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CELEBRITY-FOLLOWING AND SOCIAL CAPITAL: A STUDY OF USER BEHAVIOR IN MICROBLOGGING

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Abstract

In recent years, microblogging has emerged as a disruptive new force in social networking. Unlike the bi-directional relationships on traditional SNS sites (such as Facebook), connections on most microblogging platforms (such as Twitter) is one-directional, by which users choose others to "follow" and each user has her own group of "followers". Such asymmetric relationships are particularly ubiquitous between celebrities and their fans. This study investigated the impacts of microblogging users' various celebrity-following activities from a social capital perspective. The results of a large-scale survey provided supportive evidence to our theoretical research model, i.e., microblogging users' one-directional celebrity-following activities could increase their perceived social capital and such influences are mediated by their parasocial interactions with the celebrities.

1.   INTRODUCTION

Social networking has become one of the most popular online activities worldwide. Social Networking Servicing (SNS)[1] websites now reach 82 percent of the world's online population, representing 1.2 billion users around the world. Besides, SNS websites are ranked as the most popular content category---nearly 1 in every 5 minutes spent online is now spent on SNS sites (comScore 2011).

In recent years, microblogging has emerged as a disruptive new force in social networking. Microblogging sites, which adopt a style of communicating through short-form content, have become an extremely popular social networking platform. For instance, Twitter reaches 1 in 10 Internet users worldwide and posts an impressive growth rate of 59 percent over 2010 (comScore 2011).

Although microblogging sites, together with earlier social networking sites such as Facebook, fall into the general category of SNS sites, the connections built on these two types of websites differ significantly. Connections on Facebook are labeled as "friends", which are based on a bi-directional confirmation mechanism. For example, when a Facebook user receives a connection request from another user, acknowledging the request will make both parties appear on each other's friends list. As a result, most Facebook relationships are mutual and reciprocal. In contrast, connections on Twitter are labeled as "followers". Based on Twitter's one-directional confirmation mechanism, users choose others to "follow" and each user has her own group of "followers". There is neither a technical requirement nor social expectation of reciprocity (Marwick & boyd 2011).

When examining the "following vs. followed" relationships on Twitter and other microblogging sites, we noticed a consistent and interesting phenomenon: besides some well-known organizations, the most followed microblogging users are usually conventionally famous people or celebrities, such as actors, pop stars, authors, and politicians. For example, the top ten most followed users on Twitter are all celebrities[2], ranging from Lady Gaga (more than 20 million followers) to Selena Gomez (more than 10 million followers). In China, nine out of the top ten most followed accounts on Sina Weibo[3] belong to celebrities[4] (the only exception is the official microblog account of the National Basketball Association (NBA)).

Unlike Facebook by which most people use to maintain existing offline relationships or solidify offline connections rather than meeting new people (Ellison et al. 2007), on Twitter and other microblogging sites many users follow celebrities whom they do not make acquaintance personally (boyd 2006). They can now read, forward, and post comment on what celebrities said or what other followers remarked. However, due to the one-directional nature of microblogging relationships, researchers observed that even though celebrities have lots of comments flowing in, most of these comments had not been replied (Offenhuber & Donath 2008). The other evidence supporting the wide existence of this relational asymmetry is that the majority of those most-followed celebrities, despite having millions of followers, only follow a few thousands or even hundreds other users.

This asymmetric pattern raises an intriguing research question: given that most non-celebrity users are fully aware that their comments are highly unlikely to be read and responded by the celebrities and neither it is much possible for celebrities to follow back, what benefits could they derive from these connections? In this study, we investigated this question from a social capital perspective. More specifically, we attempted to find out for those celebrity-following microblogging users, whether or not the perceptions of direct access to a famous person's disclosure of his or her personal life,

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[1] According to boyd and Ellison (2008), SNS is defined as a web-based service that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system.
[2] According to http://twittercounter.com/pages/100, retrieved on March 16, 2012.
[3] Sina Weibo is the leading Chinese microblogging site which ranks as the tenth largest social network globally (comScore 2011).
[4] According to http://data.weibo.com/top/hot/all, retrieved on March 16, 2012.

including status updates, first-person pictures, or opinionated statements could contribute to their perceptions of social capital.

Previous studies have found that the usage of SNS sites could significantly improve users' perceived social capital (Ellison et al. 2007; Steinfield et al. 2008), which refers to the resources accumulated through relationships among people (Coleman 1988). However, almost all those studies focus exclusively on bi-directional SNS sites such as Facebook. Given that one-directional ties constitute a significant portion of interpersonal connections on microblogging sites, it is necessary to study the potential impacts of those one-directional relationships so that we can have a more complete understanding on people's differing motivations of using various types of SNS websites as well as how their usage behaviors could shape their perceived social relationships with others.

Using the connections between celebrities and their fans on microblogging sites as a typical instance of one-directional relationship, the present study attempted to fill this gap by investigating whether or not microblogging users' celebrity following activities contribute to their perceived social capital. Besides, it further revealed the underlying mechanism by proposing parasocial interaction, an extensively studied construct in mass communication literature, as a mediator.

The rest of this paper proceeds as follows: Section 2 reviews literatures about the two key theoretical concepts of this paper, namely social capital and parasocial interactions. Section 3 proposes the research model and elaborates on our research hypotheses. The data collection process is described in Section 4 and data analysis results reported in Section 5. Finally, Section 6 discusses the contributions of this study as well as directions for future research.

2.   LITERATURE REVIEW

2.1   Social Capital Theory

Social capital broadly refers to the value of social relationships that people can use to get collective or economic results (Coleman 1988). It is defined as "*the sum of the resources, actual or virtual, that accrue to an individual or a group by virtue of possessing a durable network of more or less institutionalized relationship of mutual acquaintance and recognition*" (Bourdieu & Wacquant 1992). Another widely-accepted definition by Putnam (2000) considers social capital as social networks and their associated norms of reciprocity, implying that it is both the network and the effect of the network.

According to Putnam (2000), there are two kinds of social capital, namely bridging social capital and bonding social capital. Bridging social capital, which is also known as "weak ties" (Granovetter 1973), occurs when individuals from different backgrounds make connections between social networks. By contrast, bonding social capital only occurs when individuals in emotionally close relationships, such as family members and close friends, provide emotional or substantive support for one another.

Researchers have found that social capital positively correlates with psychological well-being, such as self-esteem (Bargh & McKenna 2004), satisfaction with life, and personal health (Helliwell & Putnam 2004). More specifically, bridging social capital is valuable in acquiring useful information, providing new perspectives, and fostering the diffusion of innovation. Comparatively, bonding social capital, which is characterized by continued reciprocity, provides strong emotional and substantive support and enables mobilization (Putnam 2000).

As people spend more time online, researchers have sought to understand the social networks formed online. Online activities are found to enhance community communication, engagement, and attachment (Hampton & Wellman 2003). These online social interactions not only occur in a new way of communication, but also parallel with offline "real" life (Williams 2006). Williams (2006) further extends the bridging vs. bonding social capital framework to the online context and develop a set of Internet Social Capital Scales.

The popularity of SNS websites provides a new perspective for online social capital studies. Most SNS websites, through displaying a representation of each user (often a profile) as well as his/her social links, focus on building and reflecting of social networks or social relations among people. Researchers are intrigued by the impacts of online users' various SNS usage activities on their perceived social capital. For example, Ellison et al. (2007) examined the relationship between general use of SNS and bridging/bonding social capital. They found that SNS usage is positively associated with perceived social capital. Their subsequent longitudinal study further substantiated that such correlation is in fact a cause and effect relationship (Steinfield et al. 2008). Besides general usage of SNS sites, the usage intensity of specific website features, such as Facebook Groups, are also found to promote social capital (Valenzuela et al. 2009).

However, most SNS studies have focused on the bi-directional social connections on traditional SNS websites, such as Facebook and MySpace. There is very little empirical research targeting the one-directional "following" relationship on microblogging sites. Therefore, the potential implications of one-directional activities on microblogging users' perceived social capital still remain unknown and warrant further research.

2.2   Parasocial Interaction

The concept of parasocial interaction is first defined by Horton and Wohl (1956) and was broadly used in mass communication research since early 1970s (Giles 2002). Parasocial interaction refers to the processes and outcomes of how mass media users connect to and develop relationships with various types of representations of humans appearing in the media (also known as "media figures"). It is found that media users tend to feel that they have formed bonds of intimacy as they view media figures on mass media over time. They could even develop interpersonal involvement by imaging their appearance with personae on the stage, looking forward to meet them personally (Horton & Wohl 1956).

According to the PSI theory, parasocial interaction is a kind of asymmetrical interpersonal communication because the media figures' actions can be viewed by media users but not the other way around (Rubin & McHugh 1987; Rubin et al. 1985; Rubin & Perse 1987). Even though such one-directional and asymmetrical relationship is significantly different from reciprocal social interactions, most media research has consistently revealed that media users, during their course of developing a parasocial relationship with a media figure, have a psychological processes very similar to those found in face-to-face relationships. More interestingly, media users seem to be willing to accept the existence of such non-reciprocal one-directional relationship and do not require feedback (Giles 2002).

In mass communication literature, researchers have studied various kinds of media figures (also known as "personae"), including TV newscasters (Rubin et al., 1985), soap characters (Rubin & Perse 1987), comedians (Auter 1992), TV shopping hosts (Stephens et al. 1996), favorite television personalities (Rubin & McHugh 1987; Turner 1993), and political candidate (Thorson & Rodgers 2010). In the present study, we selected celebrities who are actively using microblogging as the target media personae. Through their microblogging practices, most celebrities would disclose an amount of private information including their personal interests, working progress, and all kinds of trivia by posting textual contents, pictures, and even videos. Although on some rare occasions, a celebrity may directly respond to followers' comments or requests, most communications between a celebrity and his or her followers are still unilateral, which conforms to the definition of parasocial interaction.

3.   HYPOTHESE DEVELOPMENT

Prior research on Facebook usage has found a strong positive association between college students' use of social network sites and the formation and maintenance of bridging and bonding online social capital (Ellison et al. 2007). Researchers tend to believe that SNS websites could serve to lower the barriers and costs of initiating and maintaining social communications with others. If this is true, it is reasonable to expect that microblogging websites, as a specific category of SNS sites, could fulfill

similar purposes when people use them to connect with their family members, friends, and other existing social connections. However, a significant part of the "following" relationships on microblogging sites are not mutual, in particular those between celebrities and their fans. Microblogging users also spend a lot of time on various celebrity-following activities, such as reading, forwarding (retweeting), or commenting on the microblogs posted by celebrities who are highly unlikely to reciprocate as a "normal" friend. These activities as well as their consequences are significantly different from the bi-directional social interactions in traditional interpersonal communications but quite similar to the parasocial interactions with media personas.

Building upon parasocial interaction theories and relevant literature of social capital, we propose in this paper that the more time a user spend on following celebrities on microblogging sites, the more likely she will develop a parasocial relationship with those celebrities and deem them as if they were part of her social life. Consequently, her perceived online social capital would also increase. Figure 1 summarizes the research framework and hypotheses. We will elaborate our hypotheses for bridging and bonding social capital separately.
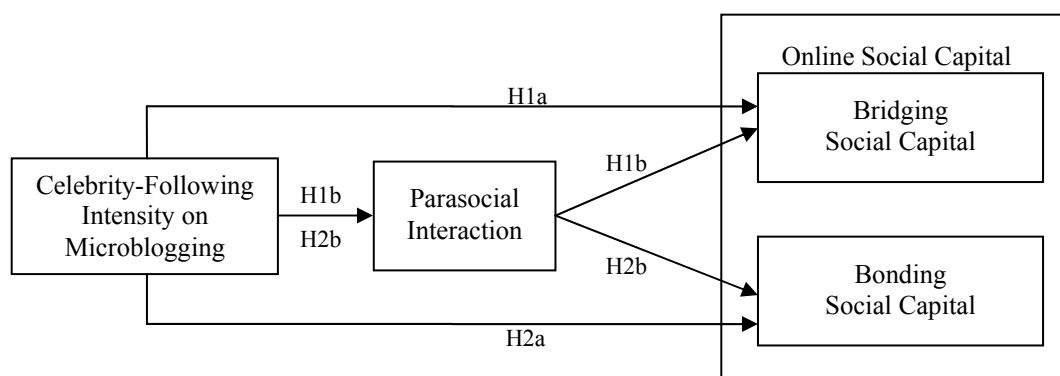

Figure1   The Research Model

3.1   Bridging Social Capital

Previous research in mass communication has found that parasocial relationship with TV personalities can be encouraged by using conversational style and gestures within informal face-to-face settings that mirror interpersonal communication and invite interactive responses (Horton & Wohl 1956; Meyrowitz & van Dam 1982; Nordlund 1978). Likewise, on microblogging platforms, celebrities (or their social media delegates) choose to reveal what appears to be personal information so as to create a sense of intimacy between them and their followers. The occasional typos as well as the interactions with other celebrities also give an impression of candid, uncensored looks of a "real" person (Marwick & boyd 2011).

By following a celebrity on microblogging, users can now maintain awareness of this person's activities and status (despite the fact that such information may be selectively disclosed), which not only creates an illusion that they know a lot of about the celebrity as real-world person but also generates a feeling of privilege and appreciation because they receive information of that celebrity as soon as or even before official press representatives (Kaplan & Haenlein 2011).

Parasocial interaction has been viewed as a consequence of extended media exposure (Horton & Wohl, 1956). Perse and Rubin (1989) show that the length of exposure to the soap opera character influences the development of parasocial interaction through increased attributional confidence. Greenwood (2008) also found that increased TV viewing hours can predict greater parasocial involvement with favorite characters. Therefore, it is reasonable to expect that the more time a user spend on various celebrity-following activities, the more likely she will develop parasocial interactions with those celebrities. By following those celebrities constantly, she will not only be fed

with a stream of personal and trivial updates from the target but also get such information in a real-time manner. Gaining access to this kind of information that is originally only available to the celebrities' real-life acquaintances generates an illusion of "knowing" these people and consequently, the feeling of possessing a broadened social network. In other words, over a period of time, the follower would very likely perceive a higher level of bridging social capital.

Based on these discussions, we expect that users' celebrity following activities would positively impact their perceived online bridging social capital. However, given that microblogging users would not perceive those celebrities as part of their social capital network unless a parasocial relationship with those celebrities could be developed, we propose that parasocial interaction plays a mediating role in the relationship between celebrity-following intensity and online social capital. Therefore, we posit that:

H1a: The intensity of users' celebrity following activities on microblogging websites has a positive effect on their perceived online bridging social capital.

H1b: Parasocial interaction mediates the effect of celebrity-following intensity on online bridging social capital.

3.2   Bonding Social Capital

Bonding social capital occurs when strongly tied individuals, such as family and close friends, provide emotional or substantive support for one another. For most people, celebrities would not be considered as "strong ties" due to the lack of social interactions and emotional bonding. Nonetheless, previous research showed that closer perceived relationship might be also induced by parasocial interactions. For example, research on TV viewing found that certain product techniques, such as close-up shots and camera zooms, could promote a sense of intimacy (Horton & Wohl 1956). Likewise, some microblogging practices by the celebrities could do a similar job. For example, Marwick and boyd (2011) found that by sharing language, words, cultural symbols, and conventions with their Twitter fans, celebrities can create an feeling of affiliation among their followers. Besides, the many seemingly insignificant messages posted by celebrities, although not delivering meaningful information, can serve a social function and create a sense of closeness and familiarity. In addition, parasocial interaction is perceived as "safer" than face-to-face interaction because there is little to no risk of rejection, in particular for people with relatively low self-esteem (Derrick et al. 2007).

As mentioned above, we expect that the intensity of users' celebrity following activities is positively related to their perceptions of parasocial interaction. In particular, while parasocial interactions with traditional media figures are largely imaginary and take place primarily in the mind, on microblogging platforms it might still be possible for fans to get some feedback from the followed celebrities (most celebrities would respond to follower's comments or questions occasionally). The mere possibility of developing a bi-directional social relationship also contributes to the development of parasocial interaction. As the followers develop parasocial relationship with a celebrity, the status updates and other information posted will be perceived as if the celebrity is communicating directly with each individual follower, resulting in stronger feeling of intimacy as well as higher level of emotional bonding.

Based on these discussions, we expect that the intensity of users' celebrity following activities would positively impact their perceived online bonding social capital while parasocial interaction would again play a mediating role. Therefore, we posit that:

H2a: The intensity of users' celebrity following activities on microblogging websites has a positive effect on their perceived online bonding social capital.

H2b: Parasocial interaction mediates the effect of celebrity-following intensity on online bonding social capital.

4.   RESEARCH METHOD

4.1   Samples and Procedure

To analyze the interrelationships between microbloggers' celebrity-following intensity, their perceptions of parasocial interactions, as well as their perceived social capital, we designed and conducted a web-based survey containing scales for all these constructs and other demographic and control variables. The survey was hosted on Qualtrics (http://www.qualtrics.com), an online survey hosting site. Through online and offline campus advertisement, undergraduate and graduates students at two large public universities in China were recruited in exchange for a $5 gift certificate. To ensure that the respondents are experienced microblogging users and to avoid the "new user" bias, only those who have used microblogging for at least three months were recruited. The students who were interested in and qualified for taking the survey were invited to a behavior lab where they completed an online questionnaire.

4.2   Measures

In this study, parasocial interaction was measured by a 19-item scale adapted from the study by Rubin et al. (1985). Responses to these items were all recorded on seven-point Likert scales (1 = "strongly disagree"; 7 = "strongly agree"). Before answering the questions, respondents were first asked to provide the names of three celebrities that they were currently following on microblogging. They were then asked to evaluate their parasocial interactions with all celebrities they are currently following (as a whole) on microblogging. Users' online bridging social capital and bonding social capital were respectively measured by ten items adapted from the Internet Social Capital Scales by Williams (2006). Because celebrity-following behaviors on microblogging is relatively new, we developed a seven-item scale by asking respondents the frequencies of various celebrity-following activities as well as the amount of time they spent on these activities. In addition, as most microblogging users also use this service to communicate with their real-world acquaintances, the activities of which could directly contribute to their perceptions of online social capital, respondents' general microblogging usage intensity was measured as a control variable. Measures for this construct were adapted from the scale of Facebook use intensity developed by Ellison et al. (2007), which consists of the amount of time spent on microblogging on a typical day, the numbers of followings and followers, and the level of agreement with several statements gauging users' emotional attachment to microblogging. All measurement items are listed in Appendix A.

5.   RESULTS

A total of 262 completed responses were collected, which consist of 109 men and 152 women. Their age ranges from 13 to 54 (Mean=23.89, SD=4.59). 91.7% of the respondents are users of Sina Weibo[5], the most popular microblogging service provider in China. 79.7% of the respondents login to their microblogging accounts at least once per day. On average, the respondents spent about 45 minutes per day on microblogging and had been using microblogging for 12 months.

Among the 262 respondents, 241 of them follow celebrities on microblogging while the rest 21 don't do so. Before proceeding to the formal test of our hypotheses on those celebrity followers, we tried to find out whether or not there are any systematic differences between celebrity-followers and non-followers. Table 1 presents the results of t-test and chi-square test between these two groups of

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[5] As foreign microblogging services like Twitter, Plurk, and Google+ are censored in China, most Chinese users adopt local weibo (microblogging) services such as Sina Weibo and Tencent Weibo. Tailored to Chinese people, these microblogging service providers implement basic features of Twitter and, allow users to comment to other's posts, post with graphical emoticons, or attach image, music, video files.

microblogging users on selected descriptive statistics. The results show that celebrity-followers and non-followers did not differ in terms of age, gender, and average time spent on microblogging per day. However, celebrity followers scored significantly higher on both the number of followings and followers, suggesting that they are more connected with other microblog users than non-followers.

	Celebrity-Follower (N=241)	Non-Follower (N=21)	Significance of Difference
Age	23.78	25.19	$t = -1.54$, n.s.
Gender (1=male, 2=female)	1.59	1.48	$\chi^2 = 1.106$, n.s.
Average time spent on microblogging per day (min)	46.64	32.86	$t = 1.62$, n.s.
Number of Following	117.22	45.24	$t = 6.68$, $p < .01$
Number of Follower	108.90	41.67	$t = 5.91$, $p < .01$

Table 1.   Comparisons between Celebrity Followers and Non-Followers

Means and standard deviations of the constructs are reported in Table 2. As the constructs of celebrity-following intensity and general microblogging usage intensity were measured by items of differing ranges, the individual items were standardized before taking an average to create the scales (Valenzuela et al. 2009). We first examined the reliability and validity of each construct. As shown in Table 2, all constructs met the benchmark of acceptable reliability (Cronbach's $\alpha > 0.70$) (Nunnally & Bernstein 1978). Construct validity was examined by checking whether or not the square roots of the AVE were greater than the correlations between the construct with other constructs (Barclay et al. 1995). As shown in Table 2, all constructs met this requirement as well.

	Mean	SD	Cronbach's Alpha	1	2	3	4
1. Celebrity-Following Intensity	0.00[*]	0.63	0.750	0.63[**]			
2. Parasocial Interaction	4.04	0.86	0.901	0.55	0.61[**]		
3. Online Bridging Social Capital	4.52	0.93	0.893	0.23	0.45	0.72[**]	
4. Online Bonding Social Capital	3.59	0.94	0.815	0.22	0.31	0.58	0.66[**]

[*]: Due to their differing range, individual items of this construct were standardized before taking an average. As a result, the mean value is zero.

[**]: The scores in the diagonal of the matrix are square roots of AVEs, while the lower triangle represents the correlations between constructs.

Table 2.   Construct Attributes

We used ordinary least squares (OLS) regressions to test the direct relationships between the intensity of celebrity-following and perceived online bridging and bonding social capital. As shown in Table 3, general usage intensity of microblogging is positively associated with both bridging and bonding social capital. As microblogging is a particular type of SNS, these findings provide new supportive evidences for the positive influences of SNS usage on people's social capital. More revealingly, after controlling for the effects of gender, age, and general microblogging usage intensity, celebrity-following intensity was found positively associated with both bridging and bonding social capital. Although the total variances explained by the regression models were relatively low ($R^2 = 0.092$ and 0.106, respectively), the contributions made by celebrity-following intensity to both components of social capital are statistically significant. Therefore, both H1a and H2a are supported.

	Bridging Social Capital			Bonding Social Capital		
	β	SE	t	β	SE	t
Gender	-0.086	0.119	-0.718	-0.312	0.121	-2.568[*]
Age	-0.039	0.017	-2.284[*]	-0.042	0.017	-2.421[*]
General Microblogging Usage Intensity	0.209	0.084	2.480[*]	0.178	0.086	2.074[*]

Celebrity-Following Intensity	0.250	0.097	2.567[*]	0.280	0.099	2.824[**]
R^2 (%)			9.2			10.6

[*]$p < 0.05$, [**]$p < 0.01$

Table 3.   OLS Regression Results

To investigate the mediating role of parasocial interaction, we first used the procedures suggested by Baron and Kenny (1986). The regression results in Table 4 show that the direct effects of celebrity-following intensity are significant on both bridging and bonding social capital ($p = 0.010$ and 0.005 respectively). However, after controlling for parasocial interaction, the effects of celebrity-following intensity became not significant ($p = 0.276$ and 0.659 respectively). These results suggest that parasocial interaction fully mediate the effects of celebrity-following intensity on both bridging and bonding social capital. To formally test the significance of these mediation effects, we then followed Preacher and Hayes' (2004) procedure and performed the Sobel test (Sobel 1982). The results indicate that the indirect effects of celebrity-following intensity are significant on both bridging social capital ($z = 5.597$, $p < 0.001$) and bonding social capital ($z = 3.355$, $p < 0.001$), lending additional evidence to the mediation effect of parasocial interaction. Therefore, our H1b and H2b are both supported.

Dependent Variable	R^2	Independent Variable	Standardized β	t	p-value
Online Bridging Social Capital	0.092	Celebrity-Following Intensity	0.171	2.567	0.011
Online Bonding Social Capital	0.106	Celebrity-Following Intensity	0.187	2.824	0.005
Parasocial Interaction	0.313	Celebrity-Following Intensity	0.554	9.552	< 0.001
Online Bridging Social Capital	0.232	Celebrity-Following Intensity	-0.079	-1.092	0.276
		Parasocial Interaction	0.452	6.496	< 0.001
Online Bonding Social Capital	0.158	Celebrity-Following Intensity	0.034	0.442	0.659
		Parasocial Interaction	0.277	3.801	< 0.001

Table 4.   Mediation Test Results

6.   CONCLUSIONS

6.1   Discussions and Contributions

As more and more people use SNS websites to build up and maintain their social networks, it is interesting to understand how different genres of SNS sites fulfill users' various social needs. An interesting phenomenon on microblogging sites (such as Twitter) is that a significant part of the connections between users are one-directional ones, in particular between celebrities and their fans, which is significantly different from traditional SNS sites (such as Facebook) dominated by bi-directional social relationship. Based on the parasocial interaction theories in mass communication literature, this study attempted to explain the underlying mechanism of how such one-directional celebrity-following activities help microblogging users enhance their perceived online social capital. The results of a large-scale survey provided supportive evidence to our theoretical research model, i.e., microblogging users' celebrity-following activities could indeed increase their perceived social capital and such influences are mediated by their parasocial interactions with the celebrities being followed.

The present research makes several theoretical contributions. Firstly, to the best of our knowledge, this study is the first empirical research applying parasocial interaction theories in studying people's motivations to and gratifications from using SNS websites. Secondly, by focusing on the one-directional nature of microblogging relationships and relating the construct of parasocial interaction with social capital, this study provides a convincing explanation to the widespread celebrity-following phenomenon on microblogging sites. Thirdly, by attributing users' feelings of social capital increase derived from celebrity-following on microblogging to their parasocial relationships with media personae, the findings of our study implicate the possibilities of intentional manipulations by the celebrities (or their PR teams) through their microblogging practices.

6.2   Limitations and Future Research

This research also has several limitations. Firstly, most respondents of our survey are university students; however, according to a recent industry report (iResearch 2011), only 57% of the users of Sina Weibo have a bachelor's degree or above. Therefore, readers should be cautious to generalize our findings to a more diversified population. Secondly, due to the nature of cross-sectional study and the survey method, the cause-effect relationship between microblogging users' celebrity-following intensity and social capital could not be fully ascertained. In other words, we could not preclude an alternative interpretation that suggests a reverse causal relationship, i.e., people with more social capital tend to spend more time following celebrities on microblogging sites. Even though such a proposition is unlikely to hold from a theoretical perspective, a longitudinal study is still very much needed, just as what Steinfield et al. (2008) have done in their Facebook study.

Our study could be further extended in a few promising directions. For example, researchers may explore the extent to which users' perceived increase of online social capital would motivate them to continue using microblogging services. The other interesting research question would be what other variables besides parasocial interactions might have also mediated the impacts of users' celebrity-following activities on social capital.

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Appendix A. Measurement Items

● Celebrity-Following Intensity on Microblogging Websites

1. In the past 3 months, how often do you (1=never to 5=all the time):
   ✧ Checking the updates of those celebrities on microblogging sites?
   ✧ Forward the microblogs posted or forwarded by those celebrities?
   ✧ Reply to the microblogs posted or forwarded by those celebrities?
   ✧ Read other followers' replies to the microblogs posted or forwarded by those celebrities?
   ✧ Mention those celebrities by using @ in your own microblogs?
   ✧ Visit the homepage of those celebrities on microblogging sites?

2. On a typical day, how much time do you spend on following celebrities (by conducting the activities aforementioned) on microblogging websites? (0. no time at all, 1. less than 10min, 2. 10 to 30 min, 3. 30min to 1hr, 4. 1hr to 2hrs, 5. 2hrs to 3hrs, 6. more than 3 hrs)

● Parasocial Interaction

1. Their microblogs show me what they are like.
2. When they joke around with one another, it makes the microblogs easier to read.
3. When they show how they feel about some news, it helps me make up my own mind about this news.
4. I feel sorry for them when they post some "inappropriate" microblogs.
5. When I'm reading their microblogs, I feel as if I am part of their group.
6. I like to compare my ideas with what they say.
7. I see them as a natural, down-to-earth person.
8. They make me feel comfortable, as if I am with friends.
9. I like to check what they recently post on microblogging sites.
10. They keep me company when I read their microblogs.
11. I look forward to reading their recent microblogs.
12. If they switch to another microblogging site, I would use that microblogging site as well.
13. When they post microblogs, they seem to understand the kinds of things I want to know.
14. I sometimes make remarks and/or forward their microblogs.
15. If there were a story about them in others' microblogs, I would read it.
16. I miss seeing them when they do not post new microblogs for some reason.
17. I would like to meet them in person.
18. I think they are like an old friends.
19. I find them to be attractive.

● Online Bridging Social Capital

1. Interacting with people online makes me interested in things that happen outside of my town.
2. Interacting with people online makes me want to try new things.
3. Interacting with people online makes me interested in what people unlike me are thinking.
4. Talking with people online makes me curious about other places in the world.
5. Interacting with people online makes me feel like part of a larger community.
6. Interacting with people online makes me feel connected to the bigger picture.
7. Interacting with people online reminds me that everyone in the world is connected.
8. I am willing to spend time to support general online community activities.
9. Interacting with people online gives me new people to talk to.

10. Online, I come in contact with new people all the time.

- **Online Bonding Social Capital**

1. There are several people online I trust to help solve my problems.
2. There is someone online I can turn to for advice about making very important decisions.
3. There is no one online that I feel comfortable talking to about intimate personal problems.
4. When I feel lonely, there are several people online I can talk to.
5. If I needed an emergency loan of $200, I know someone online I can turn to.
6. The people I interact with online would put their reputation on the line for me.
7. The people I interact with online would be good job references for me.
8. The people I interact with online would share their last dollar with me.
9. I do not know people online well enough to get them to do anything important.
10. The people I interact with online would help me fight an injustice.

- **General Microblogging Usage Intensity**

1. About how many total followings do you have in your most-frequently-used microblogging account? (0. <=10, 1. 11-50, 2. 51 to 100, 3. 101-150, 4. 151-200, 5. 201-250, 6. 251-300, 7.301-400, 8. >400)
2. About how many total followers do you have in your most-frequently-used microblogging account? (0. <=10, 1. 11-50, 2. 51 to 100, 3. 101-150, 4. 151-200, 5. 201-250, 6. 251-300, 7.301-400, 8. >400)
3. On a typical day, how much time do you spend on microblogging? (0. no time at all, 1. less than 10min, 2. 10 to 30 min, 3. 30min to 1hr, 4. 1hr to 2hrs, 5. 2hrs to 3hrs, 6. more than 3 hrs)
4. Microblogging is part of my everyday activity
5. I am proud to tell people I'm using microblogging.
6. Microblogging has become part of my daily routine.
7. I feel out of touch when I haven't logged onto microblogging for a while.
8. I feel I am part of the microblogging community.
9. I would be sorry if microblogging websites shut down.