-efficacy | .17*** | .10** | .18*** | .12*** | .16*** | .09* | .08* | .04 |
| △$R^2$ | | .01* | | .02*** | | .01 | | .01 |
| $R^2$ | | .25 | | .11 | | .21 | | .26 |
| Total Adjusted $R^2$ | | .24 | | .09 | | .19 | | .24 |

Figures are Pearson's *r* and standardized beta-coefficient. Beta weights are from final regression equation with all blocks of variables in the model. Variables coded, or recoded, as follows: gender (1 = female, 0 = male); *N* = 760.
***$p$ < .001; **$p$ < .01; *$p$ < .05.

predicting the composite level of SNS use on mobile devices. Specifically, three additional regressions were run to test the relationships between the gratifications-sought

**Table 4.** Hierarchical regression analyses of civic engagement.

| | Civic engagement (composite) | | Components | | | |
| --- | --- | --- | --- | --- | --- | --- |
| | | | Online engagement | | Offline engagement | |
| | *r* | β | *r* | β | *r* | β |
| **Block 1: Demographics** | | | | | | |
| Gender (Female = 1) | .03 | −.01 | .03 | −.01 | .04 | .00 |
| Age | .05 | .02 | .03 | .01 | .06 | .03 |
| Education | .08* | .08* | .07 | .07 | .08* | .08* |
| △$R^2$ | | .01 | | .01 | | .01 |
| **Block 2: Gratifications-sought** | | | | | | |
| *Technological convenience* | | | | | | |
| Accessibility | .15*** | .08* | .15*** | .09** | .12*** | .05 |
| *Information exchange* | | | | | | |
| Cognition needs | .15*** | .14*** | .17*** | .15*** | .12*** | .11** |
| *Social interaction* | | | | | | |
| Affection | .09* | .05 | .09* | .06 | .08* | .04 |
| Recognition needs | .23*** | .13*** | .22*** | .13*** | .21*** | .12*** |
| *Recreation* | | | | | | |
| Entertainment | −.03 | −.01 | −.02 | .00 | −.04 | −.02 |
| Fashion/status | .17*** | .09** | .16*** | .08* | .16*** | .08* |
| △$R^2$ | | .14*** | | .14*** | | .11*** |
| **Block 3: Civic attitudes** | | | | | | |
| Confidence in charitable organizations | .12*** | .07* | .06 | −.00 | .18*** | .13*** |
| Civic identity | .04 | −.02 | .05 | −.01 | .02 | −.02 |
| Self-efficacy | .29*** | .18*** | .27*** | .17*** | .27*** | .17*** |
| △$R^2$ | | .05*** | | .04*** | | .05*** |
| **Block 4: SNS use on mobile devices** | | | | | | |
| Frequency of use | .31*** | .18*** | .29*** | .16*** | .30*** | .17*** |
| Amount of posting | .32*** | .15** | .32*** | .16*** | .27*** | .11* |
| Amount of reading | .25*** | .02 | .27*** | .02 | .21*** | .01 |
| △$R^2$ | | .06*** | | .06*** | | .05*** |
| $R^2$ | | .25 | | .25 | | .22 |
| Total adjusted $R^2$ | | .24 | | .22 | | .21 |

Figures are Pearson's *r* and standardized beta-coefficient. Beta weights are from final regression equation with all blocks of variables in the model. Variables coded, or recoded, as follows: gender (1 = female, 0 = male); $N$ = 760.
***$p < .001$; **$p < .01$; *$p < .05$.

and frequency of use, amount of posting and amount of reading. Results showed that accessibility was significantly linked to all dimensions of SNS use on mobile devices: frequency of use (β = .10, $p < .01$), amount of posting (β = .20, $p < .001$), and amount

of reading ($\beta$ = .24, $p$ < .001). This means that gratifications for convenience are driving motives of mobile technology. Cognition needs, the gratifications for information exchange, were significantly connected to amount of posting ($\beta$ = .17, $p$ < .001) and, in particular, to amount of reading ($\beta$ = .27, $p$ < .001). Affection held strong predictive power at both amount of posting ($\beta$ = .26, $p$ < .001) and amount of reading ($\beta$ = .30, $p$ < .001). Recognition needs were significant predictors of both frequency of use ($\beta$ = .15, $p$ < .001) and amount of posting ($\beta$ = .13, $p$ < .001). These suggested that gratifications for social interaction can motivate interpersonal discussion by strengthening social network ties. By comparison, gratifications for recreation (entertainment and fashion/status) were weaker predictors of SNS use on mobile devices.

As to the predictive role of civic attitudes, the results also showed that self-efficacy was a significant predictor of the composite level of SNS use on mobile devices ($\beta$ = .10, $p$ < .01). In particular, self-efficacy was also a significant predictor of frequency of use ($\beta$ = .12, $p$ < .001) and amount of posting ($\beta$ = .09, $p$ < .05). In addition, confidence in charitable organizations significantly predicted frequency of use ($\beta$ = .09, $p$ < .01).

Demographically, education was an important predictor of the composite level of use of SNSs on mobile devices ($\beta$ = .07, $p$ < .05). Specifically, education significantly predicted frequency of use ($\beta$ = .16, $p$ < .001). Thus, better-educated people tend to use SNSs on mobile devices more frequently.

## Predicting civic engagement

In predicting the composite level of civic engagement, we employed hierarchical regression analysis again. Four blocks were entered, beginning with demographic variables, then gratifications-sought in block 2, civic attitudes in block 3, and factors of SNS use on mobile devices in the last block. Results in Table 4 indicate gratifications-sought was the most important block, explaining 14 percent of variance. Accessibility ($\beta$ = .08, p < .05), cognition needs ($\beta$ = .14, $p$ < .001), recognition needs ($\beta$ = .13, $p$ < .001), and fashion/status ($\beta$ = .09, $p$ < .01) were significant predictors of civic engagement at the composite level. Specifically, cognition needs, recognition needs, and fashion/status were significant predictors of both online and offline engagement. Accessibility was also a significant predictor of online engagement ($\beta$ = .09, $p$ < .01).

SNS use on mobile devices was the second important block, in which two factors, frequency of use ($\beta$ = .18, $p$ < .001) and amount of posting ($\beta$ = .15, $p$ < .01), significantly predicted the composite level of civic engagement. Specifically, they also predicted online and offline engagement. However, the amount of reading was not a significant predictor of the composite and components of civic engagement.

Confidence in charitable organizations ($\beta$ = .07, $p$ < .05) and self-efficacy ($\beta$ = .18, $p$ < .001), as two dimensions of civic attitudes, were significant predictors of the composite level of civic engagement. This indicates that the more confidence in charitable organizations, and the higher the level of self-efficacy people have, the more frequently they participate in civic activities. Particularly, self-efficacy maintained the same predictive role on online and offline engagement ($\beta$ = .17, $p$ < .001), while confidence in charitable organizations significantly predicted offline engagement ($\beta$ = .13, $p$ < .001).

Demographically, only education had a weak predictive role on the composite level of civic engagement ($\beta = .08$, $p < .05$) and offline engagement ($\beta = .08$, $p < .05$). Thus, the more educated people are, the more frequently they participate in civic activities, especially in an offline setting.

## Discussion

Contextualized in an ongoing public case, this study examined how gratifications-sought, civic attitudes, and SNS use on mobile devices associate with civic engagement. It not only brought new insight to U&G theory, but also provided first-hand evidence of the status quo of civic engagement in Mainland China.

Firstly, our study revealed a unique pattern of gratifications of SNS use on mobile devices. This finding can strengthen our understanding of the gratification model in new media adoption. Among them, accessibility was the motive brought by mobile technology, but the eigenvalue in Table 1 suggested that it was not the strongest factor compared to others such as cognition needs, affection, fashion/status, and recognition needs. The latter types of psychological needs were emphasized in previous research on Internet and SNS use (e.g. Leung, 2006, 2009). Similarly, in Wei and Lo's (2006) study of cell phone use and connectedness, accessibility explained the least variance in factor analysis of gratification items. However, in predicting SNS use on mobile devices, accessibility acted as the second important factor. This result suggested that accessibility, brought by the new mobile technology, can well support and complement the basic motives in people's daily lives.

Entertainment needs was only positively related to the amount of reading. This factor even maintained a negative relationship with frequency of use. This result may reflect certain weaknesses of recent mobile technology in facilitating people's diverse use, which is manifest in situations including the typing of sentences and the posting of multimedia messages.

Secondly, we not only illustrated how gratification factors related to SNS use on mobile devices, but also extended the U&G approach by testing how these factors linked to civic engagement. We found that cognition needs (the gratifications for information exchange) and recognition needs (one gratification of social interaction) are pivotal motives in connecting individuals to civic activities. Information-oriented motives promote an increase in civic knowledge and awareness of public issues in the community. Recognition needs foster social belonging and interpersonal support, which can strengthen community connections and encourage civic actions.

Accessibility was another significant predictor of civic engagement, especially online engagement. This motive highlighted the importance of timeliness in civic issues. The more individuals can synchronously recognize social changes and exchange ideas, the more they are likely to discuss and even participate in ongoing public events anytime, anywhere. SNS use on mobile devices offers opportunities for synchronous sharing and discussion, which assists people in responding immediately and conveniently to public events.

Fashion/status, unexpectedly, was also a significant predictor of civic engagement, which implied that catching up on the latest social trend with majority others stimulated

individuals' attention and interaction on current events. In this sense, fashion/status is not only a type of recreational gratifications, but also reflects the motive of social connection. Entertainment was not a significant predictor of civic engagement. This result was more likely to support the argument that entertainment may distract individuals' attention to civic engagement (e.g. Shah et al., 2001). Another gratification factor that cannot predict civic engagement was affection. Since affection needs concentrate on private relations between close-tie friends, its connection to public activities is somewhat weak.

Thirdly, SNS use on mobile devices and a component (amount of posting) can significantly predict civic engagement. This indicated that online participation can positively foster offline activities as previous studies have shown (e.g. Wellman et al., 2001). However, amount of reading was not significantly related to civic engagement, at the composite level and the two components (online and offline). We may need to distinguish different types of online behavior. Certain actions, such as passively receiving information from others, cannot successfully predict effective civic engagement.

In addition, our findings indicated that civic attitudes were the indispensable factor in evaluating adoption of mobile technology. In particular, civic identity and self-efficacy significantly associated with SNS use on mobile devices. This indicated that although gratification factors can point out internal motives, researchers should also integrate the U&G theory with other critical variables, such as existing attitudes, knowledge, and competence, in order to achieve more comprehensive understanding of new media adoption in a specific social event.

The critical role of civic attitudes in civic engagement was also demonstrated. Self-efficacy and confidence in charitable organizations were significant predictors. However, we found that civic identity was not significantly related to civic engagement. Two reasons may explain this controversial result. Firstly, our respondents, university students, are still in an unstable stage of civic identity development. For example, Spencer (2011) suggested that young Americans have difficulty in developing their American identity, since they have contradictory experiences in daily events. Secondly, some scholars argued that the reform and opening up of China have brought tremendous social changes (Liu and Wang, 2010), which led to crises in identity of citizenship. In this context, unstable identity status may not bring a significant relationship between civic identity and civic engagement in contemporary China.

Lastly, this study showed that, in general, Chinese citizens lack confidence in charitable organizations, hold a relatively low level of self-efficacy and maintain weak intention for civic engagement. Non-profitable organizations (such as the RCSC) in China have close relations with the government, and this quasi-official nature greatly discourages citizens' confidence and trust. In addition, since criticizing governmental departments (including organizations with a strong government background) is a sensitive topic, many citizens hesitate in showing their attitudes in mainstream channels. Nevertheless, new media technology has brought alternative opportunities for Chinese citizens. SNS use on mobile devices is a typical example. It effectively links individuals' social–psychological motives and social behavior. SNS use can significantly facilitate citizens' online expression, and even offline action.

## Limitation and suggestions for future research

Several limitations must be discussed. Firstly, previous studies showed that a reciprocal relationship exists between civic attitudes and engagement (Gastil and Xenos, 2010). However, in this study, we emphasized only how civic attitudes linked to civic engagement using a cross-sectional sample. Hence, evidence on how behavior over time may lead to attitudes change is lacking. Future studies should focus on this attitude–behavior relationship in longitudinal research.

The second limitation is that this study did not include non-mobile users, who access SNSs only through fixed devices (e.g. desktop computers), and compare them with mobile device users. The difference between these groups of people may reveal interesting characteristics of individual technology adoption.

Finally, this study concentrated on three prosperous cities in Southeast China, which may not fully reflect the general situation in China. In addition, the sampling objects were only university students because of time and financial constraints. Since civic engagement is an issue related to all citizens, attitudes and behavior across generations should be included in future studies.

## Funding

## Notes

1. Mobile devices, also known as mobile Internet devices, are equipped with wireless capabilities, for example 2G/3G telecommunication or Wi-Fi technology, which enable Internet connections. Mobile devices in Mainland China include cell phones (with wireless capability), smartphones, and tablets.
2. Tencent, Netease, Sohu, and Phoenix are the most popular microblog platforms in today's China, which share similar functions with Twitter. Renren, Kaixin, Pengyou, and Douban websites are the most frequently used SNSs in Mainland China, like Facebook in the United States.

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