WHAT PEOPLE WANT AND WHAT PEOPLE NEED: MOTIVES FOR PARTICIPATION IN AN ELECTRONIC BULLETIN BOARD SYSTEM

by

Chunta Peng
July 9, 2003

A thesis submitted to the
Faculty of the Graduate School of State
University of New York at Buffalo
in partial fulfillment of the requirements for the
degree of

Master of Arts

Department of Communication

To my parents

I would like to show my appreciation to my advisor Dr. Halavais for his patient instructions and to Dr. Hong and Dr. Ozanich for their inspirational helps.

I would also like to express my thanks to all my friends who gave me supports so much during the writing of this thesis, especially to Wan-pin and Roxy.

Thank you.

TABLE OF CONTENT

ABSTRACT

The Internet has dramatically changed human communication. This new technology lets people create and receive messages simultaneously. Within the interaction of online activities, virtual communities are formed. In these virtual collaborative environments, community members can gratify their different needs. These needs are often categorized as cognitive and affective, and people employ or avoid different activities to satisfy them.

This study follows the theory of uses and gratifications to probe the motives for user participation in the electronic Bulletin Board System (BBS). User participation may be observable or obscured. The invisible users, who never or infrequently utter postings in public spaces, are called lurkers; they are important subjects and should not be neglected. To include all kinds of BBS users, the current study administered a two-mode online survey consisting of email and webpage questionnaires.

The survey's findings suggest that a higher level of affective gratification and a lower level of internal avoidance are indicative of more articles posted or replied to in the public domain. Additionally, alternative communication methods beside public participation are investigated to see whether gratification can be achieved.

INTRODUCTION

More and more people participate in online activities; millions of people are reading and posting articles or interacting with each other online. Virtual communities are formed by many online users, and the number and the size of these communities are increasing quickly. As a result, researchers have tried to investigate how people participate and communicate in online communities. In many researches, participation is narrowly defined as the activities of posting and replying to the public forums. These activities can be easily observed in computer log files or directly from forum articles. However, much of the interactivity of online group users is invisible. Recent studies indicate that a large proportion of online group users are not easily observed and tend to be neglected. These invisible users are defined as "lurkers."

This study probes the socioemotional origins of online users' participation and will also try to discover the different patterns of their participation and non-participation. The results show that socioemotional motives play an important role in online participation. The Internet has been thought of as a prominent tool for seeking information; however, this study finds cognitive motives have little effect on users' participation. Challenging the argument that social and emotional elements are less important in computer-mediated communication, affect is found to significantly motivate or discourage participation for online group users.

In the current study, the motives for using online discussion groups, from which a BBS is chosen, are investigated. In what ways do people use BBS to fulfill their needs? And to what extent are their needs gratified? How does the gratification of different motives influence the type of participation? This study randomly chooses general users from a BBS as its sample frame, and hopes to cover both active users and lurking users. The investigation will probe the uses of public discussion board, as well as other communication channels which are utilized among BBS users. This study will focus centrally on how motives matter to users' participation.

The Internet connects people

The development of computer technology has changed human communication dramatically. The Internet connects people from all over the world despite the discrepancies of distance. People do not speak to a computer anymore; instead, they communicate with others behind the screen. The Internet weaves a vast web, embracing every user under its net and allowing the user to travel in seconds to wherever the net reaches. For example, one can talk instantly with friends located on the other half of the planet, or an investor can conduct business with any foreign company from his bedroom. All these new capabilities have instant impact. Cairncross (1997) asserts in his book, *The Death of Distance*, that people usually underestimate the long-run influences of advanced technology. He believes

that technology change will alter the styles of work, the rolls of the home, and global and local cultures. With the impact, society will be changed. The new technology of communication will "create new ways to socialize and build communities of interest, independent of geography." While the Internet will have an impressive influence on human life style, both its abilities and restrictions leave many issues yet to be studied.

In accordance with the prophecy made in McLuhan's book, *Understanding Media* (1964), "as electronically contracted, the globe is no more than a village." People use the Internet for various work and leisure activities, such as surfing the web, sending and receiving emails, and conducting online transactions. To the extent that people are deeply influenced by this new technology, McLuhan (1964) believed that media are "the extensions of man" as declared in the subtitle of his book, and, furthermore, the electronic media are the extensions of the human nervous system. With the Internet, people can extend their connection to the rest of the world and the scenario of "global village" seems clearer. To extend this concept, can an online discussion board, where different degrees of interaction occur, be a village?

Research reports that, in the United States, the increasing number of people connecting to the Internet comprises more than 70% of the entire population and the Internet's explosion has been much faster than other

electronic technologies (*UCLA Internet Report*, 2003). With the improvement of telecommunication infrastructure and the reduction in Internet access costs, an increase in the connected population is anticipated.

Since more and more people are engaged in online activities, researchers want to investigate what people do most often on the Internet. Some salient online activities are reported in surveys; for example, email is among the most popular activities. Surfing or browsing, finding information about general topics or specific hobbies, and reading news are also frequent Internet activities for Americans (*UCLA Internet Report*, 2000, 2001, 2003; Nie & Erbring, 2000). Internet users scored 4.1 out of 5 when reporting their satisfaction with the ability of the Internet to enable them to communicate with other people. More than 76% of email users check their email at least once a day (*UCLA Internet Report*, 2000). This suggests that Internet users are apt to treat the Internet as a communication tool, since email ranks first among Internet activities and users are satisfied with it.

The rise of the virtual community

The reciprocation between source and recipient is always a crucial topic for communication study. Morris and Ogan (1996) categorize the relation between producers and audiences on the Internet into four foci. First, email facilitates one-to-one communication, which is asynchronous between sender and receiver. Second, Usenet, Listserv, and BBS, where users sign up

or log on to get information or topics they need, are many-to-many asynchronous communications. Third, users communicate one-to-one, one-to-few, or one-to-many about a designated topic; for example, MUDs (Multi-User Dungeons), IRC (Internet Relay Chatting), and chat rooms. Fourth, the situation where users try to search information can be many-to-one, one-to-one, or one-to-many, such as web sites, gophers, and FTP sites. These categories suggested by Morris and Ogan (1996) divide Internet activities into different groups; however, these functions can be merged as a whole. Some web sites and BBS sites allow login members with the same interests to send email to one another, post and read articles from the forums, chat in the chat rooms that are provided by the sites, or even share or download files from databases or discussion groups. Most tasks can be done in an integrated interface, like the Yahoo and MSN groups.

The linking of computers lets people use their keyboard to communicate with others behind the computer interface. J. C. R. Licklider (1968) foresaw the "computer as a communication device" very early in the era of computer technology development. He described online interactive communities as communities that "consist of geographically separated members," and "not of common location, but of common interests." Everyday, online discussion groups such as Usenet gather millions of articles covering a multitude of human interests from most corners of the world.

Users contribute articles and develop new relationships with other group members with the same interests (Mclaughlin, Osborne, & Smith, 1995; Smith, Mclaughlin, & Osborne, 1997; Smith, 1999, 2002). As Licklider predicted, online communities take on a form based on common interests. Different from email, BBS and Usenet are "pull" media rather than "push" media, in which information does not come to users automatically but is actively requested (Kollock & Smith, 1999).

In a discussion of why communication researchers should study the Internet, Newhagen and Rafaeli (1996) stress that "interactivity is critical to the communication process." Rafaeli proposed that Internet communication differs from other traditional media because of the following qualities: multimedia, hypertextuality, packet switching, synchronicity, and interactivity. Internet content consists of text, pictures, voices, animation, etc., with a hypertext structure that breaks the linear communication model of traditional media. Speed and the ability to save communication contents enable the Internet to extend the meaning of time. For example, people can chat real-time or discuss in the threads of Usenet. Newhagen also suggests that parallel-distributed architecture is the most notable feature of technology-mediated communication. In addition, packet switching makes possible the interactivity that is a significant element to communication, and this technology ensures the capability of interactivity in Internet communication.

Computer-mediated communication (CMC) is the largest form of conversation among its multitude of users, and, as discussed above, the Internet facilitates the high possibility of interactivity, which guides sociability. Interactivity is the process of messages coming and going, in which the relatedness between earlier and later messages establishes social reality (Rafaeli & Sudweeks, 1997). Sproull and Kiesler (1991) demonstrate two levels of perspective on technology use: efficiency system effects and social system effects. When an organization adopts new technology as a new communication tool, the improvement in efficiency is an instant benefit.

After the introduction of the technology, people alter the way they perform life's activities and schedule their social life, which causes the second level of social effects. Sproull and Kiesler (1991) give examples of an organization establishing an email system as a new communication tool among employees. The new technology not only increases the efficiency of the company, but also changes how colleagues cooperate with one another and their social contacts. CMC is not only defined in technological terms, but the interactivity also leads to a broader sociological discussion.

Wellman and his colleagues (1996) introduce the idea that the Internet transformed human-machine communication into a new age of computer-mediated communication, and that the people connected through the Internet become a computer-supported social network (CSSN). Besides

information exchanges, social support and new relationships are fostered in CSSNs. Additionally, as the members share similar interests in information and support, the homogeneous culture between them is developed even more strongly than their communities in real life. Hence, the coherence of this kind of community is not related to the intimacy of geographical location but the social networks that members form online. The feeling of belonging is believed to exist in online groups, and this is "indeed a sense of community" (Roberts, 1998).

There is no precise definition of community; however, the common meanings "tend to be metaphorical efforts to convey a kind of psychological unity." And, the "sense of community is a highly variable condition when it does occur, differing from one individual to another and from group to group" (Schnore, 1967). In a community, members who help each other and build relationships share common rules and specialized language. To this extent, a sense of group union and individual belonging is formed (Garton, Haythornthwaite, & Wellman, 1997; Roberts, 1998).

Can a virtual community be a real community? Wellman and Gulia (1999) have a series of discussions on many facets of the relationships in virtual communities. They conclude that the Internet "successfully maintains strong, supportive community ties, and it may be increasing the number and diversity of weak ties." Members of online communities build their feeling of

closeness on the basis of sharing similar interests and this enhances the feeling of intimacy between members who are geographically separated. The way group members establish and maintain their different kinds of relationship in virtual communities is similar to the way they interact in real communities. The fast and economical computer-mediated communication fosters new relationships online and facilitates the strengthening or maintaining of weak or strong ties as well. As Wellman and Gulia (1999) assert, the issue of technology has been transferred into an intricate topic of sociology, psychology and communication.

From the arguments discussed in the previous paragraphs, everyday life is penetrated and influenced by technology. People now have much easier and faster ways to retrieve and share information by the computer technology that crosses all time zones and connects dispersed locations. People are also linked to provide each other with substantial help and emotional support; by the interaction of group members, the virtual community can be formed. With these characteristics of online discussion groups, it can be assumed that users might have the need for information or social support. In the current research, the uses of the Internet will go backward to the most initial element, the motive. In communication research, there is a long tradition of the use and gratification model to deal with the

audience's motives and media effects. The related literature will be discussed in the next chapter.

Goal and subject

For this research, a BBS was chosen as the subject. Though BBS is relatively old in the field of the Internet subjects, it's still suitable for the current study. First, all members of a BBS must register and sign into the system every time they start using it. Second, a BBS is moderated by the SYSOP (System Operator). Malicious and unrelated utterances are not welcomed and may be deleted by discussion board moderators. Third, except for a discussion group, a BBS allows users to send instant messages, email each other, or chat in a chat room. All these features provide a much more stable environment than Usenet for both researchers and group members.

The following chapters will cover four areas: the related literature and studies of the virtual community, the research methods, the survey results of this research, and finally, the discussion and conclusion. The literature review chapter will discuss the related studies and approaches in computer-mediated communication and what researchers think about the strengths and the weaknesses of this technology as opposed to traditional interpersonal media. The research methods chapter will detail the procedures of this study, and why this study adopts the online survey to

probe the motives of virtual group users. The results chapter will explain the results of the survey by descriptive statistical tools and provide the preliminary results of the findings. The final discussion will apply the literature review, explain the results of this study, and find out if it supports the arguments of the previous CMC investigations.

The results of this research will hopefully provide a complete view of online discussion group users, and contribute some input to online group designers for a better online environment. The online community will be penetrating more into everyday life, and understanding it will help people find a better way to adopt this new technology and make it a more useful communication medium.

LITERATURE REVIEW

The following literature review will elaborate the past computer-mediated communication studies and the framework of the uses and gratifications model. Computer-mediated communication is regarded as a revolutionary change in human communication, and the literature will mainly discuss the research of online groups and the socioemotional effects of virtual communities. The uses and gratifications approach is commonly employed when dealing with audience motives and media effects, and the literature will introduce the traditional and rejuvenated faces of this approach. The literature will also illustrate human motives and needs for communication to establish a concrete structure for this study.

Computer-mediated communication (CMC)

As introduced in the previous chapter, computer-mediated communication is no longer just an electronic term; it has a social and psychological scope, which lets communication study develop the ability to investigate the impact of this new technology on human activities. The foci of CMC study are numerous. Walther (1994) introduced the scope of CMC study as having two aspects: the comparison with conventional group and face-to-face communication; and the cognitive, societal, and psychological effects of media users while they interact with people and with the medium. Computer technology provides a radical departure from traditional

communication media and alters the structure of human communication in many ways. Walter's two CMC aspects will guide most of the literature reviews in this study.

On the smaller scale, CMC researchers are interested in what happens when an organization adopts a new technology communication tool for either work-orientated or social-orientated functions. How the organization experiences various degrees of change resulting from the new technology is discussed broadly in the terms of work efficiency. Workers across a company have experienced new methods of collective workflow with email and teleconferencing systems. They can discuss and share information easier and faster (Hiltz & Turoff, 1978; Turoff & Hiltz, 1981; Sproull & Kiesler, 1991). People benefit from technology by having more flexibility to control their time within the constraints of everyday tasks (Wellman, Salaff, Dimitrova, Garton, Gulia, & Haythornthwaite, 1996).

However, the utilization of technology may not be as optimistic as anticipated. Hiltz and Turoff (1981, 1985) address the problems of information overload and unanticipated junk mail if a computer-mediated communication system is not well structured and managed. Sproull and Kiesler (1991) state that the fast and easy use of powerful email alters the way people treat their messages. People can simply send messages to hundreds of others at the same time with email or bulletin board systems,

and this may reduce the quality of the messages. People will not take messages as seriously as they used to and the increasing flaws in information decrease the reliability of electronic messages. Walther (1992) points out more problems of technology-mediated communication in organizations. Decision making groups, when adopting a teleconferencing system, will take more time to reach their final conclusion than in face-to-face conferences. He asserts that verbal-only data of a teleconferencing system reduces the socioemotional messages that contribute to getting tasks done.

With the fast development of Internet software and protocols, synchronous and asynchronous interactive activities online have flourished and mushroomed. The scale of CMC has been strengthened enormously so that millions of people participate in online groups every year. MUDs, Usenet groups, IRC, and BBS engage the interest of CMC researchers to pay more attention and investment in the activities and interactivities of CMC users (Rafaeli, 1986; Rafaeli & LaRose, 1993; Turkle, 1995; Smith, McLaughlin, 1997; Roberts, 1998; Kollock & Smith, 1999; Boneva, Robert & Frohlich, 2001; Smith, 1999, 2002). Researchers probe the effects on different patterns of people's interaction when they are involved in participation in these online activities, including messages exchanged, user identities, and relationships within the arenas of online groups (Walther, 1992, 1994, 1996;

Wellman, Salaff, Dimitrova, Garton, Gulia, & Haythornthwaite, 1996; Rafaeli & Sudweeks, 1997; Wellaman & Guila, 1999; Donath, 1999; Postmes, Spears, Sakhel, & Groot, 2001).

The plenitude of Internet-archived online conversations and information makes a tremendous information depository for users to query. For example, Usenet, regarded as the biggest conferencing system and a large collective of online conversation, gathered more than 150 million messages in the year 2000 (Smith, 1999, 2002). Moreover, more than 171 million Internet hosts were detected to be active during a survey in January 2003 (Internet Software Consortium, 2003). The process of people searching and exchanging information in online groups makes group members a computer social support network (CSSN), as Wellman and his colleagues (1996) declare. The social network based on the exchange of messages among users creates social reality (Rafaeli & Sudweeks, 1997). Members of discussion groups are often homogeneous and share similar interests. This may establish intimacy between group members without the closeness of physical location that is a necessity for real-world communities (Licklider & Taylor, 1968; Mclaughlin, Osborne, & Smith, 1995; Smith, Mclaughlin, & Osborne, 1997; Garton, Haythornthwaite, & Wellman, 1997; Roberts, 1998; Smith, 1999).

According to the literatures, virtual communities are established in these online virtual groups. Researchers believe that online communities have functions similar to real-life communities. To extend the query, investigators probe the relationship between both strong and weak ties that people build and sustain in the process of interactivity between authors and audiences (Walther, 1992, 1994, 1996; Rafaeli & Sudweeks, 1997; Wellaman & Guila, 1999). They discriminate the differences between CMC and traditional communication methods, for example, face-to-face communication. The narrow bandwidth of CMC is discussed by scholars (Short, Williams, & Christie, 1976; William & Rice, 1983; Kiesler, Siegel, & McGuire, 1984; Rice & Love, 1987; Sproull & Kiesler, 1991; William, Strover & Grant, 1994) for its incapability of carrying limited social context cues, which are easily found in face-to-face communication. A social cue can reveal many hints that are not easily expressed in verbal communication and are obscured in online conversation. These clues, such as age, sex, and social status, are mostly absent in online conversations when only the keyboard and screen function as the message producer and receptor.

People involved in a face-to-face conversation can perceive additional meaning by one's gestures, facial expression, apparel, etc. However, social cues are not totally comprised of visual aids. Researchers describe social presence as the communicators' psychological emotion within the activity of

communication. People can feel for each other affectionately and personally because of the sufficient presence of each other (Short, Williams and Christie, 1976; Papacharissi & Rubin, 2000). Rice and Love (1987) also point out that some researchers conclude that CMC delivers less interaction in interpersonal communication, which makes CMC less personal and friendly than face-to-face communication. In other words, the lack of sociability will shape the CMC as businesslike and task-oriented functions, and less personal and socioemotional messages are used.

Under this argument, researchers question whether a strong relationship and emotional connection can be established in CMC since limited social cues are delivered. However, there are studies showing that members who interact with one another do form different kinds of relational ties in online groups and the occurrence of friendship is also found. Parks and Floyd (1996) report that almost 60 percent of the respondents in their research said they had started a personal relationship with the people they first met in newsgroups; and these relationships have a great chance of moving to people's real lives. Traditional interpersonal channels, like telephone or face-to-face, let the social presence, voice and faces of each other be added to a relationship originally established online.

Rice and Love (1987) employ a series of network and content analyses on the socioemotional messages of computer bulletin boards. Their

findings—that more socioemotional content may be found among active users, and the greater frequency of messaging are positively related to the greater duration of messaging—imply that "CMC can support socioemotional communication and the communication reflects the inherent communication traits of the users" (p. 102). Wellman and his colleagues (1996, 1999) propose that in an online group, people share and focus on common interests and this definitely shortens the distance between group members, not in physical proximity but in psychological affections. Members receive and provide socioemotional information, resources, and support. Cummings, Sproull, and Kiesler (2002) state that Internet support groups are especially valuable for those who are physically and mentally isolated; they have more chance to receive social support, professional help, and find someone to talk with. According to the findings, though CMC is insufficient in exchanging social context cues, it does facilitate social support.

The limitation of social cues in online conversation can give users a degree of anonymity and invisibility, which may provide more privacy for those who do not want others to be aware of their existence in online communities. The pseudo-identification, nickname, screen name, or ID in virtual communities provides scant description of the user unless he or she wants to elaborate in the ID, which is not a reliable way of determining true identity. Nevertheless, the ID is also a validation of a user's reputation and

existence. One can express his or her identity by helping others, such as through technical support or supportive behavior. This will help oneself gain self-confidence and hold a good reputation in the group. If people change their ID, they must give up the history connected with the nickname, too (Meyer, 1989; Wellman & Guila, 1999). Turkle (1995) describes the parallel lives of MUD users who play different roles in the virtual reality and build their online "personae," which Turkle explains as "an actor's mask." Members in role-playing establish virtual relationships, like family or lovers, and they can "act out" or "work through" the problems in their real life.

Researchers also survey the social influences of group norms on members and try to find out if self-awareness is reduced in an anonymous CMC environment (Postmes, Spears, Sakhel, & Groot, 2001). The finding shows that anonymity will amplify the group identification of members when a prominent common group identity is present, and no conclusion is supported that the anonymity decreases the self-awareness of group members. Organization identification can be strengthened through the frequent use of email messages. Wiesenfeld, Raghuram, and Garud (1998) find from their research that electronic communication and group identification are strongly related. Though face-to-face communication is crucial in creating the organization identification, electronic mail is playing an

increasingly important role in maintaining the identification of an organization.

For most online discussion groups, the lack of obligation or requirement for users to contribute their input to the forums may facilitate some "rational users" to only take information from the group without contribution. As a collective mass media, the BBS users produce messages as well as consume them at the same time. The content will run out if no contributions are made (Rafaeli & LaRose, 1993). In past studies, the users who just take without giving are commonly defined as free-riders (Morris & Ogan, 1996; Kollock & Smith, 1999; Adar & Huberman, 2000); however, these users happen to make up the majority of online group members (Kates, 1998, Nonnecke & Preece, 2000, 2001) and they are not easily discovered in the relatively invisible CMC (Wellman & Guila, 1999). These majority users are referred as "lurkers." A **lurker** is defined as:

> One of the 'silent majority' in an electronic forum; one who posts occasionally or not at all but is known to read the group's postings regularly (Jargon-Dictionary, 2001).

Nonnecke and Preece (2000; 2001) criticize that lurkers, the majority of the online population, are always neglected in online group studies. They also point out the poverty of knowledge of lurking behaviors, and provide the view that the "participation" of online group users should not be narrowly

confined to the definition of posting in public spaces, which lurkers seldom do. Other than posting articles to the public domain, lurkers may still connect to the group in many ways, such as sending emails (Katz, 1998).

These findings contribute a more complete view of CMC, in which both active and passive users are included. To understand the pattern of users' behavior and motives, all these participants should be embraced. Then, one of the topics in this study will probe the motives for posting or not posting messages in public spaces. The uses and gratifications approach will help to clarify the motives for the participation of online group users.

Uses and gratifications (U&G)

By rethinking the definition of CMC research, Morris and Organ (1996) introduce the CMC producer-audience relationships as one-to-one, one-to-many, many-to-one, and many-to-many, while the chronometry is introduced as synchronous and asynchronous. These models definitely respond to and are transformed from traditional mass media communicative styles, source-message-receiver relations. They propose that communication researchers should view the Internet as a mass medium, and some mass media theories, such as uses and gratifications (U&G), are suitable for application to CMC studies. There are CMC investigators who also agree that the uses and gratifications perspective is useful and practical in Internet communication studies .The rejuvenated uses and gratifications approach can shed some

light on the direction of Internet research in the discipline of communication (Rafaeli 1986; Newhagen & Rafaeli, 1996).

Katz, Blumler and Gurevitch (1974) declare the foci of uses and gratifications research as "(1) the social and psychological origins of (2) needs, which generate (3) expectations of (4) the mass media or other sources, which lead to (5) differential patterns of media exposure (or engagement in other activities), resulting in (6) need gratifications and (7) other consequences, perhaps mostly unintended ones" (p. 20). As the statement declares, U&G researchers have focused on audience needs, the selection and exposure to different media, and the effects of media consumption.

Scholars of media effects have been dissatisfied with the assertions of magic bullet or hypodermic needle theory that treat audiences as passive victims, and had been moving their attention toward the active role of media audiences. Researchers aim their questions at the effects caused by different sorts of media content and forms, and they also try to inspect the influences between these effects and the needs of audiences from different social circumstances (Blumler, 1979).

U&G researchers share some underlying assumptions that build the flesh of this approach; however, some of them are disputable. First, U&G researchers believe that audiences are active, which refers to the fact that

mass media use is goal-oriented. People are relatively active in choosing media or content. Second, media choice and need satisfaction are considered necessarily connected. People use media to fulfill basic needs and meet their interests, for example, seeking particular information for entertainment or answering questions. Third, among the choices to satisfy needs, media are in competition. The consequence is that people look for functional alternatives from medium to medium based on the different psychological and social status of audiences. Fourth, the effects of social and psychological variables intermediate people's communicative behavior and media. Patterns of people's response to media are altered by their different social and psychological conditions. Fifth, people can interpret their needs and motives and can report them well. Six, judgment should be balanced when dealing with the different cultural values (Katz, Blumler, & Gurevitch, 1974).

The activity of the audience was often a criticism for U&G. Blumer (1979) states that the notion of active audience, including utility, intentionality, selectivity, and involvement, is too broad and makes the uses and gratifications model vulnerable. He claims the notion of audience activity should be distinguished by different media use stages: before exposure, during consumption, and after the media experience. Before media exposure, people choose what content or media to use in order to fulfill their needs or requirements. For example, one can choose to post questions in a

discussion board when one wants to find more opinions for solving a problem. One can also look for relaxation by choosing TV as a tool to kill time. In the stages of consumption and post-consumption, activity can be indicated by people's memory and awareness of the media content and by the uses of it in consequent behaviors.

With the development of the U&G model in the past decades, researchers have reconsidered the concept of activity, which was previously regarded as a universal attribute of media audiences. Activity of audiences is now treated as a variable rather than a premise of U&G studies. Researchers begin to investigate diverse orientations led by different degrees of activity (Rubin, 1993, 1994; Rubin, A. & Rubin, 2001). Compared to traditional media, the Internet provides a much greater possibility for people to decide how and what to access. The functioning of the online media requires more active users to participate, and information seeking on the World Wide Web and newsgroups suggests that Internet users are goal-oriented and aware of their motives for Internet use (Lin & Jeffres, 1998; Ferguson & Perse, 2000). Rubin (1994) also addresses the fact that the techniques for validating scales, experiments, and ethnographic studies in past decades helped make the method of audience self-reporting more well-grounded.

Is there competition between different media when people decide which media or content to access? Rosengren and Windahl (1972) analyze

the concept of the functional alternative for media users. They state that people will turn to other media when their needs cannot be gratified because of personal or environmental restraints, which can be societal and psychological. That is, the needs of people will drive them to turn to other media when satisfaction is not gratified by the first medium. Becker (1979) concludes from a series of political audience surveys that the gratification of needs is not "media specific," which means people search for their particular gratifications from more than one medium. In other words, the basic orientations of motives are the same despite the type of media. For example, people look for political information both from newspaper and television news to satisfy their surveillance needs. It can be assumed that people would try to seek gratification from any resource they can reach, and just one medium may not be sufficient to fulfill all their desires.

Scholars of CMC probe the contest between conventional communication and technology-mediated communication by the needs they gratify. Television provides functions similar to the Internet (Kaye & Johnson, 2002); however, for relaxation, the use of the World Wide Web may be not as prevalent as TV viewing (Ferguson & Perse, 2000). For face-to-face communication (FTF), Flaherty, Pearce, and Rubin (1998) found that CMC and FTF correlated in the fulfillment of pleasure and time-shifting needs; however, no other notable associations of gratifications are found between

CMC and FTF. The finding concludes that CMC is not a functional alternative to face-to-face communication for most interpersonal needs.

In recent studies, the role of CMC is no longer that of an opponent, but one of a complement to traditional communication methods for both informational and interpersonal motives. As an information-seeking instrument, studies discover that people did not leave traditional information sources because of the Internet. The substitution effect of the Internet to traditional media is not notable. People enjoy the speedy information from the Internet, while the information from traditional sources seems more reliable. However, the author believes that competition will still be a mystery when the cost and the use of the technology become more accessible (Savolainen, 1999; Parker & Plank, 2000). As a socioemotional device, studies show that people can receive different kinds of support from online and offline relationships (Cummings, Sproull, & Keisler, 2002) and maintain their relationships by computer-mediated and conventional communication (Parks & Floyd, 1996).

Different motives need different media functions to be gratified, and the functions are derived from people's motives. The needs for exploration, curiosity, and opinion enforcement lead audiences to ask for the function of surveillance; these basic cognitive needs guide people to relate to the world. Katz, Blumler, and Gurevitch (1974) discuss the relations between needs and

media functions. They state that the use of media materials for "personal reference" can be traced back to the need for self-esteem; social utility functions may be traced way back to the need for affiliation; and escape functions may serve the need to release tension and reduce anxiety. U&G researchers "ought to be studying human needs to discover how much the media do or do not contribute to their creation and satisfaction" (p. 30).

Motives

The U&G model has been criticized for its failure to provide a clear definition of orientation or motives. Rubin (1994) explains that the antecedents to behavior that past researches indicated, including needs, motives, uses, and gratification sought, can be treated as counterparts in the U&G sequence, while effects, consequences, gratification gained, and result play equal roles as the consequents of behavior. Maslow (1954) illustrates basic human needs in his book. At the very least, an individual must meet his or her physiological needs, which help maintain the biological organism of life; for example, the need for nutrition, water, and air. Then, safety needs are developed. To avoid unsafe feelings, people prefer the world to be manageable, predictable, and countable. After the satisfaction of physiological and safety needs, humans seek belonging and love needs, which means a desire for affectionate relations with others. Next in the hierarchy of human motives are the needs for esteem and self-actualization.

The need for esteem seeks to promote a positive attitude about self from others' feedback. Rosengren (1974) mentions that the need for affection, esteem, and self-actualization are the core concerns of U&G researchers. These needs are beyond physiology, and the need for self-actualization is sometimes described as a growth need, which has a more sociological aspect.

Media functions drive people to make different selections to access particular sources for particular needs. Researchers categorize a comprehensive realm of media functions, which include diversion, personal relationships, personal identities, and surveillance. Diversion serves the function of relaxation from everyday routine, escape from annoying problems, and ease of emotion. The utilization of personal relationships works as companion seeking and other social functions. People use mass media for querying, observing, and supporting their existing values and knowledge. The function of surveillance is quite similar to that of reality exploration in personal identity; however, surveillance requires more information and opinions about things happening in the world and does not provide thoughts for solving current personal problems of audiences, like personal identity does. (McQuail, Blumler, & Brown, 1972)

McGuire (1974) generates a 4x4 matrix that contains 16 general paradigms of basic human motivation by the four sets of cognitive versus affective, growth versus preservation, active versus passive, and internal

Table 2.1: A Structuring of 16 General Paradigms of Human Motivation

Mode	Initiation / Orientation / Stability	Active		Passive	
		Internal	External	Internal	External
Cognitive	Preservation	Consistency	Attribution	Categorization	Objectification
	Growth	Autonomy	Stimulation	Teleological	Utilitarian
Affective	Preservation	Tension-Reduction	Express	Ego-Defensive	Reinforcement
	Growth	Assertion	Affiliation	Identification	Modeling

Source: Psychological motives and communication gratification (McGuire, 1974)

versus external (See Table 2.1). He states, "the cognitive motives stress the person's information processing and attainment of ideational states, while the affective motives stress the person's feelings and attainment of certain emotional effects" (p. 173). Based on the primary criterion, McGuire also stresses that self-growth, which causes people to improve their present situation, and self-preservation, which simply helps to keep existing orientations, should be added into the factors of cognitive and affective dimensions. Two more categories focused on are active and passive, which are different attributes of people's eagerness toward their gratification sought, and internal and external, which are the inner and outer utilizations of achieved motives. The 16 motives of media gratifications here expect to comprise all "model of man" and the primary prototypes of human nature in the psychological motives of media uses.

Katz, Gurevitch, & Haas (1973) also list five facets of media-related needs of individuals that include: "(1) needs related to strengthening

information, knowledge, and understanding; (2) needs related to strengthening aesthetic, pleasurable and emotional experience; (3) needs related to strengthening credibility, confidence, stability, and status; (4) needs related to strengthening contact with family, friends, and the world; and, (5) needs related to escape or tense-release" (p. 166-167). Katz et al. specify need (1) as cognitive needs and need (2) as affective needs. These needs are the basic human media-related needs. Needs (3) and (4) are integrated from cognitive and affective needs. Need (5) serves the function of declining the contacts with self and one's social role. The categories of motives in the past studies can be generally separated into cognitive and affective, intrapersonal and interpersonal, and pursuit and avoidance; however, these motives are not opposite and sometimes integrate different human needs.

Information seeking is the most salient motive for media consumption. Information seeking is related to task-oriented motives to facilitate cognitive needs, such as surveillance, reinforcement, and entertainment. Different studies suggest that people use the Internet instrumentally and are aware of what information they are looking for when their motives are based on information needs (Papacharissi & Rubin, 2000; Kaye & Johnson, 2002). In Kaye and Johnson's study of political information uses (2002), they suggest that the Web is getting more important for serious

and reliable sources, which is also supported by the UCLA Internet report (2003) that more than 60% of Internet users in the United States rank the Internet as a very or extremely important source of information. A study of Ferguson and Perse (2000) shows that the major use of the World Wide Web is retrieving information from the Internet. They also propose that interactive browsing requires more activity and involvement of Internet users.

Savolainen (1999) analyzes the model of people choosing the Internet as an information source. He concludes the following: At first, people must perceive the existence of alternative sources; then the availability, accessibility, and usability of the new information sources are introduced to users; next, users evaluate the strengths and weaknesses between the Internet and other information sources. When more benefits from the Internet are perceived, the chances are greater that people will stick to the Internet as their information source. From the study, one can assume that people will use the Internet more if their needs are consistently gratified.

Emotional needs are also called companionship or social utility needs. Quoting from Schutz (1966), "people need people." Affiliation with other people is always a basic desire in human society. Literature also asserts that people need to be loved, want to make contact, and seek for pleasure and escape from interpersonal and mediated communications (Maslow, 1954, Katz, Gurevitch, & Haas, 1973). Stemming from the three interpersonal

needs, inclusion, affection, and control, stated by Schutz (1966) and early U&G studies, Rubin and her colleague (1998) designate six major interpersonal communication motives: pleasure, affection, inclusion, escape, relaxation, and control. Inclusion refers to the affiliation between people; affection is a sense of warm, friendly connection between people; and control is a relation associated with the process of decision-making. Pleasure, escape, and relaxation are the motives more related to communication gratification.

Studies also mention personal traits and their relations with communicative motives, such as the relation between shyness and sociability. Check and Buss (1981) specify the meaning of shyness as "tension and inhibition when with others" and sociability as "preference for being with others rather than being alone" (p. 300). Birnie and Horvath (2002) conclude from their study that shyness positively correlates with the intimacy of Internet communication; nonetheless, the intimacy refers more to anonymous socializing interaction than to intimate contact. Their results show that online social communication provides more options for sociable individuals rather than an accommodation for those who are shy or unsociable.

However, other studies show that people who are not satisfied with or do not fit well in traditional channels of interpersonal communication, such

as face-to-face communication, may adopt CMC more to gratify their sociability needs. Dunham and his colleagues (1998) test the social support in computer support groups, and indicate that their subjects, single mothers, use this source more frequently than people who have better social support in real life. Cummings, Sproull and Kiesler (2002) also state that people are more motivated when they are unable to get social support in their real life. These people can share their problems and reveal their true self with other group members by using nicknames or anonymity, which definitely provides a greater sense of safety, keeps their identity comparatively private, and motivates more participation.

Turoff and Roxanne (1978) investigate the reason of why people continue to use a BBS. They conclude that people will keep using a BBS when rewards outweigh costs. For new users, the motivations depend on the availability of communication, of interesting topics, and of accomplishing jobs. The motives for BBS users are mainly goal-oriented. However, after eight years, the findings of Rafaeli's (1986) survey suggests that the use of a BBS is a "light interlude, rather than a heavy intellectual task." The primary function of BBS is diversion, recreation, and entertainment. Information seeking and surveillance are less important than pleasure function.

Avoidances

From the classifications of the studies, researchers find that not all motives are necessarily pursuits of positive gratification. People also avoid some behaviors that may result in unwanted situations. Maslow (1954) mentions the need for safety—people prefer the world to be manageable, predicable, and countable. McGuire (1974) puts active versus positive and growth versus preservation in his human motives matrix. The discussion of human motives should also consider avoidance.

Investigators discuss the uses and effects of political information on television programs and newspapers (McLeod and Becker, 1974; Becker, 1979). The findings show that avoidances are better than gratifications in predicting relatively passive effects. They suppose that gratifications are more capable when expecting more active effects, while avoidances help to restrain passive activities. The empirical differences between avoidance motives and positive gratifications are so obvious that avoidances are not mirror-opposites of the gratifications. Generally, needs are also gratified by avoiding exposure to media and media content. For example, people can turn off the TV or switch channels when they are tired of political coverage in TV news. This may provide gratification by escaping from something they don't want.

In CMC studies, investigators began to explore the avoidance of online group users. Nonnecke and Preece (2001, 2002) claim that the CMC studies of participants should include the lurkers, who never or infrequently post articles to public spaces. They point out that lurkers interact and contribute to the groups in other ways. Exploring the reasons for lurking, Nonnecke and Preece explain why lurkers lurk in four main categories—member's character, group characteristics, stage of membership, and external constraints. These reasons include the concern for privacy, the shy character of users, the quality and quantity of group articles, and the limitations of time and equipment. To fulfill or compromise these reasons, people choose not to join the discussion visibly. The findings discover that lurking behavior also gratifies users' demands; for example, they can maintain their privacy and avoid being attacked by other members. These negative motives keep people from identifying themselves in the virtual public space.

Internet columnist Katz (1998) describes his experiences with his readers, who are mostly lurkers. He has evidence to believe that nearly 98% of the emails responding to his column are from people who never post in public forums. The tone and content of the emails he received from lurkers are quite distinct from the utterances, often hostile and arrogant, in public discussion groups. Though lurkers seem invisible and unheard in the public spaces, they still contribute to the group by emailing or even by interacting

in lurker sub-groups. Why do lurkers stick to the forums but remain silent? Katz reports, based on his readers, that lurkers usually are not able to stand the ignorance, arrogance, hostility, insult, and abuse from the public discussion places, and that lurkers of some socioemotional backgrounds, such as the newbie, the immigrant, the elderly, the technically challenged, or the shy, face even more problems from unpleasant feedbacks.

From the studies of lurkers, the motives can be generated into protecting oneself from unwanted or embarrassing situations. For safety reasons, people are afraid of the intrusion of their privacy because of the character of persistent conversation, which is defined as "the transposition of ordinarily ephemeral conversation into the potentially persistent digital medium" (Erickson, 2000). Researchers can use persistent conversation for further studies by analyzing, repeating, and restructuring the digital records of online conversation (Erickson, 1999); however, the records may be also revealed to anybody. Lurkers may think it is a great risk to their privacy (Nonnecke & Preece, 2001).

For personal characteristics, the shy people may feel uncomfortable in public, even in a virtual one (Katz, 1998). Studies also conclude that online social communication provides more options for sociable individuals rather than an accommodation for those who are shy or unsociable (Birnie & Horvath, 2002). Browsing the discussion groups may gratify the need for

surveillance and entertainment while people keep invisible for their need of safety and comfort. Posting articles will expose themselves to others, and it may frighten people who easily feel anxious in public. Lurking is a preferable way for them to gain information from the discussion groups.

Other than psychological and sociological avoidances, the restraints of the outside world are also discussed. For example, insufficient time and technological skills will also reduce the motives for posting. Nonnecke and Preece (2001) point out that lurking is "a strategic and idiosyncratic activity" and also "capable of meeting members' personal and information needs" (p. 1529). Back to the paradigm of the U&G model, users have the control to access particular media resources and choose the way they participate.

Research questions

In an online virtual community, like a BBS, which kind of motives, cognitive or affective, are more salient? As shown in the literature review, members are connected because of common interests. A sense of belonging is believed to be established in an online group as well. If the assertions are true, this study can expect affective needs will be a salient motive of participation. This study will attempt to find out the relationships between motives and users' participation. The following research questions will be examined.

RQ1: **What are the salient motives for posting and lurking?**

The motives elaborated in the previous paragraphs are comprised of cognitive and affective, intrapersonal and interpersonal, and active and passive motives. These motives are often integrated complexly with other dimensions. The study will find out the important motives that drive people to use discussion groups, either by posting or lurking. The attempt will try to place the motives into the categories of cognitive motives, affective motives, external avoidances and internal avoidances.

RQ2: **What are the degrees of gratification of these significant motives?**

Based on the motives of group users, the study will probe deeper to disclose the level of gratification of each motive category. Are there any differences in needs gratification between frequently-posting users and lurkers?

RQ3: **How does demographic discrepancy affect posting behavior?**

Any discrepancy of respondents, such as gender, education, the history of their BBS uses, and the time they spend on the BBS, may be variables that mediate the use of BBS.

RQ4: **Except by joining the discussion, what are the ways for members to interact?**

In the literature, studies mention that lurkers do use email or other activity to communicate with each other. This question will ask the methods of their interaction with other group members other than the reciprocities in public discussion forums.

RESEARCH METHOD

This chapter will elaborate the sample framework and methodology of this study. To capture the consistent gratifications and attitudes of real online group users, a bulletin board system will be chosen as the objective. To elicit the opinion of online group users, a combined measure of email and webpage surveys will be adopted and analyzed.

Sample framework

A BBS system, in which members can communicate via discussion boards, chat rooms, one-on-one messaging, and emails, serves as a collaborative mass media in which the audience plays two distinct roles: audience and receiver (Rafaeli & LaRose, 1993). Hundreds of discussion boards of broad genres contain topics addressing common interests and controversial issues, such as pop music and MOTSS (Members of the Same Sex). The chat room is a virtual lounge that allows members to talk to other people or just listen to what others say without responding. BBS users in the chat room can also "whisper" to each other without being observed by others in the same chat room by sending messages through the interlocutor. If users do not like the chat rooms, they can also reach one another by real-time messaging, just like ICQ or AIM. Messaging is more private than chatting in the chat rooms and more efficient than asynchronous emails, which BBS users can also use to contact one other. Generally, these

functions facilitate the complete producer-audience relations that Morris and Organ (1996) state are both synchronous and asynchronous. With these features of communicative activities, the BBS can be "very intimate or extremely anonymous" (p. 124).

This study uses one BBS system as its platform of investigation. The National Taiwan University Computer Center Bulletin Board System (NTUBBS, telnet://bbs.ntu.edu.tw or http://bbs.ntu.edu.tw), established in 1992, was first a student's experiment and only served the networks of the NTU campus. Now it's a widely used bulletin board system with more than 42,000 user sessions each day (NTUBBS, 2003). Though NTUBBS is a member of the Taiwan Academic Networks (TANET), its users are from everywhere, not just academic networks. According to statistical data from NTUBBS (2003), on average more than 85% of its members connect from commercial ISPs (Hinet, Seednet and others) while the rest are from TANET. NTUBBS now serves not only NTU students and represents a variety of users.

The NTUBBS system has a central administration to maintain the system and prevent any abuse of BBS resources. It requires user registration to utilize the full functions. Each legitimately registered user has one particular ID to identify himself or herself, and the email addresses of each user correspond to the ID. The particular ID and email address of users facilitate the sampling and eliminate the problem of invalid email addresses

that users often provide on Usenet, which doesn't belong to any organization or individual. Sending the questionnaire to valid email addresses can ensure that the target users receive the questions. As long as users sign in to the system, they receive the email.

When users are logged in, their user ID shows on the user list. Users can check if their friends are also online from the list or send messages to anyone in the BBS. The peak user sessions are set to 2,500 at the same time. It's a convenient function for users, and also for the sampling. From the user list 3,000 user IDs are gathered from different time segments, morning, evening, and late night, over the course of four weeks, so as to include the maximum variety of users. After the collection of the 3000 IDs, 1,200 users are randomly selected as the prospective respondents.

Methodology

Content analysis and network analysis are good research methods for active participants; however, the lurkers who infrequently or never utter in public places may not be observed by analyzing only the visible activities of users. As seen in the literature discussed previously, lurkers are the majority of all BBS users. It can be assumed that a considerable number of the prospective respondents will be lurkers, and the ratio of active users to lurkers in the sample will be close to the ratio in the entire NTUBBS population. As Nonnecke and Preece (2001) state, the definition of users'

participation should be reevaluated and the population of lurkers should be included in CMC studies.

In the current study, a combined measure of email and webpage surveys will be employed to explore the motives and gratifications of BBS users. Based on the discussion in the literature, the questions on the questionnaire will include some dimensions to discover the cognitive and affective gratifications and avoidances. The first part of the questionnaire will define the demographics of the group users, including gender, age, education, connection speed, etc. These questions will present comprehensive demographic data of online group users and resolve the question of differences in motives among various groups of members. The second part will investigate how online discussion group usage meets different needs. How do people employ the discussion groups to satisfy their cognitive needs? And is there any other resource or way for them to attain the same gratification? This section also tries to discover user relationships with online groups and other group members. What are the levels and methods of peoples' interactions, and do these interactions affect their intentions to join discussions? Factors that reduce or enhance their types of online activities, such as privacy, time, and skill restraints will also be asked in this section.

Previous studies identified many aspects of gratification from surveys of audience responses. In line with these studies, the respondents will be asked to score statements describing their online group usage with the Likert scale, ranging from 1 = totally disagree to 5 = totally agree. These statements will focus on the following factors: information and recreation seeking, socioemotional utility, personal and external constraints. From the respondents' ratings, the importance of these factors will be revealed and the research questions of this study may be explained.

The statements in the information and recreation seeking section deal with what group members want to discuss and how they use this new technology to achieve cognitive goals, such as "I learn a lot of new things by using the BBS" and "I can keep my knowledge up to date by using the BBS." The socioemotional utility part will inspect the subjects' affective interaction with groups and other members and the social and psychological satisfaction they achieve. For example, "I can get emotional support from other BBS users" and "I like to chat with other users when I am using the BBS." Questions related to personal and external restraint descriptions, which are associated with avoidances, will try to identify the factors that enhance or reduce their use of BBS. The statements in this category will be like, "I am afraid of being attacked when I post or reply to articles publicly in discussion boards," and "I don't have enough time to post or reply to articles."

A combined survey technique does increase the rate of response; and the use of pre-notice and web site URL are highly recommend by researchers (Yun & Trumbo, 2000). This technique will be applied in the study and two modes of questionnaire delivery will be provided to respondents. Three emails—a pre-notice, a questionnaire, and a thank-you note—will be sent consecutively. Text-based email and ASP-based webpage questionnaires will collect data at the same time, and these optional reply mechanisms may encourage BBS users to respond.

Before the questionnaire is sent to the respondents, a pre-notice email will be sent first to inform them of the goal of this research and what they will receive in the next few days. Respondents can reply to the pre-notice email if they have concerns about the survey or are not willing to receive any further messages. The second email will include the questionnaire and the URL of the survey website where users can directly answer the questions and submit it to the database. About a week after the questionnaire is sent, a follow-up email will remind the respondents to finish the questions and thank them again for their help. Email and webpages are easy to use, fast to deliver, and economical. They are also familiar interfaces for most BBS users; and the website provides another option for users concerned about privacy issues.

The acceptable level of response is always a crucial issue with online surveys. Bosnjak and Tuten (2001) classify the three variables of motivation, opportunity, and ability that affect the response behavior of web-based surveys. Therefore, in all emails sent to respondents, the goal of the study and the generation of the sample list are explained as clearly as possible; the participant's privacy protection is also emphasized. These measures serve to increase the confidence and trust of respondents and motivate their participation. The two different versions of questionnaires provide more opportunities for respondents to answer the questionnaire in the way they prefer. Additionally, the collection period is more than two weeks to allow respondents enough time to answer the survey. More considerations, such as detailed instructions and a simple, organized webpage, make it easier for the respondent to understand the questionnaire. All of these efforts cater to the greatest variety of BBS users so an acceptable response rate can be attained.

RESULTS AND DISCUSSION

The questionnaire was administered from March 23 to April 13, 2003, with 232 responses, for a response rate of 19.33%. Among the 232 respondents, only 25 answered their questionnaires by directly replying to the email, which suggests that more than 90% of the respondents preferred to answer the questionnaire via webpage rather than email. About 110 responses rushed in during the three days immediately after the questionnaire was sent, and more than 150 responses were received after the third email, sent seven days before the end of the collection. It can be proved that the follow-up notice is especially valuable for increasing the response rate. In the current study, a pre-notice email was also used to inform respondents. Only four complaint emails were received rejecting any further cooperation with the survey; one email was also received with questions about the survey. Some respondents even replied to show their willingness to participate in the survey.

Results

The respondents are 17.7% male and 82.3% female, ranging in ages from 16 to 18 (1.3%), 19 to 22 (31.5%), 23 to 30 (59.5%), and 31 to 40 (7.8%). Broadband connections (DSL, Cable, and LAN) are used by 91.8% of the respondents, while only 3.9% use dial-up modems. The remainders are unknown or unidentified. The reported occupation and education level were

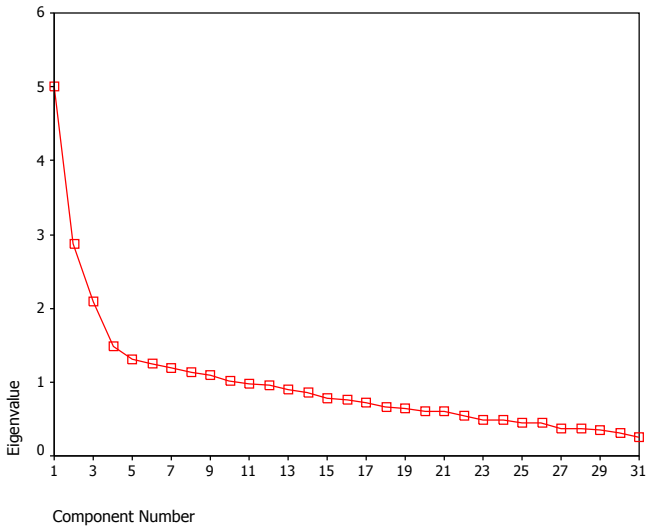
found to be quite homogeneous: 97.8% of the respondents have a college or higher education level and more than half of the respondents (55.8%) are currently students. Respondents accessing BBS from home were 77.6%; access from school was ranked second, but still a low 12.90%.

Asked how long they have used BBS, 96.1% of respondents said more than 18 months. New users (less than 6 months experience) represented only a weak .9%. Responses for typical weekly BBS usage were as follows: More than 9 hours (48.3%); 6 to 9 hours (15.5%); 3 to 6 hours (17.7%); 1 to 3 hours (14.7%); and 1 hour or less (3.9%).

Responses for the number of articles posted or replied to on discussion boards in a typical week were: More than 9 articles (14.7%); 7 to 9 articles (7.3%); 4 to 6 articles (18.1%); 2 to 3 articles (30.6%); and 0 to 1 article (29.3%).

The next part of the questionnaire adopts a 5-point Likert scale to record the degree of respondents' agreement to 31 statements of cognitive and affective motives and avoidance. To draw out clear elements from the many questions, this survey employed factor analysis before further investigation. Among the 31 statements, four main factors were extracted via Principal Component Analysis with Varimax rotation (KMO measure of adequacy = .766). There were 11 factors extracted with an eigenvalue greater than 1.0. However, the curve of the Scree plot starts to flatten

Table 4.1: Scree Plot of Factor Analysis



between factors 4 and 5, and four factors were retained (see Table 4.1). The four factors are identified as:

Factor 1—affective motives (eigenvalue = 4.147, variance after rotation = 13.376%)

Factor 2—cognitive motives (eigenvalue = 3.259, variance after rotation = 10.514%)

Factor 3—external avoidances (eigenvalue = 2.175, variance after rotation = 7.016%)

Factor 4—internal avoidances (eigenvalue = 1.867, variance after rotation = 6.021%)

Three questions were abandoned because they failed to meet the factor loading and the code of question 13-28 was reversed to meet the character of factor 4 (see Table 4.2). The four factors explain 36.927% of the total

Table 4.2: Factor Analysis of BBS Using

Factors of BBS using	Component			
	1	2	3	4
Factor 1: Affective motives (eigenvalue = 4.147, variance after rotation = 13.376%)				
13-24 Making intimate friends with other BBS users	.822	.067	-.057	-.095
13-19 Using emails to contact other BBS users	.733	-.053	-.185	.042
13-25 Feeling less lonely when using BBS	.707	.256	.105	.084
13-31 Sharing feeling easily with other BBS users	.645	.055	.203	-.004
13-04 Getting emotional support from other BBS users	.575	.141	-.106	-.063
13-29 Meeting other BBS users in person	.572	-.057	-.078	.000
13-16 Staying in chat room often	.504	-.381	.082	.138
13-13 Having senses of belonging to BBS	.500	.400	-.068	-.223
13-17 Forgetting daily routines when using BBS	.474	.265	.177	-.079
13-30 Wanting to help others BBS users	.433	.199	-.020	-.129
Factor 2: Cognitive motives (eigenvalue = 3.259, variance after rotation = 10.514%)				
13-14 Keeping information up to date	.178	.624	-.220	-.115
13-12 BBS is interesting	.293	.574	-.199	-.164
13-07 Discussing topics found in BBS with others	.134	.535	-.015	.013
13-01 Learning new things by using BBS	.048	.523	-.290	.154
13-06 Finding different point of views from BBS	-.032	.513	.091	-.218
13-20 Can finding answers just by browsing BBS	.046	.485	-.231	.129
13-23 Passing time easily when using BBS	.219	.461	.180	.121
13-11 Having questions to ask	.193	.400	-.122	-.379
Factor 3: External avoidances (eigenvalue = 2.175, variance after rotation = 7.016%)				
13-26 Thinking most users are not friendly	-.065	-.128	.625	-.065
13-18 Getting few positive replies	.057	-.118	.586	.017
13-21 Tired of too many new articles when using BBS	.013	-.122	.484	.097
13-09 Afraid of being attacked if uttering to public spaces	-.046	.412	.428	.220
13-27 Afraid privacy would be intruded upon	.180	.112	.419	.302
13-15 Information quality of BBS is not good	-.098	-.231	.417	.154
Factor 4: Internal avoidances (eigenvalue = 1.867, variance after rotation = 6.021%)				
13-22 Replying to original writers only rather than to public spaces	.168	-.001	.059	.646
13-10 Text-based interface is not easy to use	-.060	-.103	.083	.468
13-28 Don't want to share opinion	-.219	-.308	-.180	.462
13-05 No confidence to reply or post articles	-.062	.213	.367	.457
13-03 Can get the same information from other sources *	.213	-.332	.119	.068
13-08 Typing speed is fast *	.176	.236	-.181	.347
13-02 No time to reply or posting articles *	-.086	-.017	.136	.336

Extract method: Principal component analysis
Rotation method: Varimax with Kaiser normalization
* Denotes items that do not meet the criteria of factor loading (<.40)

Table 4.3: Scale of BBS Using

Statements	*M*	*SD*
Factor 1: Affective motives	2.82	.670
13-24 Making intimate friends with other BBS users	2.86	1.169
13-19 Using emails to contact other BBS users	2.31	1.249
13-25 Feeling less lonely when using BBS	2.96	1.157
13-31 Sharing feeling easily with other BBS users	2.65	1.294
13-04 Getting emotional support from other BBS users	3.39	.988
13-29 Meeting other BBS users in person	1.73	1.054
13-16 Staying in chat room often	1.65	.942
13-13 Having senses of belonging to BBS	4.19	.941
13-17 Forgetting daily routines when using BBS	3.02	1.081
13-30 Wanting to help others BBS users	3.63	.962
Factor 2: Cognitive motives	4.10	.452
13-14 Keeping information up to date	4.23	.694
13-12 BBS is interesting	4.42	.598
13-07 Discussing topics found in BBS with others	3.72	1.037
13-01 Learning new things by using BBS	4.34	.740
13-06 Finding different point of views from BBS	4.38	.687
13-20 Can finding answers just by browsing BBS	3.50	.943
13-23 Passing time easily when using BBS	3.88	.939
13-11 Having questions to ask	4.33	.713
Factor 3: External avoidances	2.67	.568
13-26 Thinking most users are not friendly	2.28	.868
13-18 Getting few positive replies	2.29	.909
13-21 Tired of too many new articles when using BBS	2.89	1.134
13-09 Afraid of being attacked if uttering to public spaces	2.92	1.288
13-27 Afraid privacy would be intruded upon	2.65	1.071
13-15 Information quality of BBS is not good	3.08	1.046
Factor 4: Internal avoidances	2.24	.601
13-22 Replying to original writers only rather than to public spaces	2.38	1.098
13-10 Text-based interface is not easy to use	2.35	1.051
13-28 Don't want to share opinion	1.93	.774
13-05 No confidence to reply or post articles	2.32	1.132

Note: Response options range from totally disagree (1) to totally agree (5)

variance. The Cronbach's α of the second section of the questionnaire, excluding the three questions abandoned in the factor analysis, is .7065. Nunnaly (1978) discusses the standards of reliability and recommends that .70 is an adequate value in early stages of research on "predictor tests

or hypothesized measures of a construct" (p. 245). The Cronbach's α of this survey is just crossing the value Nunnaly suggested.

The four factors—affective motives, cognitive motives, external motives, and internal motives—generally corresponded to the discussion in the literature. Factor 1 of affective motives is related to social interaction, emotional support, and affectionate companionship, which indicate the degree of satisfaction of socioemotional needs that users obtain in BBS. Factor 2 of cognitive motives is the remark of BBS as a source of information, surveillance, and entertainment. Factor 3 of external avoidance is associated with the threat and uncertainty from other users and from discussion boards and the fact that these environmental restraints and hazards may keep users from posting and replying in public spaces. Factor 4 of internal avoidance is more about the elements of personal skill and psychological origins that may affect the motivation of users to express themselves in public. The four factors alone with (1) users' age, (2) education, (3) hours spent in BBS per week, (4) user history, and (5) amount of articles per week will serve the main variables for further analysis.

Lurkers are online group users who never or infrequently post or reply to articles in public spaces. The respondents are divided into lurkers and non-lurkers. In a typical week, the respondents who post or reply to none or only one article are separated into the lurker group and respondents who

have more than two articles in public discussion boards are categorized as non-lurkers. The ratio of lurkers to non-lurkers is 68 to 164. Through descriptive statistics and independent t-test, the means of different variables from these two subgroups are evaluated. Some differences are found between lurkers and non-lurkers in the following variables: age (t = 4.154, p < .01), hours of using BBS in a typical week (t = -2.737, p < .01), affective motives (t = -4.174, p < .01), and cognitive motives (t = -2.617, p < .01). For the two subgroups of lurker and non-lurker, the results suggest that lurkers are older than non-lurkers and non-lurkers tend to spend more hours than lurkers. Non-lurkers rate their score higher in affective motives and cognitive motives than lurkers do. This suggests that lurker experience less satisfaction in cognitive and affective motives than non-lurkers. However, no significances of external and internal avoidances are found between lurkers and non-lurkers.

Between male and female respondents, salient differences of cognitive motives (t = -3.682, p < .01), education level (t = 3.267, p < .01), and user history (t = 2.846, p < .01) are found. Female users perceive a higher level of gratification in cognitive motives than male users; however, affective motives and external and internal avoidances do not differ between male and female. Male respondents are more highly educated and have a longer

BBS usage history than female respondents. Other variables, like hours per week and number of articles, do not show significant differences.

The respondents were also divided into students and non-students to discover if any variance exists. The outcome shows that the variances of affective motives (t = -2.485, p < .05) and number of articles (t = 2.132, p < .05) are distinguished from other variables between groups. From the comparison of means, it can be assumed that non-student users have greater satisfaction in affective motives than student users. However, the student group posted more articles than the non-student group.

Employing the Pearson correlation, the correlation among the nine variables is examined and some significant correlations are found in the analysis. The hours that users spent and the number of articles posted or replied to are positively related (r = 332, p < .01). The hours of BBS use is also related to cognitive motives (r = 150, p < .05) and age (r = -170, p < .01). The result provides evidence that more hours spent in BBS will produce more articles posted or replied to on public discussion boards and greater satisfaction of cognitive motives. Additionally, younger users tend to spend more time in BBS than older users in the response sample.

The number of articles is related to affective motives (r = .238, p < .01), cognitive motive (r = .155, p < .05), internal avoidance (r = -.174, p < .01), and age (r = -.289, p < .01). The respondents who post or reply to

more articles achieve more affective and cognitive satisfaction and experience less internal avoidances. That age is negatively related to number of articles indicates that younger users utter more in comparison with other response samples, and this finding is also consistent with the test between lurkers and non-lurkers.

Among the four factors, some significant correlations were also found. The factors of two motives, cognitive and affective, are related to each other (r = .321, p < .01). This result indicates the satisfaction of affective motives is usually accompanied by the satisfaction of cognitive motives. Between the factors of avoidance, external avoidances and internal avoidances are also significantly associated (r = 324, p < .01). Findings also show that the satisfaction of affective motives is negative to both external (r = -.163, p <.05) and internal (r = -.155, p < .05) avoidances. The avoidances can cast opposite power on BBS users' affective satisfactions, and this is why the satisfaction of affective motives will decrease when the concerns of both external and internal avoidances are high.

To gain more understanding of these variables, a regression model, which contains the nine variables discussed in the previous paragraph, is built to explain the reasons that alter the number of articles for BBS users. The regression model, $Y = B_0 + B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + B_5X_5 + B_6X_6 + B_7X_7 + B_8X_8$ (R = .514, R^2 = .264, F = 9.499, p < .01), is significant, though

it can only explain 26.4% of the variance of factors that dominate the frequency of their participation in public spaces. In this model, the representations are Y = article amounts, X_1 = age, X_2 = education, X_3 = history, X_4 = hours, X_5 = affective motives, X_6 = cognitive motives, X_7 = external avoidances, and X_8 = internal avoidances. Some significant influences of user age (β = -.289, p < .01), hours of BBS usage (β = .284, p < .01), affective motives (β = .253, p < .01), and internal avoidances (β = -.191, p < .01) are predicted.

The results show negatively significant correlation between age and article amounts. This suggests that younger respondents have more public postings in a week, and the model also predicts that more time spent in BBS can also index more articles being posted. The next two factors indicate the important motives that discriminate lurkers and non-lurkers. The discovery indicates that users are more motivated to post articles when more affective satisfactions are perceived and less internal avoidances are exercised. On the other hand, insufficient affective satisfaction and unsupported internal avoidance are forces that prevent users from uttering in public discussion boards.

Discussion

After the analysis, the questions RQ1: "What are the significant motives for posting and lurking?" and RQ2: "What are the degrees of

gratification of these significant motives?" can be answered. From the four main factors of this survey, non-lurkers are gratified more in affective motives and cognitive motives. If analyzed by the number of articles of whole respondents, affective and cognitive motives are also positively related to the number of articles, while internal avoidance is negatively related. The similar results of the regression model also support this finding, except for cognitive motives.

The finding can assume that BBS users reduce their public participation to meet internal avoidances. On the other hand, the satisfaction of affective motives may also decrease with the lack of joining the discussion publicly. Based on standardized coefficient b value, the correlation of affective motives (β = .253, p < .01) is greater than internal avoidances (β = -.191, p < .01). Though the influence is slight, affective motives play a more important role than internal avoidance in affecting the users' participation mode. This suggests that the low satisfaction of affective motives may be the first reason that users are not motivated to post or reply to articles. Otherwise, the frequent participation in public spaces may increase the affective motives of users.

For RQ3: "How does demographic discrepancy affect posting behavior?" analyses considered gender, age, occupation, plus users' history and hours. Findings indicate that respondents of younger age stay in BBS

longer and produce more articles. Female respondents' cognitive motives are more gratified than male respondents, and male respondents are more educated and have a longer BBS usage history. For student and non-student groups, non-student users' affective motives are better fulfilled while the number of articles is slightly lower than that of student users. No differences of users' history were found related to other variables.

For answering RQ4: "Except by joining the discussion, what are the ways for members to interact?" four regression models are used for more explanations. In the second part of the questionnaire, four questions associated with communicative channels other than a public discussion board are drawn out as indices of this research question. The questions are: Q13-16, "I like to stay in chat room and chat with other users when using BBS"; Q13-19, "I contact others users I know in BBS by email often"; Q13-22, "I reply to only the original posters more than post publicly on board"; and Q13-29, "I often meet other users I know in BBS in person." These statements probe the communication alternatives of chatting, direct email, personal reply, and face-to-face communication. Chatting is often a many-to-many communication environment, and there is a virtual space usually known as chat room for users to join or leave freely at any time. Users are able to just "listen" without "saying" anything in a chat room or "whisper" to another user without being known. Direct email is usually one-to-one or one-

to-many and only sender and receiver can know the conversation. Personal reply is a correspondence sent directly to the original writer of a public article, which is mostly one-to-one. There are plenty of studies that discuss the possibility of moving virtual relationships offline, and this could be an optional way for BBS users to interact.

The model: $Y = B_0 + B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4$ illustrates how these four alternative communicative channels facilitate the fulfillment of the four factors of motive and avoidance. Dependent variable Y represents affective motives, cognitive motives, external avoidances, and internal avoidances respectively in the following analysis, and independent variables X_1, X_2, X_3, and X_4 are the four questions respectively. In the model of affective motives with the four questions ($R = .790$, $R^2 = .624$, $F = 91.441$, $p < .01$), which explains 62.4% of the variance, the channels of chatting ($\beta = .171$, $p < .01$), direct email ($\beta = .531$, $p < .01$), and face-to-face communication ($\beta = .291$, $p < .01$) are found significantly related to affective motives. In the second model ($R = .276$, $R^2 = .076$, $F = 4.571$, $p < .01$), which explains 7.6% of the variance, chatting ($\beta = -.229$, $p < .01$) and direct email ($\beta = .223$, $p < .01$) are related to cognitive motives. The third model ($R = .278$, $R^2 = .077$, $F = 4.576$, $p < .01$) explains 7.7% of the variance that direct email ($\beta = -.212$, $p < .01$) and personal reply ($\beta = .192$, $p < .01$) are the predominant reasons for external avoidances. Model four examines the relation of internal motives

(R = .679, R^2 = .461, F = 47.403, p < .01), which explains 46.1% of the variance, and the finding reveals that only personal reply (β = .664, p < .01) is the significant reason among the four communicative channels.

Concluding from the four regression models of alternative communicative channels, the findings show that chatting, direct email, and face-to-face communication all act positively to satisfy affective motives. For cognitive motives, direct email definitely facilitates gratification, while chatting plays an opposite role in cognitive fulfillment. The external avoidances are positively associated with chatting and personal reply; however, for direct email, external avoidance will increase when the use of direct email drops. In other words, the prevalence of email use between users may eliminate the environmental restraints, and frequent use of chat rooms and personal reply may reflect the high disturbance from external surroundings.

The factor of internal avoidance only relates to the channel of personal reply. Internal avoidance refers to discomfort with personal skill or psychological circumstance, and the correlation with personal reply (β = .611, p < .01) is much higher than with other communication alternatives. This suggests that, so as not to experience internal avoidance, some users choose to reply only to the original writer. By doing this, users have full control over when and with whom they communicate. If the original writer of

an article seems like a nice person, they would reply when they believe there are no risks to do so.

The results show lurkers tend to be older, and sense less affective gratification and more internal restraint when using BBS, which may be the reason why lurkers spend less time and utter less often in public discussion boards. Different ways of interaction allow lurkers to meet their needs of different motives and avoidance. Chatting, email, or face-to-face communication can gratify affective needs. Chatting and email can also meet the needs of cognitive motives. Chatting, email, and personal reply can satisfy external avoidances, while personal reply may be the best answer to meet the needs of internal avoidances.

This study provides a preliminary view of online discussion group users who find different ways to interact with the virtual community, and it tries to focus on both lurkers and non-lurkers to embrace the entire online user community. The most important finding is that the influence of affective motives is critical in motivating users' public participation. With the arguments of the absence of social cues in CMC studies, the results of the current study correspond to the finding of Rice and Love (1987). They suggest that socioemotional content can be easily found from active users, and the duration and frequency of messaging are positively related. Quantitative research of this study also implies the same conclusion that the

greater satisfaction of affective needs can predict more public articles produced from BBS users. The conclusion that more hours of BBS usage is closely associated with more public participation is also supported by the current survey. Furthermore, the outcomes support the argument that BBS users can still have socioemotional interaction despite the shortage of social cues. Moreover, the employment of different channels of interaction also helps online community users obtain more affective satisfaction. The assertion of Nonneck and Preece (2001, 2002) that lurkers adopt alternative communicative ways to satisfy their particular needs is also supported by this study.

Cognitive motives, which lead to information seeking, opinion reinforcement, and entertainment, are often defined by U&G researchers as task-related or goal-oriented. The use of BBS for cognitive motives can be treated as a self-aware behavior, and respondents score 4 out of 5 (M = 4.10, SD = .452) to indicate the degree of their satisfaction of cognitive needs. This suggests that the respondents of the survey are satisfied with the cognitive functions of BBS. In Savolainen's (1999) model of people choosing the Internet as an information source, audiences will use more of one particular media when consistent benefits are perceived. Users seem to have high concurrence with the informational ability of BBS, and the

evidence may also be seen in the positive correlations between hours spent in BBS and the satisfaction of cognitive motives.

Avoidances are discussed from the outside world and personal traits. Factor 3, external avoidances, consists of fears of or dissatisfactions with other users or forums. No salient discriminations are distinguished between external avoidances and other variables; that is, external avoidances have similar effects for both lurkers and non-lurkers. Kate (1998) and Nonnecke and Preece (2001, 2002) list some reasons for lurking, such as concerns for privacy, unfriendly group members, and bad message quality; these restraints can cast critical effects on lurking. However, the relation between these external restraints and posting behavior has not proved obvious in the current study.

Opposite external avoidances, internal avoidances, which include lack of confidence, poor computer skills, and shyness, act as important indices of article posting. When users have no confidence to utter or are not familiar with the computer interface, they may be too shy to express themselves or just reply when they think it is safe. Birnie and Horvath (2002) also conclude that online social interaction is no substitute for people who are not sociable in the real world. Consistent findings also suggest that greater internal avoidances obviously predict less public articles posted from BBS users. This explains the negative force of motives for public participation.

CONCLUSION

Though the Internet is regarded as an important tool for obtaining information or seeking entertainment, this study concludes that affective motives have significant influence on the public participation of BBS users. Internal avoidance was also found to be a negative indicator of article posting. More findings from this study suggest that alternative communicative methods, other than public posting, can also gratify the different needs of BBS users.

To extend the results, in an online community, users are more motivated when they want to pursue the satisfaction of social and psychological needs. Higher satisfaction of affective motives encourages online users to engage in more public participation. Similar results are also predicted from internal avoidances, which are more related to lack of computer skills and psychological issues that may affect the motivation of users to expose themselves in public. These internal rationales significantly alter the public participation of group users. Affective motives and internal avoidances, are both related to socioemotional aspects of communicating. These finding all suggest that the reasons and influences of the use of online groups are not only informational but also emotional.

Among other interactive channels, replying directly to the original posters of public articles is highly associated with internal avoidances. These

personal replies can be only known between senders and receivers, and cannot be easily found in log files or from merely observation. Research of online group users should more fully investigate the interaction of lurkers. Moreover, affective motives can also be satisfied by chatting, direct email, and moving online relationship to real life. The discussion of virtual community should not narrowly focus on only the visible activities of public forums, but broad its boundary to all interactions which are developed from online activities and include users of all activity levels.

Limitations

Some limitations in the study were found in the survey method and motive classification. Sample bias may occur because of the homogeneity of the respondents, mostly highly educated female students under the age of 30. A questionnaire is easy to use though; some weaknesses are discussed by Nonnecke (2000) in his research for lurking. He concludes that questionnaires are self-selected by participants and unintentional bias may occur in the results. The possibility that respondents forwarded the questionnaire to their friends could also be responsible for the homogeneity. The instruction of questionnaire should be detailed more in the future studies.

Low response rates from lurkers are also critical issues. This study identified only 29% of the respondents as lurkers, those producing one or no article in a typical week. A possible reason is that lurkers tend to ignore the

questionnaire, while active users, who spend more time in BBS and post more articles, have a tendency to respond to a questionnaire. Encouraging lurkers to answer the surveys is a critical issue for practical lurker study, but tracing the invisible activities of the lurker arouses privacy and ethics issues.

In the analysis of this study, the R^2 of the regression model explaining the number of articles posted or replied to is fairy low. Only 26.4% of the total variances are explained. Many predictors of the reasons for posting are still not included in the study. The results can only demonstrate reasons for lurking within limitations. Affective motives and internal avoidances may roughly explain posting but more reasons need to be discovered. The results predict the posting behavior when dealing with the whole BBS community; they may not apply when studies focus on particular discussion groups, such as software or health-related information.

This study tries to put motives into four categories. However, human motives are too complicated to fit into each category and the categories therefore are not exhaustive. Besides cognitive and affective needs, Katz, Gurevitch, and Hass (1973) also indicate some integrated needs that embrace different characteristics of the cognitive and affective. Four factors are certainly not enough to completely categorize human needs, and the terminology of this study may be too simple to embrace all kinds of human motives.

Future study

This model hopes to be the first step in further research of lurking behavior. Questionnaires in future studies should try to ask open-ended "why" questions to obtain more qualitative data from BBS users. A more secure mechanism and user-friendlier questionnaire should endeavor to provide more credit to lurker respondents. Based on the current study, future attempts should investigate the following areas: First, future studies will focus on more specific needs, such as internal avoidances, to evaluate the deeper influences that contribute to lurking. How do individual differences of shyness or self-efficacy affect user motives for public participation? Second, research questions will investigate what enhances or reduces affective gratifications and the relationships between these factors and lurking behavior. More detailed results will be evident with a narrowing of the possible needs.

The study also suggests that alternative communication methods in BBS can also facilitate the fulfillment of different user needs. Future study should pay more attention to how users employ chatting, email, personal replies, and face-to-face communication to gratify different needs. These non-public participations can play an important role in the interaction of BBS users. Extended studies can probe the different patterns of non-public participation between lurkers and non-lurkers.

In conclusion, computer-mediated communication not only provides information and entertainment but also social and emotional satisfaction. Affective motives and internal avoidances significantly affect the motives of BBS users' public participation; and BBS users can also accomplish their different motives by non-public participation. As Nonnecke (2000) points out, "lurking is widespread." Hence, only by understanding both public participants and lurkers can CMC researchers know what people want and what people need.

APPENDICES

Appendix A: Pre-notice, questionnaire and follow-up emails

A-1. English translation of emails and questionnaire

Pre-notice Email:

Dear BBS user,

My name is Chunta Peng and I am now a graduate student in Department of Communication of SUNY, Buffalo. Research is being conducted on the attitudes of BBS users by me and supervised by my advisor Dr. Alexander Halavais. Your assistance is very important for the success of this project. The participation of this questionnaire is completely voluntary.

This email is to inform you that you are chosen as our subject, and the list is selected randomly from NTUBBS user list. You will receive a questionnaire by email in next few days, and it will take you only a few minutes to finish it. You can respond the questionnaire either by replying the email or by linking to the website of this research and complete it online. Your privacy is respected in this research. The result and the questionnaire are for academic research only and will be kept confidential from any other people or groups. Participation in the research involves no known risks. Your identifying data, such as email address, will be protected and separated from answers right after the data are collected. No identifying data will be linked to the result of the answers. Cookies will not be used for the web-version questionnaire, and the data of respondents' email addresses will not be collected.

For answers to questions about the research, contact Chunta Peng at cpeng@buffalo.edu and the faculty sponsor Dr. Halavais at alex@halavais.net. Direct questions about human research subjects' rights please refer to the Social and Behavioral Sciences Institute Review Board at 716-645-2711, or by email at marks@research.buffalo.edu. Thank you very much.

Dept of communication, SUNY Buffalo
Graduate student
Chunta Peng

Email of Questionnaire:

Dear BBS user,

My name is Chunta Peng, and this is a research about the attitudes of BBS users conducted by Department of Communication, SUNY Buffalo. You are randomly chosen from NTUBBS user list. Thank you for your assistance with this research. It will take only a few minutes to answer this questionnaire. This questionnaire will ask you about your experience of using BBS. It is assumed that you can answer the questions based on your experience of using most BBSs, not confined only to NTUBBS. You can simply type in the answers in this questionnaire and reply to cpeng@buffalo.edu, or you can also link to http://www.buffalo.edu/~cpeng and submit your answers online. Please check the most appropriate answer for you, and return the questionnaire before April 13.

Your participation is completely voluntary, and you can stop the questionnaire at any moment or choose not to answer any questions you don't want to. Your answers will be kept confidential and use only for research purpose. Participation in the research involves no known risks. Your identifying data, such as email address, will be protected and separated from answers right after the data are collected. No identifying data will be linked to the result of the answers. Cookies will not be used for the web-version questionnaire, and respondents' email addresses will not be collected.

For answers to questions about the research, contact Chunta Peng at cpeng@buffalo.edu and the faculty sponsor Dr. Halavais at alex@halavais.net. Direct questions about human research subjects' rights please refer to the Social and Behavioral Sciences Institute Review Board at 716-645-2711, or by email at marks@research.buffalo.edu. Your answers are anonymous and there is no link between your identity and data you provide. Completion and submission of the survey will imply your consent to participate in this research. Thank you very much.

Dept of communication, SUNY Buffalo
Graduate student
Chunta Peng

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1. What is your sex? _____

(1) Male

(2) Female

2. How old are you? _____

(1) Below 15

(2) 16-18

(3) 19-22

(4) 23-30

(5) 31-40

(6) 41-50

(7) Above 51

3. What is your connection speed? _____

(1) Dial-up modems

(2) DSL/Cable

(3) High-speed LAN Network

(4) Others

(5) I don't know

4. Where do you live now? _____

(1) Municipalities direct under the Central Government

(2) Municipalities under Province of Taiwan

(3) Municipalities under each county

(4) Town and village

(5) Foreign country

5. What is your occupation? _____

(1) Student

(2) Business/ Financial

(3) Computer/Information

(4) Government employee/Army

(5) Agriculture/Biological/Chemical

(6) Other

(7) Unemployment

6. What education did you finish? _____

(1) Elementary school and under

(2) Middle school

(3) High school

(4) College

(5) Graduate school and above

7. Which place do you use BBS most? _____

(1) Home

(2) Office

(3) Internet Cafe

(4) School

(5) Others

8. How long have you started to use any BBS? _____

(1) Under 1 month

(2) More than 1 month and under 6 months

(3) More than 6 months and under 12 months

(4) More than 12 months and under 18 months

(5) More than 18 months

9. What part of a day do you use BBS most? _____

(1) 2:00am-6:00am

(2) 6:00am-10:00am

(3) 10:00am-2:00pm

(4) 2:00pm-6:00pm

(5) 6:00pm-10:00pm

(6) 10:00pm-2:00am

10. How many hours do you use BBS in a typical week? _____

(1) 0-1 hour

(2) More than 1 hour and under 3 hours

(3) More than 3 hours and under 6 hours

(4) More than 6 hours and under 9 hours

(5) More than 9 hours

11. How many articles do you post or reply in a typical week? _____

(1) 0-1 article

(2) 2 to 3 articles

(3) 4 to 6 articles

(4) 7 to 9 articles

(5) More than 9 articles

12. What type of BBS discussion boards do you visit most? _____

(1) Computer-related

(2) Recreation

(3) Science

(4) Business

(5) Social topics

(6) Talk

(7) Sports

(8) Literature/Art

(9) Other

13. Please rate the following statements, 1=completely disagree, 2=generally disagree, 3=no opinion, 4=generally agree, and 5=completely agree.

1	2	3	4	5
completely disagree	partly disagree	no opinion	partly agree	completely agree

__ 13-01. I learned many new things from BBS.

__ 13-02. I have no time to post or reply to articles.

__ 13-03. I can find the same information in BBS from other sources.

__ 13-04. I can get emotional supports from other BBS users.

__ 13-05. I have no confidence to post or reply to articles to some discussion boards.

__ 13-06. I want to find different point of views about things by using BBS.

__ 13-07. I often discuss the topics I find in BBS with the people around me.

__ 13-08. My typing speed is fast.

__ 13-09. I am afraid being attacked when posting or replying to articles publicly.

__ 13-10. I think the text-based interface of BBS is not easy to use.

__ 13-11. I post or reply to article when I have questions to ask.

__ 13-12. I think using BBS is interesting.

__ 13-13. I feel senses of belonging to one or more BBS discussion boards.

__ 13-14. I can keep my information up-to-date by using BBS.

__ 13-15. I think the quality of information in BBS is not good.

__ 13-16. I can forget unpleasant daily routines when using BBS.
__ 13-17. I like to stay in chat room and chat with other users when using BBS.
__ 13-18. My utterance seldom receives positive replies.
__ 13-19. I contact other users I know in BBS by email often.
__ 13-20. I can find most answers I need just by browsing articles in discussion groups.
__ 13-21. I think too many new articles make me tired to read when browsing BBS.
__ 13-22. I reply to only the original writers more than post publicly on board.
__ 13-23. I can pass time more easily by using BBS.
__ 13-24. I can make intimate friends with people I meet in BBS.
__ 13-25. I feel less lonely when using BBS.
__ 13-26. I think most users of BBS are not friendly.
__ 13-27. I am afraid of that my privacy will be intruded when posting or replying to articles publicly.
__ 13-28. I post or reply articles when I think my opinions need to be heard.
__ 13-29. I often meet other users I know in BBS in person.
__ 13-30. I post or reply articles because I'd like to help others to solve their problems.
__ 13-31. Comparing to my real-life friends, I am more comfortable to share my feeling with others users in BBS.

Follow-up Email:

Dear BBS users,

Thank you for the assistance in this research, and this email is to remind you that the last day of the questionnaire collection is April 4. If you still have not finished this questionnaire, please don't hesitate. You can link to http://www.buffalo.edu/~cpeng and complete this questionnaire. Each answer is extremely important for this research. Your help participation is truly appreciated. Have a wonderful day.

Dept of communication, SUNY Buffalo
Graduate student
Chunta Peng

A-2. Original Chinese emails and questionnaire

Pre-notice Email:

BBS 使用者你好，

我是美國紐約州州立大學水牛城分校傳播所研究生彭俊達，目前正在進行一項關於「BBS 使用動機及滿意度調查」的研究，此研究並由 Dr. Alexander Halavais 所指導。您的協助對於此研究的成功與否十分重要。

這封 email 主要在於告知您，您自台大椰林風情 BBS 站的使用者中被隨機抽選出做爲此份問卷的發放對象。您將在接下來的幾天中由 email 收到我們寄發的問卷，這份問卷只需要幾分鐘的時間作答。您可以在作答結束後直接以 email 回應問卷，或者您也可以連線至我們提供的網頁，直接在線上作答。

您的隱私絕對收到我們的保護，問卷資料儘供學術研究使用並且保持機密。參與這份問卷並不會對您造成任何風險，您的個人識別資料，如 email 帳號，在問卷回收後將會自問卷分離，任何具有識別性的資料將不會與問卷結果有任何的連結。網頁版本的問卷中，您的 email 帳號將不會被我們記錄。

如果您有任何的疑問，請以 email 至 cpeng@buffalo.edu。Dr. Halavais 的 email 是 alex@halavais.net。其他有關研究參與者權利保護的問題，可詢問「社會及行爲科學機構評估部門(SBSIRB)」，電話 1-716-645-2711，email 是 marks@research.buffalo.edu。感謝您的參與，若有打擾之處，請多包涵。

敬祝日安

紐約州州立大學水牛城分校
傳播研究所研究生
彭俊達

Email of Questionnaire:

BBS 使用者你好，

我是美國紐約州州立大學水牛城分校(SUNY Buffalo)傳播所研究生彭俊達，目前正在進行一項「BBS 使用動機及滿意度調查」的研究。您自台大椰林風情 BBS 站的使用者中被隨機抽選出做爲此份問卷的發放對象，懇請您撥出五至十分鐘的時間回答本問卷。您可以直接作答並寄回，或連結至 http://www.buffalo.edu/~cpeng/，直接在線上作答後傳送。

問卷題目將詢問您的 BBS 使用經驗，範圍包含了所有您使用的 BBS 站，並不儘限於台大椰林風情 BBS 站。請於下列問題中選擇最適合您的答案，並且於 4 月 13 日前寄回問卷或至連結至網頁送出，非常感謝您的意見及協助。

您的參與完全出自您的自由意願，您可以在任何時刻停止作答或不回答任何您不想作答的題目。參與這份問卷並不會對您造成任何風險，您的回答及資料絕對保密，並儘供學術研究使用，不做其他用途。您的個人識別資料，如 email 帳號，在問卷回收後將會自問卷分離，任何具有識別性的資料將不會與問卷結果有任何的連結。若您是以網路問卷方式回答，您的 email 帳號將不會被記錄。在您完成並且送出這份問卷的同時，即表示您同意了參與這項學術研究。

如果您有任何的疑問，請 email 至 cpeng@buffalo.edu，或本研究的指導教授 Dr. Halavais，email 是 alex@halavais.net。其他有關研究參與者權利保護的問題，可洽詢「社會及行爲科學機構評估部門(SBSIRB)」，電話 1-716-645-2711，email 是 marks@research.buffalo.edu。再次感謝您的參與並敬祝日安。

紐約州州立大學水牛城分校
傳播研究所研究生
彭俊達

___ 1. 您的性別是？
(1) 男
(2) 女

___ 2. 您今年幾歲？
(1) 未滿 15 歲
(2) 16-18 歲
(3) 19-22 歲
(4) 23-30 歲
(5) 31-40 歲
(6) 41-50 歲
(7) 超過 51 歲

___ 3. 您的連線速度是？
(1) 數據機撥接

(2) DSL/Cable
(3) 區域網路
(4) 其他
(5) 不知道

___ 4. 您目前居住地的型態爲？
(1) 直轄市
(2) 原省轄市
(3) 縣轄市
(4) 鄉、鎮
(5) 海外地區

___ 5.您的職業別是？
(1) 學生
(2) 商業／金融相關
(3) 電腦／資訊相關
(4) 軍、公、教人員
(5) 農業／生化相關
(6) 其他行業
(7) 未就業

___ 6. 您的教育程度？
(1) 國小或國小以下
(2) 國中
(3) 高中／職
(4) 大專院校
(5) 研究所及研究所以上

___ 7. 您最常在什麼場所上 BBS？
(1) 在家
(2) 辦公室
(3) 網咖
(4) 學校
(5) 其他場所

___ 8. 您使用 BBS 有多久時間了？

(1) 未滿 1 個月
(2) 超過 1 個月，未滿 6 個月
(3) 超過 6 個月，未滿 12 個月
(4) 超過 12 個月，未滿 18 個月
(5) 超過 18 個月

___ 9. 在一天之中，您最常於那個時段上 BBS?
(1) 上午 2:00 -上午 6:00
(2) 上午 6:00 -上午 10:00
(3) 上午 10:00-下午 2:00
(4) 下午 2:00 -下午 6:00
(5) 下午 6:00 -下午 10:00
(6) 下午 10:00-上午 2:00
(7) 不一定

___ 10. 在一周之中，您通常使用幾個小時的 BBS？
(1) 0-1 小時
(2) 超過 1 小時，未滿 3 小時
(3) 超過 3 小時，未滿 6 小時
(4) 超過 6 小時，未滿 9 小時
(5) 超過 9 小時

___ 11. 在一周之中，您通常張貼或回應幾篇文章？
(1) 0-1 篇
(2) 2 篇至 3 篇
(3) 4 篇至 6 篇
(4) 7 篇至 9 篇
(5) 超過 9 篇

___ 12. 您最常瀏覽那種類型的討論區？
(1) 電腦相關
(2) 娛樂
(3) 學術科學
(4) 商業
(5) 社會議題
(6) 閒聊

(7) 運動
(8) 文學藝術
(9) 其他

13. 請對下列敘述表達您的意見：
1=完全反對， 2=部分反對，3，=沒有意見，4=部份同意，5=完全同意

___ 13-01. 我從 BBS 學到了許多新事物。
___ 13-02. 我沒時間張貼或回應文章。
___ 13-03. 在 BBS 找的到的資訊，我也可以從其他管道找到。
___ 13-04. 我可以從其他的 BBS 使用者那得到情感上的支持。
___ 13-05. 我沒有自信在某些版上張貼或回應文章。
___ 13-06. 我想從 BBS 上找到其他人對某些事的看法。
___ 13-07. 我常常與身邊的人討論我在 BBS 上看到的話題。
___ 13-08. 我覺得我的中文輸入速度很快。
___ 13-09. 我擔心我在版上張貼或回應文章時，會遭到其他人的回應攻擊。
___ 13-10. 我覺得文字介面的 BBS 不好使用。
___ 13-11. 當我有問題需要尋求解答，我會張貼或回應文章。
___ 13-12. 我覺得上 BBS 是件有趣的事。
___ 13-13. 我對於某些版或某些 BBS 站會有歸屬感。
___ 13-14. 上 BBS 可以讓我所知道的訊息隨時得到更新。
___ 13-15. 我覺得 BBS 上大部份資訊的品質不佳。
___ 13-16. 當使用 BBS 時，我喜歡待在聊天室與其他使用者聊天。
___ 13-17. 當使用 BBS 時，我可以暫時忘記生活中不愉快的瑣事。
___ 13-18. 我張貼或回應的文章常常得不到正面的回應。
___ 13-19. 我和其他 BBS 上的網友常常以 email 聯絡。
___ 13-20. 我光瀏覽版上的文章，就可以找到大部份我要的解答。
___ 13-21. 逛版時，我覺得太多的新文章讓我懶得去閱讀。
___ 13-22. 我回應文章時通常只回信給原發信人，而不公開回應到版上。
___ 13-23. 當我上 BBS 時，時間變得容易打發。
___ 13-24. 我可以與 BBS 上其他使用者成爲親近的好朋友。
___ 13-25. 當我上 BBS 時，我覺得比較不孤單。
___ 13-26. 我覺得 BBS 上大部份的使用者並不友善。
___ 13-27. 如果我公開張貼文章到版上，我很擔心我的隱私會被侵害。
___ 13-28. 當我希望我的意見能讓別人知道時，我張貼或回應文章。
___ 13-29. 我常常與網友見面。

___ 13-30. 我張貼或回應文章是因爲我喜歡幫他人解決難題。
___ 13-31. 比起現實生活中的朋友，我覺得可以更自在的與 BBS 網友分享一些內心的感覺。

謝謝您的參與！任何的意見及疑問敬請不吝指正，
並請歡迎光臨美國紐約州州立大學水牛城分校網站
http://www.buffalo.edu 及本校資訊學院網頁
http://informatics.buffalo.edu

Follow-up Email:
BBS 使用者你好，

感謝您對於此份研究的協助，若是您已經填寫了這份問卷，非常的感謝您。若是您尚未填寫問卷，再次懇請您撥出幾分鐘的時間幫忙回答這份問卷。您的幫忙參與對這份問卷的結果，意義重大。問卷網址在: http://www.buffalo.edu/~cpeng/。

祝您
身體健康 萬事如意

紐約州州立大學水牛城分校
傳播研究所研究生
彭俊達

Appendix B: Questionnaire webpage layout

BBS使用者，您好：

我是美國紐約州州立大學水牛城分校(SUNY Buffalo)傳播所研究生彭俊達，目前正在進行一項「BBS使用動機及滿意度調查」的研究。您自台大椰林風情BBS站的使用者中被隨機抽選出做為此份問卷的發放對象，懇請您撥出五至十分鐘的時間回答本問卷。問卷題目將詢問您的BBS使用經驗，範圍包含了所有您使用的BBS站，並不僅限於台大椰林風情BBS站。請於下列問題中選擇最適合您的答案，非常感謝您的意見及協助。

您的參與完全出自您的自由意願，您可以在任何時刻停止作答或不回答任何您不想作答的題目。參與這份問卷並不會對您造成任何風險，您的回答及資料絕對保密，並僅供學術研究使用，不做其他用途。您的個人識別資料，如email帳號，在問卷回收後將會自問卷分離，任何具有識別性的資料將不會與問卷結果有任何的連結。若您是以網路問卷方式回答，您的email帳號將不會被記錄。

在您完成並且送出這份問卷的同時，即表示您同意了參與這項學術研究。如果您有任何的疑問，請email至 cpeng@buffalo.edu，或本研究的指導教授Dr. Halavais，email是alex@halavais.net。其他有關研究參與者權利保護的問題，可洽詢「社會及行為科學機構評估部門(SBSIRB)」，電話1-716-645-2711，email是marks@research.buffalo.edu。

再次感謝您的參與並敬祝日安。

美國紐約州州立大學水牛城分校
傳播研究所研究生
彭俊達

1. 您的性別是？ ————————
2. 您今年幾歲？ ————————
3. 您的連線方式通常是？ ————————
4. 您目前居住地的型態為？ ————————
5. 您的職業別是？ ————————
6. 您的教育程度？ ————————
7. 您最常在什麼場所上BBS？ ————————
8. 您自第一次使用BBS至今有多久時間了？ ————————
9. 在一天之中，您最常於那個時段上BBS? ————————
10. 在一周之中，您通常使用幾個小時的BBS？ ————————
11. 在一周之中，您通常張貼或回應幾篇文章？ ————————
12. 您最常瀏覽那種類型的討論區？ ————————
13. 請在閱讀完下列敘述後，在右方 ○ 內圈選您的意見。

1=完全不同意， 2=部分不同意，3=沒有意見，4=部份同意，5=完全同意	1. 完全不同意	2. 部分不同意	3. 沒有意見	4. 部分同意	5. 完全同意
13-01. 我從BBS學到了許多新事物。	○	○	○	○	○
13-02. 我沒時間張貼或回應文章。	○	○	○	○	○
13-03. 在BBS找的到的資訊，我也可以從其他管道找到。	○	○	○	○	○
13-04. 我可以從其他的BBS使用者那得到情感上的支持。	○	○	○	○	○
13-05. 我沒有自信在某些版上張貼或回應文章。	○	○	○	○	○
13-06. 我想從BBS上找到其他人對某些事的看法。	○	○	○	○	○
13-07. 我常常與身邊的人討論我在BBS上看到的話題。	○	○	○	○	○
13-08. 我覺得我的中文輸入速度很快。	○	○	○	○	○
13-09. 我擔心我在版上張貼或回應文章時，會遭到其他人的回應攻擊。	○	○	○	○	○
13-10. 我覺得文字介面的BBS不好使用。	○	○	○	○	○
1=完全不同意， 2=部分不同意，3=沒有意見，4=部份同意，5=完全同意	1. 完全不同意	2. 部分不同意	3. 沒有意見	4. 部分同意	5. 完全同意
13-11. 當我有問題需要尋求解答，我會張貼或回應文章。	○	○	○	○	○
13-12. 我覺得上BBS是件有趣的事。	○	○	○	○	○
13-13. 我對於某些版或某些BBS站會有歸屬感。	○	○	○	○	○
13-14. 上BBS可以讓我所知道的訊息隨時得到更新。	○	○	○	○	○
13-15. 我覺得BBS上大部份的資訊品質不佳。	○	○	○	○	○

13-16. 當使用BBS時，我喜歡待在聊天室與其他使用者聊天。	○	○	○	○	○
13-17. 當使用BBS時，通常可以讓我暫時忘記生活中不愉快的瑣事。	○	○	○	○	○
13-18. 我張貼或回應的文章常常得不到正面的回應。	○	○	○	○	○
13-19. 我和其他BBS上的網友常常以email聯絡。	○	○	○	○	○
13-20. 我光瀏覽版上的文章，就可以找到大部份我要的解答。	○	○	○	○	○
1=完全不同意， 2=部分不同意，3=沒有意見，4=部份同意，5=完全同意	1. 完全不同意	2. 部分不同意	3. 沒有意見	4. 部分同意	5. 完全同意
13-21. 逛版時，我覺得太多的新文章讓我懶得去閱讀。	○	○	○	○	○
13-22. 我回應文章時通常只回信給原發信人，而不公開回應到版上。	○	○	○	○	○
13-23. 當我上BBS時，時間變得容易打發。	○	○	○	○	○
13-24. 我可以與BBS上其他使用者成為親近的好朋友。	○	○	○	○	○
13-25. 當我上BBS時，我覺得比較不孤單。	○	○	○	○	○
13-26. 我覺得BBS上大部份的使用者並不友善。	○	○	○	○	○
13-27. 如果我公開張貼文章到版上，我很擔心我的隱私會被侵害。	○	○	○	○	○
13-28. 當我希望我的意見能讓別人知道時，我張貼或回應文章。	○	○	○	○	○
13-29. 我常常與網友見面。	○	○	○	○	○
13-30. 我張貼或回應文章是因為我喜歡幫他人解決難題。	○	○	○	○	○
13-31. 比起現實生活中的朋友，我覺得可以更自在的與BBS網友分享一些內心的感覺。	○	○	○	○	○

請勿重覆回答問卷，並且在您送出問卷之前，請再次檢查有無不小心漏答的題目。

謝謝您！

送出問卷　　全部清除

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