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Chinese Online Communities:
Balancing Management Control and Individual Autonomy

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ABSTRACT
Existing studies of online social communities mainly focus on communities in the United States. Since Chinese social beliefs and behaviors largely differ from that of Americans, we hypothesize that Chinese online communities also greatly differ from their U.S. counterparts. In particular, we believe that Chinese online communities must balance management control and individual autonomy to accommodate both Chinese tradition and the social nature of online societies. In this paper, we present three studies to validate our hypothesis. First, we use a structured observation (Study I) to examine community governance practices of 32 Chinese and American social sites. Based on the identified community governance practices, we use a cross-cultural survey of 208 Chinese and Americans (Study II) to learn about their behavior and attitude toward these practices. Finally, we interview 38 Chinese users (Study III) to help us further understand *how* Chinese online communities balance the needs of management and users. Not only do the studies confirm our hypothesis, but they also help us abstract two key design implications of social software to meet the needs of Chinese.

Author Keywords
Online communities, social software, online governance, community management, China

1. INTRODUCTION
In recent years, researchers have examined online communities extensively. There is however little in-depth study on understanding Chinese online communities, although China has emerged as a key player of the internet [6]. Previous study results obtained in other countries may not be generalized to China because of its unique "national culture" [13, 23]. Here, *national culture* refers to the commonly shared social beliefs and behaviors among the people belonging to a specific geographical region. Although a nation's culture rarely is monolithic, nor does it deviate from another completely, several studies have shown that national culture influences the behavior of online communities [1,22].

In the case of China, Chinese are taught to respect hierarchy and be aware of one's social status in such a hierarchy [13, 23]. Moreover, Chinese culture stresses inter-dependence and group solidarity and harmony [13]. Such hierarchical and collectivistic characteristics of Chinese national culture seem clashing with the democratic or sometime even anarchic nature of online communities [8].

Nonetheless, online social communities in China have flourished in recent years. We thus hypothesize that the success of Chinese online communities is their ability to bring together both Chinese national culture *and* the nature of virtual societies. In particular, Chinese online communities must maintain desired community order and harmony while supporting and motivating autonomous, grassroots participation. To do so, we further hypothesize that Chinese online communities must be carefully governed [21]. In this paper, we use the term *community governance* or *community management* to refer to the mechanisms used to manage and motivate the presence, status, and behavior of individual participants in a community and to provide community services (e.g., content recommendations).

To validate our hypothesis, we have designed and conducted three studies to examine Chinese online communities especially their community governance practices. Specifically, our first study compares community governance practices in 16 Chinese online communities and their 16 counterparts in the United States. To better understand the findings of our first study, we conduct two additional studies to examine the behavior and attitude of Chinese and Americans toward different governance practices.

To the best of our knowledge, our work is the first examination of Chinese online communities from their governance perspective. As a result, our work offers two unique contributions. First, we identify a set of key community governance features that distinguish Chinese online communities from their U.S. counterparts. Second, our work lends unique insights into Chinese online communities as how they operate to balance management control and individual autonomy. Moreover, we transfer these insights into design considerations of social software to suit Chinese society.

In the remainder of the paper, we first briefly discuss related work before reporting on our studies and their results. We then discuss the implications of our findings.

2. RELATED WORK
There is a large body of works on investigating various aspects of online communities. For example, there are studies on analyzing users' motivation to participate and contribute to virtual communities [2] and identifying the key factors that influence user participation [15]. There is also work examining social interaction patterns among community members at various sites, such as social networking sites (e.g., Facebook and MySpace) [10], and information-sharing sites (e.g., Flickr and Wikipedia) [14]. Like these studies, our focus is also on understanding the behavior of

online communities. However, unlike these studies, which usually focus on the social sites/communities in western countries, our focus is on Chinese online communities.

Considering the differences in national cultures, there are several studies that compare the user behavior of online communities across different countries. One study conducts interviews to understand information-sharing behavior in virtual communities in three countries: China, Russia and Brazil [1]. Their results show that cultural characteristics, such as modesty and competitiveness, impact information sharing differently in online communities of the three countries. Another study analyzes usage patterns of social networking services in four countries: the U.S., France, Korea and China [4]. The study finds that social networking behaviors in these four countries, including user goals and interaction patterns, differ from each other. For example, Chinese are less likely to share their real identity but care more about their online status than the Americans do. Compared to these studies, which focus mainly on examining *participants' behavior* in online communities, ours is on *community governance* and its influences on users.

3. STUDY OVERVIEW
To validate our hypothesis, we designed and conducted three studies. In our first study, we observed 32 online social sites in China and the United States and found their differences in four aspects of community governance: governance style, identity management, membership management, and community service. To substantiate our findings from a user's perspective, we then surveyed 208 users in both countries to examine user behavior and attitudes toward community governance along the four aspects. Our survey confirmed users' involvement and acceptance of the community governance practices under their own culture. To fully grasp the rationale behind the learned user behavior and attitudes, we performed the third study during which we interviewed 38 Chinese to further understand Chinese community governance practices in more detail.

4. STUDY I: STRUCTURED OBSERVATION
Structured observation is an effective approach to study online communities [3]. It suits our purpose of studying community governance practices, since key features of such practices are often made explicit at community websites (e.g., the existence of community managers).

To conduct structured observation, we first identified a subset of features to be observed (Table 1). To ensure the study coverage, we selected the features based on the twelve principles of social collaboration [16], which characterize online social sites from various aspects, including *purpose* (shared goal/interests), *identity* (how one identifies themselves), *environment* (site usability), and *trust* (who one can trust). For the scope of this work, we removed features that are difficult to observe (e.g., trust) or not directly related to our goal of studying community governance (e.g., site usability). As shown in Table 1, we also grouped these features into five main categories to facilitate result analysis.

4.1 Sites
First, we selected 16 Chinese sites by balancing two criteria: popularity ranking and diversity. As a result, our selection included some of the most popular Chinese social sites by 2007 Alexa [12] and Nielsen NetRanking [18], while covering the major types of Chinese social communities. We grouped these 16 sites into six categories by their goals. Based on the selected 16 Chinese sites, we then chose 16 *comparable* U.S. sites in each of the category (Table 2).

4.2 Method
We recruited three observers, all bilingual in Chinese and English, to observe each of the 32 sites. Following our observation guidelines, the three observers studied each site for about an hour per week from May to September 2008. The observation was an iterative process. At the end of each week, all three observers met and shared their results with each other. They also discussed and reconciled their differences in the results. Three types of data were collected: filled observation forms (Table 1), field notes (findings not covered in the observation forms, e.g. management stories), and site snapshots (e.g., homepages, registration steps, and posted management policies).

4.3 Results and Analysis
Based on Table 1, we coded the captured information for both the Chinese and the U.S. sites. Using the coded data, we performed analysis for each feature (e.g., calculating percentages of Chinese and American sites employing community managers, respectively). Our results showed that Chinese sites differed from the U.S. ones in all four aspects: governance style, identity management, membership management, and community service (Table 3).

Category	Key features	Sample observed results of Qzone
Purpose	Goal of community, key functions and applications	Goal: content-based SNS. Key apps: friend list, blogs…
Governance style	Existence of managers, rules and policies for communication, governing structure, management features	Self-governing.
Identity	Form of registration, identity formats, access to other members	Allow anonymous visits and use of pseudonyms.
Membership	Qualification for becoming a member, ratings, rewards, visibility of membership status, privileges	Point-based, tiered membership
Community services	Recent updates, current activity levels, hot content recommendations, high level snapshot of the community	Recommend hot content and people on homepage

Table 1. Observation structure and examples

Governance Style

Governance style indicates who manages and guides the development of a community. Based on our observations, most Chinese communities (13/16, 81.25%) employed designated community managers. In contrast, the majority (12/16, 75%) of their U.S. counterparts were self managed. *Community managers*, such as group owners and discussion board moderators, are those who carry out day-to-day community operational and maintenance duties.

When further examining the thirteen Chinese communities that employed designated managers, we found seven of them supported a management hierarchy. Community managers in this hierarchy were granted different powers to govern the operation and development of a community. For example, Tianya (www.tianya.cn), one of the most influential online communities in China, has a strict management hierarchy. It starts with community moderators at the bottom, then administrators of a set of communities, finally the general managers of the whole site. Tianya now has more than 400 public communities and a total of over 3,000 volunteered and appointed community managers at different levels of its hierarchy. In contrast, none of the U.S. online communities in our study employed such a management hierarchy.

To specify the qualifications and roles of community managers, several Chinese sites were observed to publish their own managers' guidelines. For example, Tianya required moderators (e.g., forum chiefs) to stay active for at least 14 days and publish at least 20 posts including replies every month in the communities they govern. Unqualified moderators would be dismissed. Unlike community managers in the U.S., who often have limited power, Chinese community managers play several important roles in community management. Such roles roughly fall in two categories: content management and people management. Content management responsibilities include monitoring violations, guiding discussions, and promoting quality posts. People management, on the other hand, involves granting membership and access, determining rewards, managing membership status, and grooming and promoting community stars.

Identity Management

Identity management is concerned with how users can be identified with one another in a community. Our results showed that Chinese online communities were much less stringent than their U.S. counterparts on identity management. All Chinese sites except one could be visited anonymously (93.75%), while just ten out of sixteen in the U.S. (62.5%) did so. Only two Chinese sites (12.5%) (Xiaonei and Chinaren) requested participants to use their real-world identity, compared to seven (43.75%) out of the sixteen U.S. sites that did so. In addition, more Chinese sites (13, 81.3% vs. 8, 50% in the U.S.) disclosed their members' profiles by default with less concern of user privacy.

Membership Management

Membership management addresses how to determine and update the status of a community participant. Contrary to identity management, Chinese online communities employed more elaborate membership management mechanisms than their U.S. counterparts. Of the social sites observed, 11 (68.75%) out of sixteen Chinese sites supported tiered membership, while only one (6.25%) U.S. site did the same (Yahoo! Answers). In most cases, a person's membership level is determined by one's contributions to the online community.

From our observations, Chinese sites often employed a rich set of schemes to determine, manage, and advertise their members' status. While all eleven sites used a point-based system, six of them employed additional mechanisms to compute and indicate membership status. For example, Figure 1(b) shows the ranking system of Qzone. Based on the points, Qzone ranks members at different levels and uses graphical symbols to signify members' status in the community. Figure 1(a) shows a member's status in different measures, including the achieved virtual title and accumulated points. Membership status can be upgraded depending on one's behavior in the community.

We also observed two other interesting features associated

Cateogry	China	USA
Video sharing	Youku	Youtube
Photo sharing	Sina photo	Flickr
Knowledge sharing	Baidu Knows	Yahoo Answer
Movie forum	Douban	IMDB
Content-based SNS	Qzone, Sina blog, Blogcn, Tianya, Mop, xici.net	Bebo, WordPress, Blogger, Live Space, MySpace, AOL Hometown
People-centric SNS	Xiaonei, 360 Quan, 51.com, Sina Space, Baidu Space, ChinaRen	Facebook, Friendster, Hi5, Orkut, Linkedin, Classmates

Table 2. Social sites observed

Dimension	Key Feature	Frequency	
		China (N=16)	U.S. (N=16)
Governance style	Presence of managers	13 (81.25%)	4 (25%)
Identity Management	Anonymous visit	15 (93.75%)	10 (62.5%)
	Requiring real-world identity	2 (12.5%)	7 (43.75%)
	Profile disclosure by default	13 (81.25%)	8 (50%)
Membership management	Tiered membership	11 (68.75%)	1 (6.25%)
Community service	Recommend content/people	16 (100%)	6 (37.5%)
	Organizing offline activities	8 (50%)	2 (12.5%)

Table 3. Key dimensions and features where Chinese online communities differed from the U.S. ones.

with the tiered membership management. First, one's status in a virtual community entitles them to enjoy certain privileges. For example, a higher status might allow a community member to select their own icon or provide access to restricted content. Second, one's status including privileges is often made externally visible and attached to one's identity to promote the person's social status and reputation in a virtual society (e.g., Figure 1a).

Community Service
Compared to the U.S. online communities, Chinese communities often provide a richer set of community services. Notably, all Chinese communities recommended selected content or people to their members. In contrast, only six U.S. sites (37.5%) did the same. In Chinese social sites, recommended content was often displayed on a community's homepage. This allowed participants to obtain the quick gist of the community. In addition, community managers routinely wrote editorial comments to promote selected content. Community members might also be featured on the community homepage, which provided a way to identify and motivate key contributors.

Another interesting service offered by Chinese communities was to organize offline activities. Eight (50%) of Chinese communities versus only two (12.5%) U.S. sites did so. The organized activities included coordinating group procurement and offline gatherings. For example, Sina Blogs organized offline meetings for its readers to meet with their star bloggers. Through this kind of services, virtual communities are extended to real life.

5. STUDY II: USER SURVEY
The results of our first study showed that Chinese online communities distinctly differ from their U.S. counterparts in four aspects of community governance (Table 3). However, it was unclear how users might perceive and behave under these governance practices. We thus designed and conducted our second study. This study used a cross-cultural survey to study and compare users' behavior and attitude of two different groups (i.e., Chinese and American) in their respective online communities.

5.1 Questionnaire Design
We designed two sets of questions to investigate users' behavior and attitude toward different community governance practices, respectively. To scope the survey and ensure its reliability, we constructed questionnaires around each of the seven specific features along the four aspects identified in study I (Table 1).

Under *governance style*, we studied users' behavior and attitude under a particular community management structure (i.e., self-managed versus using designated managers). In *identity management*, we aimed at learning how users acted upon and perceived different identity management practices in three specific aspects: the use of real identity, anonymous participation, and profile disclosure. For *mem-*
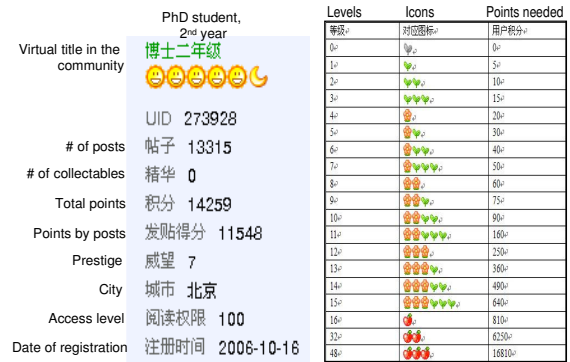

Figure 1. (a) (left): a user's identity with his status; (b) (right): membership level in a point-based system on QQ.

bership management, we inquired about users' behavior and attitude toward tiered membership. Around *community service*, we investigated how two particular types of services, recommendation (content and people) and organization of offline activities, impacted users' participation and perception of an online community.

User Behavior. To study user behavior, we asked participants to evaluate their degree of participation in activities supporting the seven features. Each feature was characterized by two activities, each of which was phrased by a statement. The degree of participation was to be rated on a 7-point Likert scale with 1 being "never participate" to 7 being "always participate". Here were sample statements around each of the feature: "*I am/was a group owner*" (presence of managers); "*I post to social sites anonymously*" (anonymous participation); "*I seek to upgrade my ranking*" (tiered membership); and "*I read the recommended content*" (recommendation).

User Attitude. To examine user attitude, we asked participants to assess the degree of their preference ("I like it"), perceived usefulness ("I think it useful"), and perceived importance ("I think it important") on the seven specific features under the four aspects. All three measures were rated on a 7-point Likert scale (1 being "least" and 7 being "most"). In this survey, we focused on examining users' general attitude toward the *existence* instead of other characteristics of each feature in community governance. Thus, we described the existence of each feature in one statement. Sample statements included: "*Communities should be managed by group owners or boards*" (presence of managers); "*Users should be able to visit communities anonymously*" (anonymous visits); "*Participants can earn points or credits to enhance one's status*" (tiered membership); and "*Communities should recommend interesting content*" (recommendation).

We prepared the questionnaires in both Chinese and English. We asked a native Chinese speaker and a native English speaker, both of whom are also HCI experts, to review
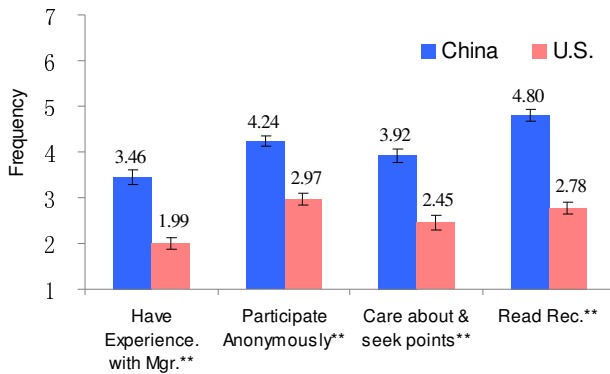
Figure 2. Participants' self-reported behavior related to the specific key management features. **: p<.001

Figure 3. Participants' self-reported attitude toward specific key management features. **: p<.001

the questionnaires respectively. The questionnaires were adjusted to ensure normative equivalence in a cross-culture survey [20]. Since conceptual validity is critical in a multi-culture survey, we further validated our questionnaires with a pilot survey that involved both Chinese and Americans. This ensured that the concepts and statements used in our survey made sense to participants in both countries. Based on the pilot survey, we amended problematic questions.

5.2 Participants and Method

We used electronic mailing lists and promotional flyers posted on a sub-set of websites included in Study I to recruit participants from China and the United States. We used screening questions to select participants who were born and grew up in the respective countries. Moreover, we required the participants to be active users of online communities (i.e., frequent visitors of at least one of the 16 sites examined in study I in respective countries). To avoid biased sampling, we were also careful about selecting a mixed group of users with experiences covering all six categories proportionally (Table 2).

Participants were asked to take the survey online. Altogether we collected 105 valid responses from China and 103 from the United States. Among the 105 Chinese participants, 64 were male, 41 female, and their average age was 28.9 (SD=6.12). Among the 103 U.S. participants, 51 were male, 52 female, and the average age was 38.3 (SD=9.90). Moreover, 71.3% of the Chinese respondents and 47.6% of the U.S. participants had a Bachelor degree or above. Both profiles matched well with the respective national profiles of internet users in China and the U.S. in terms of their age and educational level [6].

5.3 Results and Analysis

For each of the seven features, we averaged the participants' scores by the behavior and attitude measure, respectively. We then analyzed the data using an independent sample t-test for the Chinese and the Americans. We used two-tailed t-tests without assuming which value (Chinese or American) would be greater. Our results found that both
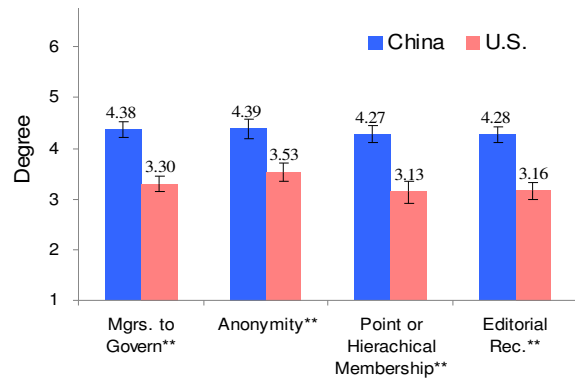
behavior and attitude of Chinese respondents significantly different from that of their U.S. peers in four of the seven features (Figures 2–3). To avoid potential national tendencies of giving higher or lower ratings, we also centered the data for analysis [11] and found no differences in the results.

Governance Style
From a behavioral perspective, our survey showed that the Chinese were more familiar or had more experience with a top-down community governing structure. For example, about 60% of the Chinese respondents knew someone as a community manager and 42% themselves served as a community manager (e.g., board moderator). In contrast, 18% and 16% of the U.S. respondents had the similar experience, respectively. From their attitude, overall the Chinese held a significantly more positive attitude toward a top-down management model (average rating 4.28 by Chinese, 3.16 by Americans, $t(206)=7.456$, $p=.000$). Specifically, the Chinese liked the model much more (4.49 vs. 3.52, $t(206)=3.729$, $p=.000$), and considered it more useful (4.77 vs. 3.24, $t(206)=6.451$, $p=.000$) and important (3.88 vs. 3.13, $t(206)=2.953$, $p=.004$).

Identity Management
Our survey found that user-reported behavior and attitude toward identity management echoed our findings in Study I. First, there were more Chinese than Americans who hid their identities when engaged in online activities. Specifically, 37% of the Chinese versus 16.5% of the U.S. respondents indicated that they often (rated 5 or above on a 7-point Likert scale) took part in community activities (e.g., reading and posting content) anonymously. Second, the Chinese preferred less stringent identity management. In particular, 58% of Chinese favored anonymous participation (rated 5 and above) and 39% believed it a must-have feature of online communities (rated 7). In contrast, 39% of the American respondents favored anonymous participation and only 13% considered it a must-have feature. Compared to the Americans, our survey also indicated that the Chinese *significantly less* preferred to use their real names online when identities were required (average rating 3.04 by Chi-

nese, 3.93 by Americans, $t(206)=3.238$, $p=0.001$). However, we acknowledge that Chinese' preference for anonymity may be influenced by factors other than culture (e.g., lifespan and maturity of online communities). Especially, previous evidence showed that Americans also preferred anonymous participation during the early era of online social computing [7]. As described below, our third study will also show Chinese care less about online anonymity if they are familiar with the members of the community.

Membership Management
Our observation in Study I indicated that Chinese online communities often supported tiered membership. Our survey results indicated that the Chinese held a significantly more positive attitude than their U.S. peers toward tiered membership (average rating 4.27 by Chinese vs.3.03 by Americans, t $(206)=4.2666$, $p=.000$). Moreover, 49.5% of the Chinese greatly favored tiered membership (rated 5 or above) while only 27.2% Americans did so. The Chinese users were also much more motivated by such a hierarchical system to take part in community activities and advance their status in the hierarchy. In particular, 41% of the Chinese respondents indicated that they had actively sought more points to acquire higher membership level while only 28% Americans responded so.

Community Service
Our survey also investigated how users leveraged and valued various community services. From the user behavior data, the Chinese users took *significantly more* advantages of the offered recommendation services than the U.S. users (average rating 4.8 by Chinese, 2.78 by Americans, t $(206)=10.775$, $p=0.000$). Specifically, 50% of the Chinese users often read the recommended content (rated 4 or higher) versus only 13% of Americans did so. From the user attitude data, the Chinese valued the recommendation significantly more than their U.S. peers (average rating 4.28 by Chinese, 3.16 by Americans, $t(206)=5.066$, $p=.000$).

6. STUDY III: IN-DEPTH INTERVIEWS
Our cross-cultural survey (Study II) helped substantiate the unique governance practices employed by Chinese online communities found in Study I. However, the survey did not help us fully answer *how* Chinese communities balance their management requirements and the need of supporting grassroots activities. To answer this question, we then conducted a third study.

6.1 Participants and Method
We posted invitations at the Chinese sites used in Study I to recruit interviewees. We recruited 38 respondents who were all frequent users of Chinese online communities. There were 21 males and 17 females, with varied ages. Moreover, 19 of them have acted as community managers (e.g., moderators, group owners, administrators), and the other 19 were regular community participants without community management experience. The three most visited sites by our participants were: Qzone, Tianya, and Xiaonei, all in our first study.

There were 12 face-to-face interviews, each of which lasted about two hours. The other 26 interviews were phone interviews, each of which lasted about an hour. All interviews were conducted in Chinese during the period of August to November 2008. Both face-to-face and phone interviews were semi-structured and organized around three parts. First, we gathered information about an interviewee's background, motivation, and general experience in participating in online communities. Second, we focused on learning the interviewee's experiences with one or two of their favorite online communities, particularly how they participated in or managed (for managers) the community(s). For the face-to-face interviews, a management feature walkthrough was also conducted in this phase to better understand the context of the interviewee's behavior. Third, we engaged the interviewee in a discussion about the pros and cons of various governance features (e.g., identity management and tiered membership). We especially encouraged them to talk out loud about the potential conflicts between enforcing management control and maintaining individual autonomy in Chinese online communities. All the interviews were recorded using multiple channels (e.g., audio recording, note taking, and screen captures).

6.2 Results and Analysis
We summarized and analyzed the interview data from both community managers' and participants' standpoints. Our results showed few discrepancies between the two views. We consider this as a sign of achieving accord between the community management and participants. More importantly, our study identified two key factors that are critical for Chinese online communities to balance management control and grass-roots participation: (1) selection of community managers and (2) offer of participation incentives.

Selecting Community Managers
When asked whether community managers were necessary for operating and maintaining an online community, all our interviewees provided affirmative responses. They considered the roles of community managers indispensable and critical for maintaining community health:

"Administrators decide who can become a member. It makes sense that they accept only those who agree with the goals and rules of the community." [S6, QQ group member]

"There are obnoxious people, offensive trolls, and annoying advertisers. There ought to be someone to kick them out to keep the group in order." [S15, QQ group member]

"Moderators remove dubious posts and annoying spams. You can't imagine an online community without administrators." [S29, Tianya moderator]

In addition to showing their support of having community managers, our interviewees stressed the importance of selecting qualified managers:

"When you have the right leaders, the community grows. Otherwise, you end up with a mess. There are many stories of collisions between managers and users." [S1, Tianya moderator]

Based on our interviewees' responses, we identified three key criteria for Chinese communities to select their managers.

First, most community managers were volunteered not appointed. Although subject to approval, regular participants could become community managers. This in turn offered the opportunity for community participants to govern themselves. In a way, it also encouraged grassroots participation in community management:

"It is essential to select moderators from community participants. If you assign someone from outside, nobody knows them. Governing by peers is easier to accept by community members. … When moderators are also participating, they could better understand the thoughts of users. Self-governing is the key to our development." [S2, Tianya community admin]

Second, successful community managers were also top contributors and remained active after becoming managers. Being contributors themselves, these managers served as role models of a community and effectively influenced the community development. For example, our interview excerpts below attested the importance of this quality:

"Moderators are selected from a bunch of outstanding community contributors. They represent the community they govern." [S3, Tianya moderator]

"Moderators in Tianya are not just moderators. They are role models and mentors for newcomers. People learn from managers' behavior. Good managers bring good writers and encourage good doings. What managers write and what articles they promote are the wind vanes of the community." [S1, Tianya moderator]

Third, community managers needed to identify lead participants in their managed communities and gain their support. In our interviews, moderators shared their views on the importance of this ability:

"There are excellent writers who create most of the valuable contents, excellent critics who provide insightful comments and reviews, and then those who post junk articles to raise their visibility. You need to identify the key people whom you want to keep." [S3, Tianya moderator]

"It is essential to gain support from the leaders. This way, you are strong enough to manage any conflicts that may occur." [S1, Tianya moderator]

In short, the unique characteristics of community managers (e.g., being top contributors themselves) help Chinese online communities balance the needs of management and participants. With respect and trust from their members, community managers also serve as mediators who help ease the tension between two sides when conflicts rise.

"I have been an active contributor in this community for a long time so I know them [community members] well and most of them also know me and trust me. I am always very careful when I re-

move postings or bar someone [from participating]…" [S1, Tianya moderator]

"When there are people, there are conflicts. Board members are normally thoughtful and rational, since they were ordinary community members before." [S13, Tianya and QQ group user]

Offering Participation Incentives

From our interviews, we also learned that Chinese online communities offered a wide variety of incentives to encourage grass-roots participation. The simplest incentive is to allow anonymous participation. In our interviews, most community managers (17/19) and participants (16/19) testified the importance of this feature:

"I don't want to be identified online. … I will talk about things I won't say in the real world." [S25, QQ group member]

"Allowing anonymity is good. You don't need to worry about losing face or cause others to lose face and you could tell the truth when you are not identifiable." [S28, QQ group member]

It was also interesting to learn that many users used multiple online identities to manage their different social circles:

"I have two QQ accounts. I use one to keep connections with my real-world friends and the other for all the strangers I added [in my list]. I don't want them to know much about me." [S36, QQ group administrator]

As a result, another incentive offered by Chinese online communities was to support the use of multiple identities. For example, one site administrator of Tianya commented:

"Virtual IDs and multiple IDs help users express multiple aspects of their egos that would otherwise be hidden in real life. This is one of the reasons for our success." [S1, Tianya moderator]

In addition to allowing anonymous and pseudonymous participation, Chinese online communities often offered tiered membership as an incentive for participation. We found that members' status was also used by community members to "get to know" one another and helped promote mutual trust:

"Posts authored by users of higher levels are more trustworthy." [S24, Tianya user]

Moreover, as commented by community members, a tiered membership structure motivated them to participate and advance their social status in a virtual community for various reasons:

"Every one I know likes this [user points and levels]. It's like a label of your status in the community. When I first became a sun [the highest level], I was so proud and I couldn't help showing it off to my friends." [S31, QQ user]

"I pay a lot of attention to my levels. The avatars provided by QQ are usually ugly, so I log on to QQ every day to advance my level until I can use my own avatars." [S30, QQ group administrator]

Similarly, community management considered that the effective use of a membership hierarchy helped keep the vitality of a community:

"Just like in real life, we believe it is important for our community users to have a status, since it [the status] reflects how their lives unfold and evolve in a virtual society." [S37, Tianya GM]

Moreover, membership status was also used to monitor the health of a community and groom community leaders:

"In a community, there are different types of participants: writers, critics, and regular readers. I can see they form a pyramid: excellent writers are the key contributors and at the top [of the pyramid]. We'd like to keep them to maintain the vitality of the community." [S3, Tianya moderator]

Overall, Chinese online communities provided various incentives to motivate their members. Specifically, anonymous or pseudonymous participation allowed members to freely express their thoughts in a virtual society. Moreover, the tiered membership offered users incentives to participate and contribute to a community while providing a mechanism to instill trust among the members. From this view, Chinese communities balance management control and grass-roots participation through proper identity and membership management.

7. DISCUSSIONS

All of our three studies focus on understanding how Chinese online communities operate to accommodate both Chinese culture and the nature of virtual societies. Specifically, Chinese online communities employ a top-down management structure backed by quality, designated managers. They allow anonymous and pseudonymous participation to alleviate members' concerns of being exposed and lower the threshold for their involvement. They also use tiered membership and recommendation services to motivate, reward, and guide grass-roots participation. However, from our studies, we have also observed several interesting issues rising from the current Chinese community governance practices. Since addressing these issues in depth is out of the scope of this paper, we briefly discuss them below for further research.

7.1 Effect of Characteristics of Online Communities

Although our studies reveal the distinct differences between Chinese online communities and their U.S. counterparts, we observed certain similarities between the two. For example, Xiaonei.com, a very popular Chinese social networking site, is quite similar to the popular U.S. site Facebook. They all require the use of real identity and have no hierarchical management structure. In addition, the very popular U.S. photo-sharing site, Flickr, employs community administrators, similar to the role of board moderators in Chinese sites like Tianya. Another U.S. site, wikipedia, which was not included in our study, supports a governance hierarchy.

In general, we found that community governance practices may vary by the properties of communities. In particular, content-centric communities, such as public discussion forums like Tianya and social media sharing sites like Flickr, tend to impose tighter management control. In contrast,

social networking sites (e.g., Facebook and Xiaonei) emphasize social transparency (i.e., using real identities) and self-governance to accommodate individual social networking goals. Moreover, the size and heterogeneity of a community could influence management requirements. For example, many QQ group users whom we interviewed indicated that the need for management depends on how well people know one another in a group:

"In the groups I joined, all the people know each other very well. They are my old classmates, alumni, or online acquaintances from other sites. For such groups, I feel that management is less important than service. Group managers spend most of their time posting public notices and organizing activities." [S18, QQ group member]

"The role of moderators is essential unless the group members already know each other." [S15, QQ group member]

7.2 Dealing with Conflicts

In online communities, many conflicts may arise due to different values, goals, or interests among the members. While proper community governance is called to help mediate such conflicts [9], the process itself may cause more conflicts. Several of our interviewees who were community managers acknowledged this fact. When asked how they dealt with such conflicts, they offered their experiences. First, they stressed the importance of developing and enforcing unambiguous rules of community conduct. Such rules normally outline what one should or can do and the penalties associated with each violation (e.g., denied access). In practice, we observed these rules posted in many Chinese online communities (e.g., Tianya). Second, management tactics were employed to defuse potential conflicts gracefully. Before removing one's posting, for example, most managers would send a notice to the offender to explain the rationale of the removal. Alternatively, a manager might move a post (e.g., a post containing commercial messages) to a different place where they though it was more appropriate (e.g., communities for selling/buying things). Third, they relied on a higher level management (e.g., a specific board) in case of an escalating conflict. The hierarchical management structure of Chinese online communities served this purpose well and also provided members a sense of trust and fairness.

On the other hand, we also probed participants to learn their views on this issue. We found that participants tended to accept management's decisions (e.g., post removal) if the rationale was clearly communicated without making them "lose face". A user commented:

"Before I noticed [my post was deleted], I got an email from the moderator politely explaining that my post used improper words and violated the community policy, and they would delete my post.... I think it is reasonable. I didn't pay much attention to the details of the policy before." [S38, QQ group and Tianya user]

Participants also had their own ways to get around the conflicts. One popular way is to use multiple virtual identities. The same user (S38) mentioned:

"I understand why I got banned... But I would use my other ids to log on [to the community]. So it is crucial to have several ids as backups" [S38, QQ group and Tianya user]

7.3 Trust Building

In online communications, knowing the identity of those with whom you communicate is necessary for understanding and evaluating an interaction [7]. Former studies have shown that using real identity in online communities increases social transparency and helps trust building [17]. On the opposite, online anonymity is often associated with untrustworthy activities, such as unruly behavior and group norm violations [24]. Since our studies reveal that Chinese users often participate in online communities anonymously or pseudonymously, trust building is one of the known issues in Chinese online communities [19]. During our interviews, we probed how trustworthiness of unidentifiable users was evaluated in online communities. We found several interesting phenomena in Chinese online interactions. First, although Chinese users often questioned the identity of fellow users, they tended to trust the content of their posts:

"First of all, their names are not real. I believe their profiles half and half." [S8, QQ group administrator]

"People usually don't tell the truth in their profiles. But their posts are generally trustworthy." [S10, Tianya user]

Second, Chinese users tended to trust fellow community members with a higher "social" status regardless the real identity of these members is known. Third, Chinese users also based their trust on the real or perceived social distance between people especially when anonymity or virtual identity was involved.

"I knew them all offline before I joined the group. I don't need to look at their profiles and know who they are. But for others [who I don't know], it's hard to say." [S36, QQ group member]

"I think I could trust them because they are all college students like me." [S20, QQ admin and Xiaonei user]

Trust building in virtual communities is tricky, especially when members' real identities are unknown or dubious. It would be interesting to further study how people use different social cues to discern various online activities and entrust their fellow members.

8. DESIGN IMPLICATIONS

The operational practices of Chinese online communities present design implications of social software for its adoption in China. Although these practices have been widely adopted by Chinese online communities, we have not seen them being systematically summarized. Moreover, we have discovered ways to enhance existing practices. Here we abstract two important design considerations to share with colleagues who are interested in studying and developing social software to suit different needs (e.g., cultural needs).

Community Monitoring and Management Tools

Most social software focuses on facilitating community participation, while largely ignoring the requirement of community management. Although managers of Chinese communities perform a number of managerial tasks, they often use very primitive tools to monitor and manage (most manually) a community. As a community grows, such a method would become inadequate. Based on our studies, there are two main types of tools needed: content management and people management. *Content management* tools can be used to monitor and analyze the content contributed by participants. The key functions include setting the scope of discussions, developing guidelines for post, monitoring violations, removing outdated and improper content, and promoting quality content. On the other hand, *people management* tools target monitoring and managing user behavior and status. The tasks include granting user membership and access rights, identifying and recruiting key contributors, rating members, and issuing warnings when needed. Note that both types of tools require advanced technologies, such as content analysis and social network analysis, to support the desired functions.

These tools can be used alone or together to facilitate community governance. For example, we can use them together to automatically detect violations and violators. Similarly, the tools could be used to identify influential content and people, both of which can then be recommended to community participants. For a higher purpose, we could also use them together to build a *community monitoring dashboard* for measuring and tracking the health of a community by a set of metrics (e.g., activeness in user participation and number of low quality posts). Overall, offering these tools as a feature of social software helps adopting the software to Chinese culture as well as facilitating more effective community management.

Support of Incentive Schemes

Online communities rely on grassroots participation to fuse their growth and maintain their vitality [8]. Our studies show that when operating Chinese online communities, we should be aware of how to balance management requirements and stimulating grassroots participation. In particular, Chinese communities have used various incentives to encourage grassroots participation. The two most used, effective incentives are: recognizing contributions and providing social guidance.

Publicly recognizing a participant's contribution (e.g., most commonly in the form of points) appears to be an effective way to stimulate participation (Section 6.3). To support this feature, social software should have systematic ways of computing and managing ratings. Although some social software already supports rating (e.g., YouTube), automatically rating people based on meaningful information is rare (e.g., using the quality of the content they contribute). Thus, advanced technologies, such as content analysis, should be employed for this purpose.

Furthermore, our studies show that Chinese participants often appreciate the social guidance provided by a community, which allows them to better understand the community (e.g., hot content and people) and improve their participation efficiency (e.g., contributing content on the hot topics). As a result, social software may need to support such services. In particular, the work in recommender systems (e.g., [5]) may be used in future social software to provide the desired services.

In short, we have outlined two specific design considerations of social software to suit the needs of Chinese. Developing the desired features would require interdisciplinary collaboration from multiple communities. These include the data analysis community for better understanding the social content, HCI for understanding user behavior patterns including collaboration, and recommender systems for offering social guidance.

9. CONCLUSIONS

In this paper, we have reported three studies that were specifically designed to understand Chinese online communities, especially how they are governed to accommodate both Chinese national culture and the nature of online societies. Our first study (Study I) compared governance practices between 16 Chinese and 16 U.S. online communities. We then conducted a user survey involving 208 users (Study II) that examined Chinese (105) and American (103) users' behavior and attitude toward various governance features identified in Study I. To better understand exactly *how* Chinese online communities balance management control and grass-roots participation, we conducted a series of in-depth user interviews involving 38 Chinese users (Study III). Our study results revealed significant differences in community governance practices between the two countries. Specifically, Chinese online communities impose a stricter, top-down management structure with carefully selected community managers. They allow anonymity and virtual identity while using tiered membership and recommendation to motivate and guide grass-roots participation. Overall, our studies help us validate our hypothesis and abstract design considerations for developing social software suitable for Chinese people.

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