

**Who are the Influentials in Virtual Community?
Opinion Leaders among Participants in
Bulletin Board Systems**

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Abstract

As the Internet users become more demographically heterogeneous, differences among individual Internet users have manifested, especially in terms of their abilities to utilize the Internet, casting threat on the egalitarian and democracy implications of the Internet. One of the differences identified by scholars is the distinguished opinion leadership among the participants in the bulletin board systems (BBS).

Results from a sample of 246 BBS participants show that different participants varied in their influential abilities in the virtual community. Sixty-four of them were identified as online opinion leaders. Different from previous study, online opinion leaders were not concentrated in any demographic stratum except for people with master's degree or above. This empirically supports the notion that Internet does empower the grass root efforts. Moreover, Internet connectedness index, time spent on BBS and BBS participation history, was found to be the main predictors of online opinion leadership. Implications of the findings were discussed.

Word count=151

Key words: opinion leaders, BBS, virtual community, ICI

Introduction

The world has witnessed exponential growth of the Internet in last two decades (Howard, Rainie & Jones, 2001; Katz & Rice, 2001). As the Internet users become more demographically heterogeneous, differences among individual Internet users have manifested, especially in terms of their abilities to utilize the Internet, casting threat on the egalitarian and democracy implications of the Internet.

One of the differences identified by the scholars is the distinguished opinion leadership among the participants in the bulletin board systems¹ (BBSs) (Lyons & Henderson, 2005; Naohiro, Yukio & Misuru, 2002; Yu, 2008). Some participants were identified as opinion leaders for they displayed incredible influential ability to claim tens of thousands of followers (e.g. *Dangnian Mingyue*² in Tianyaclub Forum). In contrast, the extensive free-ride “lurkers” were found to constitute the silent majority in the online groups (Cui, Zhou & Liu, 2002; Kollock & Smith, 1996).

According to Rogers (2003), opinion leadership is the “degree to which an individual is able informally to influence other individuals’ attitudes or overt behaviors in a desired way with relative frequency” (p.300), and opinion leaders are “individuals who lead in influencing others’ options” (p.300). When opinion leadership was transplanted to cyberspace, it refers to “the personal influence on online” with its core connotation consistent (Lyons & Henderson, 2005; Yu, 2008). However, the shift of social milieu from offline to online makes the issues concerning opinion leaders more complicated than ever before.

¹ BBSs have different outer forms across countries. In the USA and most European countries, BBSs are mainly referred to e-mail-based newsgroups. In many Asia countries and districts (e.g. Japan, China, Taiwan and Hong Kong), BBSs are mainly web-based, which have different technology origin. However, e-mail-based and web-based bulletin boards are similar in many ways, as both provide information asynchronously and allow interaction under the same thread. Thus, in this study, what I mean by BBSs include both e-mail-based and web-based system.

² *Dangnian Mingyue* became famous because of his posters “Things in Ming Dynasty” on *Tianya* Forum. These posters attracted more than 30,000 clicks in a month. At present, his articles have been published and become the best sellers in 2007 and 2008 in China’s book market.

On one hand computer mediated communication (CMC) in BBSs provides people with an immaterial space, which is totally different from material physical world, to practice opinion leadership. First of all, new social structures have manifested on the Internet as the “ascribed” hierarchies and status are leveled by the absence of social cues (Sproll & Kiesler, 1986). Secondly, the anonymity in BBSs facilitates participants to “invent alternative versions of one’s self” (Baym, 2000). Thirdly, communication in BBSs is asynchronous and mainly text-based (Jones, 1998). Thus, participants in BBSs have more control on their communication, for they have more time to ponder and can express their opinion in a more rational way by writing.

On the other hand, one’s online behaviors mirror his offline experience. Although early studies (e.g. Nguyen & Alexander, 1996) were prone to analyze the discontinuity between one’s online and offline experience, the dichotomy becomes blur as the Internet is increasingly incorporated in one’s life. A host of studies have found that online behavior patterns are related to the demographic features (Howard, Rainie & Jones, 2001; Katz & Rice, 2001), personalities (Joe, 1997) and socioeconomic status (Howard, Rainie & Jones, 2001; Jung, Qiu & Kim, 2001). Thus, it is safe to reach the assumption that many preexisting factors will influence opinion leadership in the cyberspace.

As Hymes (1975) claimed, there is a “continuous tension between tradition and situation, traditions defining situations, situations displacing traditions, both inevitably and mutually changing” (p.335). Accordingly, my argument in this study is that online opinion leadership is dynamic and shaped by both virtual and physical world. To be specific, my concerns in this research are three-fold as following:

- 1) Who are the opinion leaders online? What are their characteristics?
- 2) How does the interplay between virtual world and physical world shape the online opinion leadership?

- 3) How do the information and personal influence diffuse in the BBSs? What insights does the opinion leadership provide for the communication network structure in the BBSs?

Literature Review

Online opinion leadership is a relatively new topic, which is mainly studied by market researchers (e.g. Lyons & Henderson, 2005) in these days. At present, the literatures directly related to this topic are limited. In this study, I will review the literatures from 3 perspectives: 1) traditional opinion leadership; 2) opinion leadership in BBSs; 3) the interplay mechanism between the virtual world and the physical world, which can shape online opinion leadership.

Opinion Leadership

The finding of opinion leadership is one of the merits of “*The People’s Choice*”, which was a study conducted by Lazarsfeld, Berelson and Gaudet in 1940s. Accumulated studies show that one’s “opinion leadership” has “dual roots” (Roch, 2005): 1) the presence of a certain recipe of attributes; 2) the position that the individual occupies in the social environment.

In the last 50 years, a host of researches focused on identifying different traits between opinion leaders and non-leaders. Rogers (2003) concluded that exposure to mass media, innovativeness, cosmopolitanness, social participation and socioeconomic status are related with opinion leadership. Specifically, opinion leaders are found to be more innovative (Lyons & Henderson, 2005; Rogers, 2003), better educated (Saunders, Davis & Monsees, 1974; Summers, 1970), have higher level of income (Marshall & Gitosudarmo, 1995), with higher level of involvement with a particular issue area (Corey, 1971; Kingdon, 1970) and

pay greater attention to high quality information sources, such as newspapers and journals (Corey, 1971; Levy, 1978; Polegato & Wall, 1980) than non-leaders.

The relation between one's opinion leadership and position in the social network was firstly noticed in the Columbia voting studies conducted by Katz (1957). This study stressed the importance of "whom one knows" in personal influence and found opinion leaders have more contacts in the social context. By analyzing the social networks among people, opinion leaders were found to be more centrally located than non-leaders (Katz, 1957; Rogers, 2003). The research conducted by Burt (1999) contended that opinion leaders are actually opinion "brokers" who are in a position to bridge between otherwise disconnected contacts and transit information between groups.

The concept of opinion leadership is regarded to cast challenge on the "stimulus-response paradigm" in communication research. In the hypothesis of two-step information flow, opinion leaders are more influential than the mass media because personal relationship has greater coverage and "certain psychological advantages" over mass media" (Rogers, 2003). Studies have demonstrated that opinion leaders can make the non-leaders "alter the attitudes" (Rogers, 2003) or "crystallizes public opinion" (Sigelman & Thomas, 1984). Thus numerous studies related with political communication, health communication and marketing focus on how to identify opinion leaders in a community in order to promote behavior change (Valente & Pumpuang, 2007) or accelerate the process of innovation adoption (Rogers, 2003; Valente & Davis, 1999).

However, it should be noted that the concept of "opinion leaders" does not deny the influence from the mass media. Lazarsfeld et al. (1944) claimed that personal influence "serves as a bridge over which formal media extend their influence", suggesting that public is still under some sort of manipulation.

Opinion Leadership in BBSs

From the perspective of Internet utopians, putting “opinion leadership” and “online” together is a paradox. On one hand, “opinion leadership” embeds the implication of authority (Roch, 2005). In contrast, the “online” world is always labeled with egalitarian and democracy. However, as the Internet widely diffused into the society in last two decades (Howard, Rainie & Jones, 2001), scholars began to take on more rational attitudes towards the Internet. Turkle (1995) casted her doubt on the decentralized Internet and argued that it may be possible to create an illusion of decentralized participation even when power remains closely held in the cyberspace. Reid (1999) contended that it is the possibility of power distribution in the cyberspace that create the impossibility of complete egalitarian.

Communication in BBSs: The Activists and the Silent Majority

As mentioned earlier, the communication in BBSs is lack of social cues, anonymous, asynchrony and mainly text-based. Baym (2000) concluded that the communication in BBSs is “a novel hybrid between written, oral, interpersonal and mass communication”.

Different from e-mail, which “pushes” information to the users, Kollock & Smith (1999) claimed BBSs are “pull” media, suggesting people select groups to participate in an active way. Thus, most BBSs are interest-based (Baym, 2000; Rheingold, 2000). In the process of interaction and discussion, personal relationships and communities may emerge (Baym, 2000; Rheingold, 2000).

On the macro level, what is observed by the scholars is the prosperity of opinion expression in BBSs. According to Altopia.com (2009), in USENET, which is the largest collection of bulletin boards (or newsgroups) in the world (Kollock & Smith, 1999), the daily post is 4.65 Terabyte (TB). Many scholars regard the BBSs as the potential public sphere (e.g.

Hu, 2008; Yang, 2009). In Mainland China, BBSs are regarded as the hotbed for opinions challenging the existing policies and even political systems (Yang, 2009).

On the micro level, scholars found that the opinions among participants of BBSs are distributed unequally (Baym, 2000; Keitaro, Moasao, 2006; Cui, Zhou & Liu, 2002). The empirical results from Keitaro and Moasao's study (2006) revealed that the number of posts submitted by each individual in a thread follows a lognormal distribution, indicating that some people are heavy posters, while most participants seldom submit posts. By examining the posting behaviors in the BBSs, Baym (2000) divided the participants in the BBSs into activists and lurkers roughly. Mao and You (2006) classified the participants into 5 types in terms of their information behaviors: 1) leaders (*lingdao zhe*); 2) responders (*huying zhe*); 3) browsers (*liuyan zhe*); 4) learners (*xuexi zhe*). Each type displayed different behavioral pattern and influential ability.

Opinion Leadership in BBSs

Opinion leadership is found to be embedded in social milieu (Roch, 2005). Thus, the shift from physical world to virtual world would make opinion leadership take on different appearance.

As a relatively new topic, the literature about opinion leadership online is limited and scattered in the studies about virtual community and virtual identity. By studying a fandom newsgroup in USENET, Baym (2000) claimed that the amount of posts is directly correlated with the influential ability. "The heaviest posts...may play particularly influential roles in creating the group's social environment"(p.147). Moreover, Reid (1999) considered the ability to utilize resources online is important for exerting influence and control.

Recently, some empirical results supported the ideas of Baym (2000) and Reid (1999). Lyons and Henderson (2005) found that online opinion leaders possess greater computer

skills, have used the Internet for a longer period of time and use the Internet more frequently than non-leaders. Gao et al.'s (2005) results showed participants establish their personal authority because of their broad information sources. Naohiro, Yukio and Misuru (2002) set up the Influence Diffusion Model (IDM) to mining one's influence in the threaded online discussion. In this model, influence is measured by the repetition of the key words. Based on IDM, Yu (2008) distinguished the most influential people in *Qiangguo* Forum in Mainland China. She found that some influentials not only have many followers but also many opponents. And she named them "targets" (*bazi*) in BBSs, echoing Sproull and Kiesler's (1992) finding --- it is difficult to get consensus in CMC groups.

Dynamic Opinion Leadership: Interplay between Virtual World and Physical World

It is possible for one to alter his personality, age and even gender in BBSs. However, when it comes to issues concerning online opinion leadership, things become rather ambiguous. On one hand, opinion leadership is an attribute attached with virtual identity, which can be manipulated. On the other hand, online opinion leadership is correlated with expertise, information and knowledge, which are mainly acquired in the physical world.

The power from the Internet has changed the opinion expression ecology to some extent. One of the implications of the Internet for opinion expression is that the Internet emboldens and empowers the disadvantaged groups to speak out. Accumulated studies have witness the prosperity of disadvantaged groups on line, such as lesbians (Burke, 2005), HIV patients and hepatitis B carriers (Yang, 2009). Turkle (1995) found that many young people stick to the Internet because they felt they have no political voice in the real world. Yu (2008) found that most opinion leaders in *Qiangguo* Forum only have low to middle level of income, which is quite different from tradition opinion leaders who usually have higher income.

At the same time, offline experience is found to influence the online personalities (Byam, 2000; Rheingold, 2000). Kalcik (1985) distinguished 2 strategies when entering into a virtual group: trying on alternative personae or just being themselves. Byam (2000) found that “participants often split disclosures into their post” and will “create congruence between on and offline identities” at last. She further pointed out participants’ communicative styles might be oriented around common social practices, which are unlikely to be supplanted by computer mediation, before they even enter into CMC.

Lyons and Henderson (2005) found that online opinion leadership is affected by the complex interplay of a host of factors. Some factors belong to one’s intrinsic characteristics, such as innovativeness, exploratory behavior. Others are oriented from the virtual space, such as involvement with the Internet.

Theoretical Framework and Hypotheses

As mentioned earlier, the main argument in this study is that online opinion leadership is shaped by both the physical world and the virtual world. Thus, the proposed factors to influence online opinion leadership are divided into 2 parts: 1) factors related with physical world (e.g. gender; education; traditional media exposure); 2) factors related with virtual world (e.g. Internet connectedness, time spend in BBSs every day and BBS access history)

Factors Related with Physical World

Demographic Features

Previous studies found that demographic features such as gender, education level, income are related with opinion leadership. To be specific, most opinion leaders are found to be male, with higher income and education level. However, Yu (2008) found that most

opinion leaders in *Qiangguo* Forum are mid-aged men with low or middle income, which is different from previous studies conducted in physical world, indicating that the Internet empowers the grassroots efforts. Based on previous studies, 4 hypotheses are proposed:

H1: Online opinion leaders have higher likelihood to be male.

H2: There is positive relationship between online opinion leadership and age.

H3: There is positive relationship between online opinion leadership and income.

H4: Online opinion leaders have higher likelihood to have higher level of education.

Opinion Leadership and Traditional Mass Media Exposure

Opinion leadership was found to have relation with traditional mass media exposure when Lazarsfield et al. (1944) firstly proposed this concept. In the conception of two-steps information flow hypothesis, opinion leaders have greater exposure to mass communication channels (Lazarsfield et al., 1944). A number of studies have found the positive relationship between mass media exposure and opinion leadership. Moreover, some studies found that opinion leaders are prone to consume mass media with high quality, such as journals, newspapers (Corey, 1971; Levy, 1978; Polegato & Wall, 1980). In these days, the information overload on the Internet disturbs many people. Thus, traditional mass media may still play imperative roles as the “gatekeepers” in serving information and new ideas.

Accordingly, I propose that:

H5: There is a positive relationship between online opinion leadership and traditional mass media exposure.

Factors Related with Virtual World

Online Opinion Leadership and Internet Connectedness

Internet connectedness is “a multidimensional conceptualization of the importance of the Internet in a person’s everyday life” (Loges and June, 2001). Internet Connectedness Index (ICI) reflects of multilevel and contextual way of the relationship between individuals and the Internet (Jung, Qiu, & Kim, 2001).

Loges and June (2001) proposed that Internet connectedness has 3 dimensions: 1) history and context; 2) scope and intensity and 3) centrality in one’s life. Thus, Internet connectedness provides a broader view about the Internet usage compared with traditional usage measures based on time. Although there is no study directly exploring the relationship between online opinion leadership and Internet connectedness, previous studies suggested that the online opinion leaders spend more time online, get online more frequently and possess more computer skills than non-leaders (Lyons & Henderson, 2005), indicating the Internet is more important in the life of online opinion leaders.

Accordingly, the following hypotheses are proposed:

H6: There is a positive relationship between online opinion leadership and ICI.

Online Opinion Leadership and Participation in BBSs

Opinion leaders must be socially accessible in order to spread information and exert influence (Roges, 2003). Obviously, social participation is one indicator of such accessibility. Previous studies proved that opinion leadership has positive relation with social participation in the social groups (Summers, 1970; Weimann, 1991; Weimann et al., 2007). When it comes to BBSs, the social participation can be measured from 2 dimensions: 1) the average time spend on BBSs per day; 2) the history of participating in the BBS. Thus, it is hypothesized as follows:

H7: There is positive relationship between online opinion leadership and time spent in BBS every day.

H8: Subjects who participate in the BBS earlier are likely to get higher scores on online opinion leadership.

Moreover, 2 research questions are raised:

RQ1: How do online opinion leaders and non-leaders differ with respect to ICI, participation in the BBS, traditional mass media exposure and demographics?

RQ2: To what extent can demographics, traditional media exposure, BBS participation and ICI predict the degree of being an online opinion leader?

Method

As an attempt to explore the online opinion leadership, both quantitative and qualitative methods will be employed in this study so as to find out predictors of online opinion leadership and analyze influence diffusion mechanism in the BBSs. Considering the accessibility of the subjects, I would like to choose Songshuhui Forum (<http://songshuhui.net/forum>) as the BBS for my study of which I have been a member for 3 months. This BBS focuses its topic on popular science. The reasons for me choosing this BBS as research target lie in 2 aspects: 1) it has nearly equally gender distribution among the participants; 2) the participants are varied in age. There are middle school students as well as middle-age professionals.

A questionnaire survey was conducted as the first step. The mobility of participants on the BBSs system makes probability sampling impossible. Thus the snowball sampling was adopted in this study. The questionnaire was post to Songshuhui.net for 7 days since April 6th to April 12th in the year of 2009.

The questionnaire got responses from 289 BBS participants. However, only 246 of them were valid. The respondents ranged in age from 13 to 48 ($M=24$). As shown in Table 1, about 65.9 percent had obtained undergraduate degrees and 17.9 percent had obtained master degrees or above. About 55.7 percent were students and 32.5 percent were white collar workers or professionals. In terms of gender, 55.7 percent were male respondents, while 44.3 percent were female. Pilot study was conducted in another BBS before the launch of the survey. The survey instrument was revised based on the results of the pilot study.

(*Insert Table 1 About Here*)

Measurements

Opinion leadership: The measurement of opinion leadership in this study was revised by Childers's (1986) six-item self-designating opinion leadership scale, which has its root in Rogers's six-item scale firstly used in a 1957 study of innovation diffusion. Childers' scale was found to "have acceptable internal consistency reliability" and validity (1986). Childers's scale was revised by altering the way of wording to be more suitable in the online context. The revised scale is displayed in Table 2. The reliability alpha was 0.728 for this 6-item scale.

(*Insert Table 2 About Here*)

Internet connectedness: The measure of Internet connectedness used in this study was a modification of the 9-item index used by Jung et al. (2007). 8 items from Jung et al.'s index was used in this study. Moreover, activity scope and time scope were combined in this study, producing a 7-item index as showed in Table 3.

The same with Jung et al.'s work, each variable was multiplied by a value to create a common factor of 12 in this study. For instance, task scope, a 3-point scale, was multiplied by

4, whereas, Internet dependency, a 5-point scale, was multiplied by 2.4. ICI scores were calculated by taking an overall average, ranging from 1 to 12. The reliability alpha was 0.71 for this 7-item scale.

(*Insert Table 3 About Here*)

Findings

Identification of online opinion leaders in Songshuhui.net

The online opinion leadership scale was developed to collect responses from 246 participants in Songshuhui.net to identify opinion leaders.

In previous studies, the distribution of scores on opinion leadership scale was dichotomized into “leaders” and “followers”. In this study, the division of the opinion leadership scores was designed to approximate the percentage classified as opinion leaders by Lazarsfeld in the 1940 voting study. The upper 26 % (N=64) of the respondents were identified as opinion leaders compared with 21% by Lazarsfeld (1944).

The use of cross classification provides an effective method to show the concentrations of opinion leaders in gender and education level. Table 4 revealed that opinion leaders are significantly more concentrated among people had higher education level. Thus, H4 get supported and H1 did not receive support.

(*Insert Table 4 About Here*)

As to age and income, the result of T-test in Table 5 showed that no significant differences were found. Results shown in Table 4 and Table 5 suggested that online opinion leaders are not concentrated in the upper class of respondents but located in almost equal proportions in each stratum. The result was contradicted with previous opinion leader studies (e.g., Rogers, 1962; Summers, 1970), which found opinion leaders have higher social status.

The result also suggested that Internet was more equal as compared with the physical word. In other words, it provides more possibility for the less privileged social groups to express opinions and exert influence on others in this virtual space.

Differences between opinion leaders and non-leaders

The second research question asked if there were differences between online opinion leaders and non-leaders with respect to their traditional media exposures, ICI scores, BBS participating activities and demographic characteristics. Discriminant analysis was run using the 4 aspects as predictors. Table 5 shows that online opinion leaders spent more time on Songshuhui.net, participated in this BBS earlier and got higher scores on ICI. This indicates that the Internet played more important role in their life. In respect of traditional media exposure, online opinion leaders spent more time on radio listening compared to non-leader. The function correctly classified 67.1% of the cases.

(*Insert Table 6 About Here*)

Predicting online opinion leadership

As shown in Table 6, regression analysis demonstrates that students are more prone to get higher scores on online opinion leadership ($\beta=0.309$, $p<.01$). In respect of traditional media exposure, no significant relationship was found between online opinion leadership and traditional media exposure.

As to predictors related with online activities, regression results indicate that ICI scores ($\beta=.298$, $p<.05$), time spent in Songshuhui.net ($\beta=.157$, $p<.05$) and the participation history in Songshuhui ($\beta=.298$, $p<.001$) all have significant positive relationship with opinion leadership. These give support to H6, H7 and H8. The variance explained in this regression equation was 16%.

(*Insert Table 7 About Here*)

Conclusion & Discussion

Online opinion leaders: Redistributed Influential ability

One of the questions concerned in this study was that to what extent the Internet has changed people's influential ability which was found to be largely determined by the existing social economic status. However, in this study, the results demonstrate that among a group of young BBS users, averaged 24 years old, opinion leaders were found not to be concentrated in any gender, age, occupation and income stratum. Among all of the characteristics, what really matters was education level. Opinion leaders are only found to be significantly more concentrated among people with master degree or above. Considering Songshuhui.net is a BBS about popular science, this phenomenon suggested that the knowledge plays an imperative role in distinguishing online opinion leaders and non-leaders in this BBS.

These findings contradicted previous opinion leader studies conducted in real life, which confirmed once and once again that opinion leaders usually have upper social status. However, these results empirically supported that BBS, the virtual community, do empower the less privileged people who limited influential ability in the real life.

Sources of information and the traditional mass media's fading away

Contrary to what was expected, there was no significant relationship between opinion leadership and traditional mass media exposure. In previous opinion leader studies, more traditional mass media exposures were one of the important opinion leadership predictors. However, the results in this study suggested that traditional mass media were less of the information resources for BBS participants, especially for those online opinion leaders.

In this study, high percentage of respondents spent less than 30 minutes a day on a number of traditional mass media (e.g. 57.7% watching TV less than 30 minutes every day, 63.4% for reading newspaper, 58.9% for reading magazines and 79.7% for listening to the radio). In contrast, 39% of the respondents spent more than 5 hours on the Internet. These figures demonstrated that traditional media is fading away in these BBS participants' life and the Internet is taking up more and more time in their life.

It is also worth noting that radio listening amount was one of the differences between online opinion leaders and non-leaders. This finding is very likely to be tied with the interactive attribute of today's radio programs. Audiences of radio programs are often encouraged to call in to express their opinions. Thus, compared to other mass media, radio has significantly more attractiveness to online opinion leaders than non-leaders.

Online activities and opinion leadership

In this study, ICI, BBS participation history and time spent on BBS every day were all found to have significant positive relationship with opinion leadership. These findings are theoretically explicated. Firstly, people who get higher scores on ICI regard the Internet as more important in their life. Thus, it is reasonable to contend that they will regard cyberspace as an ideal space to express their opinion and be recognized.

Moreover, virtual community is not for acquaintances, but for strangers. Frequently participation in this community is the main way to get accepted by other members in this virtual society. In other words, the level of involvement in the virtual community determined one's social capital in the virtual community. In this sense, these findings are consistent with Burt (1999), who indicates that social capital plays an important role in predicting opinion leadership.

Limitations and suggestions for future research

As an explorative study, this research is subject to certain limitations. First, the data were gathered in a non-probabilistic way, which may problemize the representativeness of the sample. Second, this study was confined in Songshuhui.net, which is a popular science BBS. Thus, the result of this study may have limited generalization to other BBSs and virtual communities. Although statistical significances were found in many relationships, there were only 246 valid samples which may limit the generalization of the findings. A questionnaire survey was conducted in this study and the subjection of the respondents may make the data not so accurate. Further studies should adopt content analysis and textual analysis which will exert least instrument on the data collected.

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Table 1: Demographic Features:

		Frequency	Percentage
Gender	Male	137	55.7%
	Female	109	44.3%
Occupation	Students	137	55.7%
	Professionals or white collar workers	80	32.5%
	Government officials	12	4.9%
	Unemployed	17	6.9%
Education	High school graduate or under	40	16.3%
	Bachelor degree	162	65.9%
	Master degree or above	44	17.9%
Income	No income	106	43.1%
	1-2000 Yuan/month	29	11.7%
	2001-6000 Yuan/month	106	43.1%
	6001 Yuan/month or above	11	4.5%
Total		246	100%

Table 2: Online Opinion leadership Scale

Items	Scale used
1) In general, how much do you like to talk about _____ on the BBS?	5-point Likert scale, from “not at all” to “always”
2) During the past 2 weeks, how many people have you communicate with in the BBSs?	1. no one 2. 1-5 3. 6-10 4. 11-20 5. more than 20
3) Compared with other participants in the BBSs, how often are you asked for advice about _____?	5-point Likert scale, from “not at all” to “always”
4) Which of the following situation happens most frequently?	5-point scale. From “I always reply to other’s posts” to “Others always rely to my posts”
5) Do the other participants take your opinion seriously?	5-point Likert scale, from “not at all” to “very much”
6) Do you have the feeling that you are generally regarded by the others in the BBS as a good source of advice about _____?	5-point Likert scale, from “not at all” to “always”

Table 3: Internet connectedness index (ICI)

Dimensions	Items	Scale
Home computer history	How many years has you owned a personal computer?	Less than a year 1 to 2 years 3 to 6 years More than 6 years
Task scope	What task do you deal with when you are connected to the Internet?(Adding up the number of tasks which were chosen by the respondents)	Work related task School related task Personal related task
Site Scope	Where are you connected to the Internet most frequently?(Adding up the places which were chosen by the respondents)	Home Work School Public library Net Bar
Activity and Time Scope	How often do you participate in BBSs? How often do you participate in chat rooms? How often do you participate in online games? How often do you participate in surfing the web? How often do you participate in online shopping? How often do you participate in information searching?	Likert 5 point scale from “never” to “always”
Evaluation of how the Internet affects personal life	Thinking about the pros and cons of the Internet, do you think what effect it has?	Likert 5 point scale from “Very negative ” to “Very positive”
Computer Dependency	Imagine that you woke up tomorrow to find that the computer has vanished, how much will you miss it?	Likert 5 point scale from “not at all” to “very much”
Internet Dependency	Imagine that you woke up tomorrow to find that the Internet has vanished, how much will you miss it?	Likert 5 point scale from “not at all” to “very much”

Table 4: Concentration of Online opinion leaders by gender and education

	Characteristics	Percentage concentration of opinion leaders	Base	Sig.
Gender	Male	24.8%	109	0.402
	Female	27.0%	137	
Education Level	High school graduate or under	17.5%	40	0.032
	Bachelor degree	24.1%	162	
	Master degree or above	40.9%	44	

Notes. # $p < .1$; * $p < .05$; ** $p < .01$; *** $p < .001$

Table 5: T-test in respect of age and Income

		N	Mean	Std. Deviation	t	df	Sig.
Age	Non-opinion leaders	182	24.15	4.40	-.169	244	.866
	Opinion leaders	64	24.27	5.18			
Income	Non-opinion leaders	182	1,865.38	2631.56	.679	244	.498
	Opinion leaders	64	1,617.18	2142.71			

Notes. # $p < .1$; * $p < .05$; ** $p < .01$; *** $p < .001$

Table 6: Discriminant analysis of online opinion leaders with traditional media exposure, ICI and demographics predictors (N=246)

Predictors	Structure coefficients
ICI	.310*
BBS participation	
Time spent on Songshuhui.net every day	.622*
Songshuhui.net participation history	.383*
Traditional media exposure	
Newspaper	.230
Magazine	.205
Radio	.483*
TV	.011
Demographics	
Gender (male=1)	.090
Age	.028
Income	.079
Education	.261
Eigenvalue	.147
Canonical correlation	.358
Degree of freedom	11
Wilks's lambda	.872
Significance	p<.001
Group centroids	
Online opinion leaders	-.229
Non-leaders	.637
Cases correctly classified	66.5%

Notes. * means Structure coefficients > 0.3; Online opinion leader=1, non-leader=0.

Table 7: Regression analysis of online opinion leadership

Predictors	β
Demographics	
Gender (male=1)	.096
Age	.034
Income	.164
Education level	-.043
Occupation (student=1)	.309**
Traditional media	
Newspaper	.031
Magazine	.036
Radio	.096
TV	.027
BBS participation	
Time spent on Songshuhui.net every day	.298***
Songshuhui.net participation history	.157*
ICI	.126*
Final adjusted R ²	.16

Notes. * $p < .05$; ** $p < .01$; *** $p < .001$