Association for Information Systems
AIS Electronic Library (AISeL)

ICIS 2010 Proceedings

International Conference on Information Systems (ICIS)

2010

AN INVESTIGATION OF INFORMATION SHARING AND SEEKING BEHAVIORS IN VIRTUAL COMMUNITIES

JaeHong Park
Ulsan National Institute of Science and Technology, Jaehongpark@unist.ac.kr

Prabhudev Konana
University of Texas at Austin, prabhudev.konana@mccombs.utexas.edu

Bin Gu
University of Texas at Austin, prabhudev.konana@mccombs.utexas.edu

Alvin Chung Man Leung
University of Texas at Austin, prabhudev.konana@mccombs.utexas.edu

Follow this and additional works at: http://aisel.aisnet.org/icis2010_submissions

AN INVESTIGATION OF INFORMATION SHARING AND SEEKING BEHAVIORS IN VIRTUAL COMMUNITIES

Completed Research Paper

JaeHong Park
Ulsan National Institute of Science and Technology
TMB 801.10, Ulsan, South Korea
Jaehongpark@unist.ac.kr

Prabhudev Konana
University of Texas at Austin
Red McCombs School of Business,
CBA 5.202, Austin, TX 78712
Prabhudev.Konana@mccombs.utexas.edu

Bin Gu
University of Texas at Austin
Red McCombs School of Business,
CBA 5.202, Austin, TX 78712
Prabhudev.Konana@mccombs.utexas.edu

Alvin Chung Man Leung
University of Texas at Austin
Red McCombs School of Business,
CBA 5.202, Austin, TX 78712
Prabhudev.Konana@mccombs.utexas.edu

Abstract

User participations in virtual communities include both information seeking and sharing behaviors to varying degrees. The intentions to share and to seek information may have different motivations. . However, existing studies rarely analyze the intentions for both types of behaviors. This study explicates the antecedents of the two types of usage intentions – intentions to share and intentions to seek – using a model that integrates social, community, and individual factors. The model is validated using a survey of 502 online investors of the most popular online stock message board in South Korea. The results show that the sense of belonging, entertainment value, and perceived usefulness influence both the intentions to share and seek. In addition, reputation seeking enhances the intention to post while perceived knowledge reduces the intention to seek.

Keywords: Information seeking and sharing behaviors, stock message boards, virtual community usage

Introduction

Virtual communities and online social networks have attracted significant interest among practitioners and researchers. There are two different types of behaviors in these virtual communities – information seeking and sharing behaviors. These different behaviors suggest two different intentions in using virtual communities: (a) intention to seek information, and/or (b) intention to share information. Extant literature has mainly studied the motivation for knowledge contribution (Wasko and Faraj 2005, Ma and Agarwal 2007) while a few researchers have investigated the reasons for lurking in virtual communities (Nonnecke and Preece 2000, Nonnecke et al. 2004). Prior studies have separated lurkers and active posters and analyzed their motivations to participate in virtual communities. However, community members can either share or seek information, or both. Information sharing and seeking behaviors are indispensable parts of virtual communities (Preece et al. 2004) and focusing only on one aspect of community members can lead to inappropriate design of virtual communities (Nonnecke et al. 2006). In this paper, we study the antecedents of both behavioral intentions of a virtual community member. We develop a model that explicates the antecedents of the two types of usage behaviors using an integrative social, community, and individual framework and empirically validate the model in the context of virtual investment-related communities.

Different theoretical bases can help explain different motivations and intentions. We first find that social theories have been extensively used to explain why community members share their knowledge with others in social networks. These theories suggest that users expect economic or social rewards from their participation (Nahapiet and Ghoshal 1998, Constant et al. 1996, Wasko and Faraj 2005). The theory of weak ties provides valuable insight into why people seek information from virtual communities (Granovetter 1983; Granovetter 1973). Weak ties refer to people with little familial and occupational connection. Consisting of members with diverse backgrounds, virtual communities can provide a good platform for people to diversify their sources of information. Psychological theories, on the other hand, propose that individuals' decision making-process is often influenced by their perceived level of knowledge or confidence (e.g., illusion of knowledge or overconfidence), leading them to make decision according to their prior beliefs rather than seeking advice from others (Barber and Odean 2001). Such factors may mitigate members' intention to seek information from virtual communities, but can explain why they post. Information systems (IS) theories and models such as theory of reasoned action (TRA) and technology acceptance model (TAM) can be extended to explain how people are motivated to either share their knowledge or seek information from other members, which, in turn, leads to different intentions and behaviors in virtual communities (Lin 2006). In particular, information adoption model that is extended from TAM posits that usefulness of information, quality of information, and trust toward information sources are important factors that drive people to accept information from other sources (Sussman and Siegal 2003, Bhattacherjee and Sanford 2006).

We propose social factors such as seeking reputation and sense of belonging, individual factors such as perceived investment-related knowledge, and community factors such as usefulness of information, quality of information, trustworthiness, and entertainment value influence different behaviors of online members. The model is validated using survey data from the users of Naver.com, the most popular virtual investment-related community in South Korea. Our analysis shows that sense of belonging, entertainment value, and perceived usefulness are the common drivers that positively influence both the intentions to seek and share. In addition, we find that reputation seeking heightens the intention to share, while perceived knowledge mitigates the intention to seek. Our research enriches the growing literature of virtual communities by delineating the two types of participation in virtual communities.

This paper makes several contributions to virtual community literature. First, this research is among the few that studies the antecedents of both information sharing and seeking behaviors of a community member. This results indicate that while some factors have positive relationship with two different intentions, others have negative effects. Such compounding effects have been ignored by existing literature. Second, we incorporate social, community, and individual antecedents to build an integrative theoretical model. This is different from prior studies, which only use an overarching theory to explain one aspect of participation behavior. For example, theory of social exchange is often used to explain the behavior of knowledge contribution. As we analyze both behaviors, more diversified factors should be taken into account. Third, our research findings have practical guidance to virtual community administrators. The results suggest that usefulness, quality of information, and trust towards virtual communities influence information sharing and seeking activities and, thus, message board operators must try to maintain the quality, usefulness of information, and trustworthiness of message boards.

This paper is organized as follows. First, we discuss extant literature. Second, we propose our theoretical framework and research hypotheses. Third, we present our research methodology and data collection. We summarize our research results and discuss research findings. Finally, we conclude with research contributions, limitation, and future research.

Literature Review

This study is related to the literature that investigates user participation in virtual communities. Prior studies in this area can be categorized into two streams - contribution and lurking. In the area of user contribution, prior studies found that perceived reputations, prior experience to share, and embeddedness in the social network are the main driving forces (Wasko and Faraj 2005). Furthermore, IT features of social communities that facilitate perceived identity verification are found to be strongly linked to member satisfaction and knowledge contribution (Ma and Agarwal 2007). While the majority of prior studies focus on user contribution, some studies are devoted to analysis of lurking where members free-ride on the contributions of other members. Prior studies found that when membership size of a social community increases, lurking behavior increases accordingly (Nonnecke and Preece 2000). Furthermore, lurking behavior is affected by both dispositional and situational factors (Rafaeli et al. 2004). The contextual nature of a community also influences such behaviors (Yeow et al. 2006). Relative to active posters, lurkers are found to be less enthusiastic about benefits of virtual communities (Nonnecke et al. 2004a). They satisfy most of their needs by passive observation and learn more about the community through the process (Nonnecke et al. 2004b). Over time, there is a high probability that lurkers will gradually become posters with desire to obtain more knowledge (Ridings et al. 2006). As indicated in prior studies, a majority of users of virtual communities are passive members (Preece et al. 2004). However, prior literature rarely discusses the determinants that decide information seeking from passive lurkers and sharing behaviors of other community members.

This research is also related to sociology literature that investigates the motivation of knowledge contribution into social networks. Table 1 shows a summary of various relevant theories and models in the sociology literature. A number of social theories offer explanations on individual contribution to social communities. Economic and non-material returns have been suggested to motivate people to contribute. Theory of prosocial motivation suggests that individual contributions may be due to perceived personal benefits and norms of generalized reciprocity (Constant et al. 1996; Gouldner 1960). Social exchange theory and social capital theory explain that helping others may be due to expectation of possible future rewards (Burns 1973; Coleman 1988; Lin 1999; Molm 1997; Thibaut and Kelley 1959). Fiske (1992) proposes a model of communal sharing and suggests that people tend to share altruistically regardless of contributions of other members in communities characterized by close relationship or kinship. Strong sense of perceived belongingness and intimacy motivation determine such altruistic behavior (Allport 1962; Fiske 1992). Furthermore, non-material factors such as social status and perceived expertise also influence knowledge exchange (Thomas-Hunt et al. 2003).

| Table 1. Extant Social Theories and Models		
Model	**Core constructs**	**Definitions**
Model of Communal Sharing		
This model is used to explain why people contribute whatever they have to a community without accounting how much other members receive (Clark 1984; Fiske 1992).	Perceived sense of belongings	Communal sharing is constituted by sense of unity, solidarity, and shared substances (Allport 1962; Fiske 1992)
	Intimacy motivation	This construct is characterized by caring, kindness, altruism, and selfless generosity (Fiske 1992)
Theory of Social Exchange		
People offer help to others with expectation to receive tangible/intangible goods/service in the future so that rewards are maximized and costs are minimized (Burns 1973; Thibaut and Kelley	Perceived benefits	Gain in reputation or influence on others, reciprocity, efficiency and other intrinsic/extrinsic rewards (Thibaut and Kelley 1959).
	Perceived costs	Rewards foregone in exchange for social

1959).		benefits and the rewards include opportunity costs and actual loss of resources (Molm 1997)
Theory of Social Capital		
Social capital is defined to be resources embedded in a social network (Coleman 1988). The theory of social capital suggests that people invest in social capital and allow others to access the social capital resources with expectation to obtain returns from the investment in the future (Lin 1999).	Obligations and expectations	Rewards to be paid in the future
	Information channels	Media that allow members of a community to receive information
	Social norms	Prescriptive standards within a community
Theory of Weak Tie		
Weak tie serves as bridges between two strong ties (Granovetter 1983; Granovetter 1973). When some information is not available in strong ties, people may resort help from some distant acquaintances or strangers via weak ties, which are characterized by infrequent contact, lacking of emotional closeness, and absent of reciprocal services (Constant et al. 1996).	Number of ties	Number of friends, acquaintances or colleagues in network ties
	Diversity of ties	Variety of background of people in network ties
	Resources of help providers	Information, ideas, knowledge, tangible and intangible goods possessed by help providers in network ties

Virtual communities are characterized by weak ties, where people are less emotionally attached and have few face-to-face contacts (Wasko and Faraj 2005). Theory of weak ties explains why people seek information from weak ties when answers from strong ties are not available. The theory posits that the more the number of weak ties the more diversified the information received by the individuals (Constant et al. 1996; Granovetter 1983; Granovetter 1973). Information collected from external sources via weak ties is considered more favorable by managers because it is scarcer, special, and unique (Menon and Pfeffer, 2003). By participating in virtual communities, members can gather different sources of information and this can facilitate decision making. However, with exposure to vast amount of information (e.g., stock message boards), there exists a trade-off between quantity and quality (Gu et al. 2007). Prior research found that when investors encounter too much information, illusion of knowledge will occur where investors become overconfident in their prediction and more firm in their belief (Barber and Odean 2002). Influenced by the illusion of knowledge and overconfidence, investors may alter their information seeking behavior.

Hypotheses

We propose an integrated model to captures community members' two participation behavioral intentions — intention to share and intention to seek information — within virtual communities. By using theories from sociology, psychology and IS, we posit that the two intensions are driven by social factors (seeking reputation, sense of belonging), community factors (perceived usefulness of information, entertainment value), and individual factors (perceived knowledge). The perceived usefulness of information, in turn, is directly influenced by perceived quality of information, and perceived trust of information sources. We discuss the constructs and theoretical argument of the linkages in figure 1.

Figure 1. Research Model
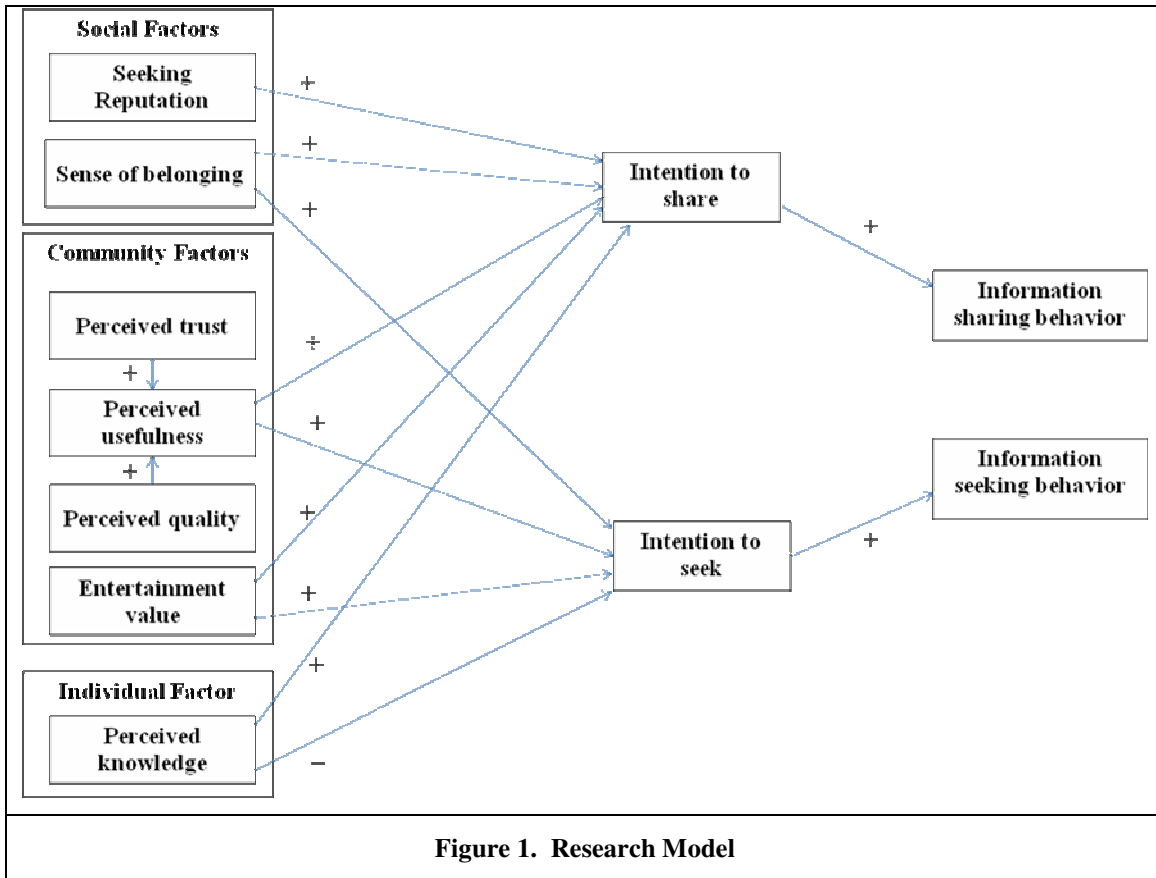
Social Factors

Seeking reputation

This construct captures a user's motivation to seek reputation in social networks and is an important social motivation that drives users to contribute in social networks (Wasko and Faraj 2005). Social exchange theory suggests that people contribute their knowledge to social networks because they expect possible rewards from communities (Nahapiet and Ghoshal 1998). Social reward such as reputation motivates individuals to engage in social interaction in the absence of personal acquaintance or the likelihood of direct reciprocity (Constant et al. 1996). Reputation is an important social capital for an individual to achieve and maintain their status (Jones et al. 1997). Individuals can benefit from active contribution when they perceive that such contribution enhances their personal reputation in the networks (Wasko and Faraj 2005). Moreover, Lakhani and Hippel (2003) suggest that individuals believe that they enhance their status by contributing frequently and intelligently in networks (Lakhani and von Hippel 2003). These arguments indicate that seeking reputation in virtual communities is positively related to active contribution.

In the context of virtual investment-related communities, finance literature argues that investors often post their opinions to enhance their reputation in virtual communities due to economic incentives (Pollner 2002, Campbell 2001, Clarkson et al. 2006). Those investors want to establish a reputation by providing accurate and valuable information to other members of virtual communities. Pollner (2002) argues that "their underlying motivation is to influence stock price because movement in the price in the predicted direction validates the information provided by them and, thereby, enhances their reputation within the communities". As the price moves in the direction of the opinion, the investors also profit from their influence. The literature also suggests that investors have little incentive to spread false information or rumors within communities (Van Bommel 2003) as such behavior will erode their

reputation. Therefore, investors driven by economic incentives have incentive to enhance their reputation in virtual communities by actively posting their informed opinions.

The arguments above indicate that an investor's pursue of reputation will lead to the intention to share in virtual communities. We thus propose:

H1-a: A higher level of intention to seek reputation will lead to a higher level of intention to share in virtual communities.

Perceived sense of belonging

This construct is defined as "the experience of personal involvement in an environment so that persons feel themselves to be an integral part of the environment" (Hagerty et al. 1992). According to social identity theory, people often tend to classify themselves into various social categories (Ashforth and Mael 1989). As a place for social relationships, virtual communities provide social support to individuals, and, thus, they can categorize themselves as a part of virtual communities and can shape their feeling of a sense of belonging.

Using the theory of communal sharing, we explain the relationship between knowledge sharing behavior and the sense of perceived belongingness. The theory of communal sharing suggests that, in a communal sharing environment, people tend to share altruistically regardless of the contributions of other members of the community (Fiske 1992). Such behavior is determined by a strong sense of perceived belongingness and intimacy motivation (Allport 1962; Fiske 1992). These participants believe that they are a part of the community, and communal gains outweigh their personal gains. The strong sense of belongings make people believe that they should contribute to the community even though there may exist some free-riders. In the context of virtual communities, members can offer help to others by sharing their knowledge without seeking rewards. We, thus, propose that the sense of perceived belongingness will be an indicator of intention to share in stock message boards.

The sense of perceived belonging is also related to investors' intention to seek. Participants with a higher sense of belonging are more likely to spend more time and effort to participate in virtual communities (Lin 2007). When individuals are highly involved in virtual communities, they are pre-disposed to trust that information is worthy and helpful for them (Huang and Farn 2009, Lin 2007). As investors are deeply involved, they are more willing to rely on stock message boards for information. Hence, we propose

H2-a: Perceived sense of belonging is positively related to intention to share in virtual communities

H2-b: Perceived sense of belonging is positively related to intention to seek in virtual communities

Community Factors

Perceived usefulness of information

The TAM literature suggests that user acceptance can be explained by two beliefs – perceived usefulness and perceived ease of use. In particular, perceived usefulness is the most important factor when people use systems for utilitarian purpose. Perceived usefulness is defined as the degree to which a person believes that using a particular system would enhance his or her job performance (Davis et al. 1989). In the context of investment-related communities, investors often use the stock message boards to seek investment advice or information from others for their investment decisions. In such cases, investors' motivation is mainly for utilitarian purpose and perceived usefulness will be the dominant predictor of intention to use. In the information adoption model that is extended from TAM, Sussman and Siegal (2003) posit that individual can similarly form intention toward using particular ideas or information as they can form intention toward using systems. Thus, investors who perceive a higher level of usefulness are likely to seek advice from others on virtual communities.

The relationship between perceived usefulness and intention to seek information can also be explained by the weak ties theory. The theory of weak ties suggests that more novel information flows to individuals through weak rather than strong ties. Individuals often participate in virtual communities to seek information that is not available from the strongly tied groups (Ellison et al. 2007, Haythornthwaite and Caroline 2000). In our research context, the value of virtual investment-related communities is the opportunity for investors to obtain more informative, novel, and

helpful information for their investment decisions. Thus, perceived usefulness is an important factor that leads investors to seek investment information from stock message boards.

The theory of social capital also suggests that individuals participate in social relationships when they expect possible benefits from their contribution. Reciprocity in relational social capital can explain the relationship between usefulness and participation. Reciprocity refers to mutual indebtedness (Wasko and Faraj 2005). People usually reciprocate the benefits they receive from others. Thus, investors who perceive a higher usefulness from others are more likely to share their own knowledge or information. Based on the relationship between perception and intentions in TRA, we propose:

> *H3-a: Perceived usefulness is positively related to intention to share in virtual communities*

> *H3-b: Perceived usefulness is positively related to intention to seek in virtual communities*

Perceived quality of information

Quality of postings has been shown to be an important factor that influences individual participation in virtual communities (Gu et al. 2007). The relationship between perceived quality of opinions and perceived usefulness can be explained by TRA. Davis et al. (1989) argue that TAM provides a basis for tracing the impact of external factors on internal beliefs, attitudes, and intentions. They suggest that system quality, system design characteristics, and information or output produced by systems can be external factors (Davis et al. 1989). According to TRA, such external variables influence users' behavior only via internal belief (usefulness and ease of use). External variables such as quality of information mediate the influence of usefulness (Venkatesh et al. 2003).

Individuals may use a certain system with expectation of positive outcomes (Rai et al. 2002). They evaluate the quality of systems according to the net-benefit that may be generated by use of the systems. The perception of systems itself can be the antecedent of perceived usefulness that is related to their performance. When participants believe that such systems produce higher quality outcomes, they are more likely to consider the systems useful (Wixom and Todd 2005). In our research context, if investors perceive that messages are of high quality, they expect positive outcomes and believe the stock message board to be useful for their investment decisions.

We thus propose:

> *H4-a: A higher level of perceived quality of opinions will lead to a higher level of perceived usefulness of opinions posted on virtual communities.*

Perceived trust of information source

Trustworthiness of information sources is an important determinant of information usage (Komiak and Benbasat 2006; Sussman and Siegal 2003). Individuals often attempt to assess the quality of information and the trustworthiness of information sources (Sussman and Siegal 2003). When an individual can evaluate a particular idea or information, the quality of the information will determine the degree of information usefulness. However, when they are either unable or unwilling to process the quality of information, trustworthiness of the source may play a more critical role in the information usage (Sussman and Siegal 2003). When people do not trust an information source, they perceive its information to be less useful and less persuasive (Eagly and Chaiken 1993). On the contrary, when the source is perceived as trustworthy, the information presented by the source is perceived to be useful.

Social exchange theory explains the impact of trust on perceived usefulness. It suggests that people take part in a social exchange only if their benefits from it justify taking part in the social exchange. In an online environment, such expected benefits cannot be guaranteed. In our research context, investors' perceived usefulness of information is influenced by their perceived trust of posters.

The relationship between trust and usefulness has also been discussed in TAM. Past research argues that trust relates to perceived usefulness and ease of use (Chircu et al. 2000). Gefen and Straub (2000) also integrate trust, perceived usefulness, and ease of use in the context of e-services. These studies posit that trust is one of the determinants of perceived usefulness because individuals have incomplete information on the quality of information. In the context of virtual investment-related communities, investors could suffer an investment loss from following others' opinions

if others behave opportunistically by posting false information. We thus propose the relationship between perceived trust and perceived usefulness.

H4-b: A higher level of perceived trust of opinions will lead to a higher level of perceived usefulness of opinions posted on virtual communities.

Entertainment value

Entertainment value has been included in the TAM model as the study extended from workplace to home or hedonic-related environment (Davis et al. 1992; Van der Heijden 2004). In the literature, this construct is defined as "the extent to which the activity of using the computer is perceived to be enjoyable in its own right, apart from any performance consequences that may be anticipated" (Davis et al. 1992). The motivational theory suggests that perceived enjoyment is an indicator of behavioral intention (Deci 1975). User behavior is determined by both extrinsic and intrinsic motivation (Davis et al. 1992). An extrinsically motivated user is driven by the expectation of some utilitarian benefits (i.e., job performance). An intrinsically motivated user is driven by benefits derived from the interaction with the technology (Van der Heijden 2004). In the TAM model, perceived usefulness is related to extrinsic motivation while perceived enjoyment is related to intrinsic motivation. When people use a technology for hedonic purpose, the intrinsic motivation will be the predictor of intentions to use.

Stock message boards can be used for both utilitarian and hedonic purposes. As reported by Bagnoli et al. (1999), retail investors may visit stock message boards to receive investment information and expect better investment performance. In this case, investors participate in stock message boards for utilitarian purpose. Investors can also participate in stock message boards for hedonic purpose. Some investors may enjoy viewing what others said while others may enjoy sharing their opinions with others. This may also include flaming others or reading about flaming others. Such entertainment value is known to motivate people to participate in virtual communities (Wasko and Faraj 2000; Ridings and Gefen 2004). Therefore, investors who are driven by entertainment purpose are more likely to participate in virtual communities in two ways – sharing their opinions and seeking information from others. We, thus, propose:

H5-a: Perceived entertainment value is positively related to the intention to share in virtual communities.

H5-b: Perceived entertainment value is positively related to the intention to seek in virtual communities.

Individual Factors

Perceived knowledge

This construct represents the knowledge which people believe they hold irrespective of what they actually know (Holland 1995). The theory of social capital suggests that knowledge contribution requires "at least some level of shared understanding between parties, such as a shared language and vocabulary" (Nahapiet and Ghoshal 1998). Individuals cannot contribute their knowledge to others if they do not have the requisite cognitive capital. That is, if they perceive their knowledge is inadequate to contribute, they are less likely to share their knowledge with others in social networks even if they are motivated by other factors (e.g., seeking reputation). Constant et al. (1996) argue that individuals with higher levels of expertise are more likely to provide useful advice to the computer networks. Thus, investors' perceived knowledge should increase the motivation to contribute their knowledge to virtual communities.

Perceived knowledge is related to an investor's motivation to seek information from virtual communities. The behavioral finance literature suggests that the more knowledgeable the investors are, the more confident they believe in their investment decision (Barber and Odean 2001; Barber and Odean 2002; Daniel et al. 1998). Such belief could be motivated by actual knowledge or an illusion of knowledge whereby the investors' subjective assessment of the depth, relevance, and accuracy of their own knowledge exceeds the objective assessment of that knowledge by a disinterested expert (Konana and Balasubramanian 2005). The illusion of knowledge is known to be common among online investors who have access to unlimited information. As they can conduct extensive research and evaluate information with a wide variety of criteria for their investment, their confidence in the accuracy of their forecasts will increase more quickly than the accuracy of those forecasts (Barber and Odean 2001). Therefore, the higher confidence in their knowledge reduces investors' motivational need to seek information from others. In

addition, Graham et al. (2009) posit that the competence effect makes investors overconfident whereby people are more willing to bet on their judgments when they feel more knowledgeable or skillful (Graham et al. 2009). They argue that the competence effect is particularly relevant to retail investors. In financial markets, investors have to make decisions based on ambiguous and subjective probabilities. In such cases, investors who are confident in their knowledge will trade based on their own judgments without seeking information from other investors. Thus, we propose that investors' perceived knowledge is negatively associated with their intention to seek. So, we propose:

H6-a: Perceived knowledge is negatively related with intention to share in virtual communities.

H6-b: Perceived knowledge is positively related with intention to seek in virtual communities.

Determinants of Information Sharing and Seeking Behaviors

Intention to share and intention to seek

The behavior intention is defined as "the motivational factors that have an impact on a behavior: they are indications of how hard people are willing to try, of how much of an effort they are planning to exert, in order to perform the behavior" in the theory of reasoned action (Fishbein and Ajzen 1975). Thus, the behavioral intention represents the strength of an individual's intention to perform a specified behavior and is an immediate determinant of actual behavior (Ajzen 1985). The TRA is grounded in various theories of attitude and behavior such as cognitive dissonance theory (CDT). The CDT suggests that individuals have a motivational drive to reduce dissonance by justifying or rationalizing themselves (Festinger 1957). Dissonance can occur when an individual perceives a logical inconsistency between their beliefs and actions, when one implies the opposite of another. To minimize the dissonance, individuals are willing to perform a particular action that is consistent with their belief.

In this research context, investors are motivated to adjust their intentions to the behaviors in message boards. When investors are driven by a strong intention to share information, they are more likely to do posting activity that is consistent with their intention. Therefore, the above arguments suggest that an investor with intention to share is likely to initialize messages and post their opinions on message boards. With the same reasoning, this suggests that an investor with intention to seek is more likely to seek information from others on message boards, and thus they will spend more time to read and seek investment-related information from other members. We thus propose H7-a and H7-b:

H7-a: Intention to share is positively related to information sharing behavior in virtual communities

H7-b: Intention to share is negatively related to information seeking behavior in virtual communities

Empirical Analysis

Research context

We investigated our research questions based on responses of participants of Naver stock message boards operated by Naver.com, which is the largest online portal website in South Korea. Since a large majority of the trades in South Korea is related to retail trades, investors rely heavily on message boards for information. Naver.com provides a wide range of services such as a financial news service, stock quotes, stock exchange rates, corporate press releases, experts' reports and their recommendation, and stock message boards for discussing a company's prospects and stock valuation. In general, Naver Stock has around 600,000 unique visitors and 46,000,000 page views per day in August 2009. Such a large number of customers create a buzz in Naver stock message boards. According to Naver stock, there are around 100,000 visitors and 20,000 newly posted messages in stock message boards. On August 2009, there are total 1,992 message boards, and each stock message board covers one stock.

Questionnaire design and refinement

Our model embeds investors' perception of stock message boards and relationships between multiple constructs. To estimate such constructs and relationships, we collected investors' self-reported perception using an online survey.

An initial survey questionnaire was generated based on previous literature, discussion with researchers on virtual communities, and interviews with managers in Naver stock message boards. The initial questionnaire included 30 items related to various constructs and 12 items related to investors' demographic information, behavior in stock message boards, and investment patterns. This questionnaire was pre-tested with employees of Naver.com who are also actual retail investors. They were asked to comment on questions, to raise any other concerns related to this survey, and to describe any ambiguities. For the concerns of content validity, the questionnaire was also pretested with three virtual community researchers. The survey questions were then modified according to comments, following procedures recommended by (Churchill 1979). The final questionnaires had 24 items related to this research constructs. Table 2 presents sample items of constructs and references.

Table 2. Sample Items for Construct and References		
Constructs	Sample items	References
Seeking reputation	I post my opinions on the stock message board to earn respect from others in the message board	Wasko and Faraj 2005
Sense of belonging	I feel a strong sense of belonging to the message boards	Hagerty et al. 1992, Lin 2007
Perceived usefulness of information	the content of opinions on this message board is informative	Sussman and Siegal 2003
Perceived quality of information	the content of opinions on this message board is accurate	Sussman and Siegal 2003
Perceived trust toward information sources	Other investors on this message board provide unbiased information	Komiak and Benbasat 2006, McKnight et al. 2002
Entertainment value	I find that online investing is enjoyable.	Venkatesh 2000
Perceived knowledge	I am well informed about the stock market	Dorn and Huberman 2005

The sample

Naver agreed to let us survey message board participants. The survey was posted on the top of each stock message boards from October 7, 2009 to October 21, 2009.

To facilitate survey participation and completion, we proposed a monetary award between $100 and $300 to be raffled among the participants who completed all survey questions. After eliminating incomplete survey forms, we had 502 usable survey responses used for our model analysis. Around 48% of all respondents never posted any message on Naver. Only a small fraction of users posted more than 5 messages a week. Table 3 provides some sample statistics.

Table 3. Sample Statistics		
Characteristics	Category	Sample (%)
Online investing experience	< 1 year	35.80%
	1~2 years	34.00%
	3~6 years	22.00%
	7~10 years	4.60%
	>10 years	3.60%
Total investment amount	< 5 million won	36.53%
	5~10 million won	22.94%
	10 ~ 50 million won	33.53%
	50~100 million won	3.59%
	> 100 million won	2.99%

Education	High school	14.01%
	2-year college	16.77%
	4-year college	62.85%
	Master's degree	5.73%
	Ph.D degree	0.64%
Frequency of trading per week	< 1	43.49%
	1~2	25.45%
	3~6	14.43%
	7~10	8.42%
	> 10	8.22%
Time spent searching for information at stock message boards per day	< 1 hour	44.49%
	1~2 hours	32.06%
	3~6 hours	17.64%
	7~10 hours	4.81%
	> 10 hours	1.00%
Number of postings per week	0	48.06%
	1~5	38.24%
	6~10	6.75%
	11~20	4.50%
	>20	2.45%

Scale items, reliability, and convergent validity

In this section, we address items measure, reliability using Cronbach alpha and Spearman-Brown split-half reliability (Balasubramanian et al. 2003), and convergent validity using confirmatory factor analysis (CFA) and average variance extracted (AVE). AVE represents the amount of variance that a latent variable captures from its indicators relative to the amount due to measurement error. AVE values should be greater than the 0.50 cut-off, indicating that the majority of the variance is accounted for by the construct (Wasko and Faraj 2005). All CFA and AVE values meet the recommended threshold values. Table 4 summarizes the measurement model results.

Table 4. Construct Statistics, Reliability, and Convergent Validity						
Constructs	Mean	S.D	Cronbach Alpha	Spearman-Brown.s.h. Alpha	CFA	AVE
Seeking reputation	3.177	1.525	0.909	0.909	91.69%	0.914
Entertainment value	4.643	1.363	0.922	0.921	92.79%	0.923
Perceived usefulness	3.674	1.266	0.924	0.903	86.77%	0.899
Sense of belonging	4.281	1.374	0.840	0.840	86.21%	0.859
Perceived knowledge	4.023	1.145	0.727	0.727	78.58%	0.886
Perceived trust	3.245	1.238	0.918	0.895	85.95%	0.889
Perceived quality of opinions	3.199	1.236	0.917	0.877	80.38%	0.882
Intention to share	5.271	2.186	0.901	0.901	91.03%	0.892
Intention to seek	4.199	1.383	0.840	0.772	75.79%	0.871
Info sharing behavior	1.750	0.943	na	na	na	na
Info seeking behavior	1.860	0.941	na	na	na	na

To measure the two types of behaviors in virtual investment-related communities, investors were asked to report the number of messages they posted on the stock message boards per week and the average amount of time spent searching for investment information on stock message boards per day. The greater the number of messages posted,

greater is the information sharing activity[1]. Similarly, investors spend more time searching for information on stock message boards engaged in more information seeking activity.

Discriminant validity

Discriminant validity indicates that the measures of the constructs should be distinct and the indicators should load on the appropriate construct. To evaluate discriminant validity, AVE is compared with the square of the correlations among the latent variables (Wasko and Faraj 2005). The square root of AVE values should be larger than the correlations between constructs. From the table 5, we can see that all constructs meet this requirement.

Table 5: Construct Correlation and Discriminant Validity											
Constructs	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
[1]Seeking reputation	**0.95**										
[2]Entertainment value	0.08	**0.96**									
[3]Perceived usefulness	0.31	0.23	**0.94**								
[4]Sense of belonging	0.19	0.50	0.39	**0.92**							
[5]Perceived knowledge	0.24	0.09	0.18	0.13	**0.94**						
[6]Perceived trust	0.28	0.09	0.61	0.23	0.19	**0.94**					
[7]Perceived quality of opinions	0.36	0.16	0.79	0.37	0.26	0.66	**0.93**				
[8]Intention to share	0.65	0.25	0.41	0.37	0.21	0.30	0.41	**0.94**			
[9]Intention to seek	0.13	0.33	0.43	0.52	0.02	0.29	0.42	0.32	**0.93**		
[10]Info sharing behavior	0.22	0.11	0.11	0.05	0.21	0.10	0.12	0.25	-0.04	**1**	
[11]Info seeking behavior	0.11	0.02	0.10	0.04	0.29	0.13	0.20	0.07	0.01	0.27	**1**

* Square root of the AVE are the bolded diagonal values

Results and Discussion

Model fits

With the survey data (N = 502), we constructed a structural equation model using a maximum likelihood fitting function after initial identification conditions were imposed. We provided the squared multiple correlations which are analogous to the regression R^2. The squared multiple correlations denote the fraction of variance in endogenous constructs explained by other endogenous and exogenous constructs. The model explains 70.8 percent of variance in perceived usefulness, 54.7 percent of variance in intention to share, 39.8 percent of variance in intention to seek, 6.9 percent of variance in number of postings, and 14.9 percent of variance in time spent searching for information.

---

[1] Since we used the number of postings per week as the measure of information sharing behavior, one may argue that intention to seek can be related to the number of postings. People can initialize the messages to ask questions and receive advice from other members. In the unreported anlaysis, we found that the path from intention to seek to number of postings is negatively significant (-0.126). Investors who want to find investment advice from message boards do not necessarily posting questions. They may use search or filter options that the stock message boards provide, and they can easily find investment-related information. Those investors may put more effort and time in searching for information on message boards while less likely to spend their time to initialize messages.

Figure 1 presents the results related to the hypotheses and model fit. All the fit indices suggest that model has a reasonable fit. The X^2/df (Marsh and Hocevar 1985) of our sample is 3.54 while that of root mean square error of approximation (RMSEA) is less than 0.08 All outcomes strongly support the underlying hypotheses (p < 0.05).

Figure 2. Results and Model fit
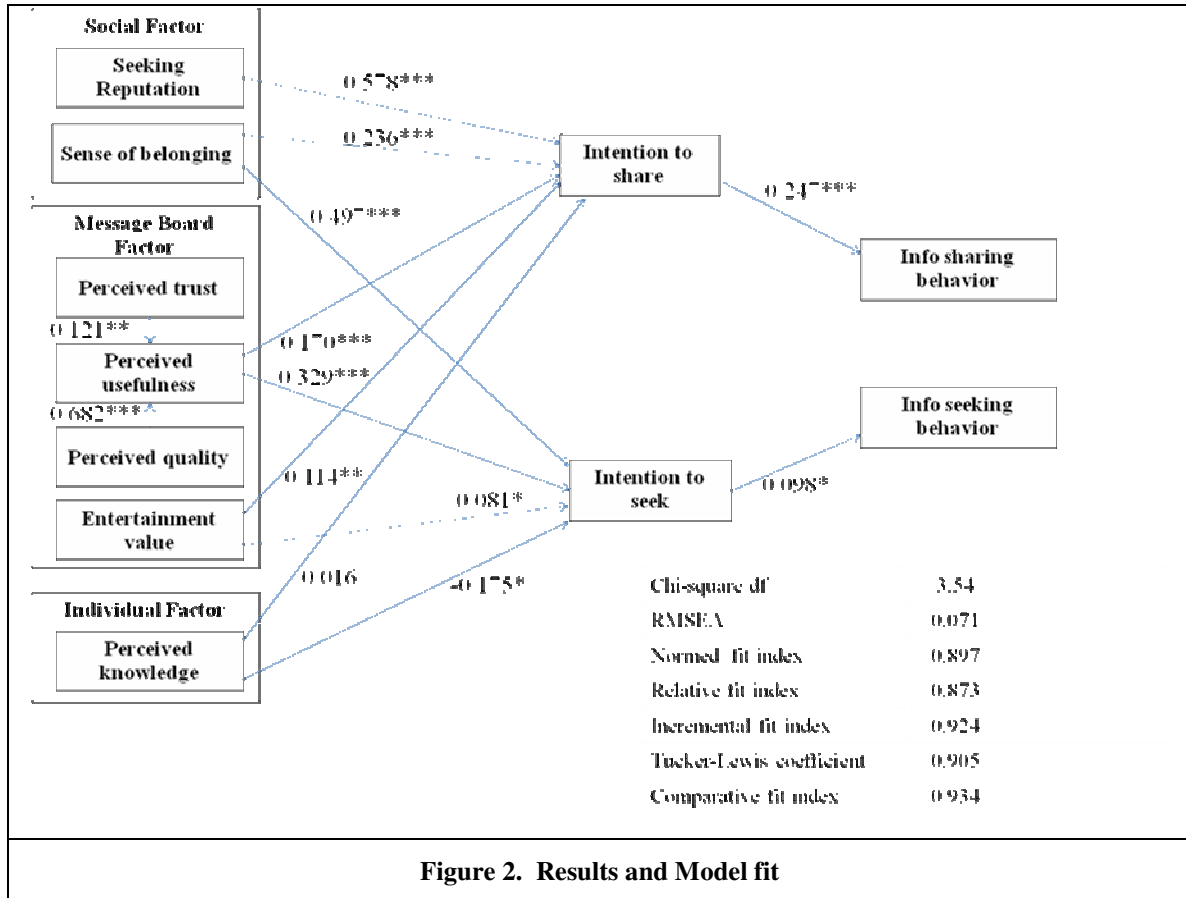
Results

We analyze how each construct in social, community and individual factors influences intentions to share and seek accordingly to the results of figure 2. We first investigate the influence of social factors (seeking reputation and sense of belonging) on two behavioral intentions. We find that seeking reputation strongly influences intention to share (weight = 0.578). Thus, H1-a is supported. This finding is consistent with results in social capital literature. As investors expect social rewards (reputation), they are more likely to share their knowledge with others in virtual communities. Our results also show that the perceived sense of belonging leads to intention to share (weight = 0.236) and, thus, H2-a is supported. When investors have a higher sense of belonging, they are more likely to share their own information with others, which is consistent with the theory of communal sharing. We also find that the path from sense of belonging to intention to seek (weight =0.497) is significant. Thus, this result supports H2-b. When investors are highly involved in stock message boards, they are more likely to believe that information or opinions is more useful, leading them to seek information for their investment decisions. We also find that the coefficient from sense of belonging to intention to seek is greater than that from sense of belonging to intention to share. This result suggests that sense of belonging is one of the most important antecedents that drive investors to seek information from virtual communities.

We next investigate the impact of community factors (perceived usefulness, quality of information, trustworthiness of information and entertainment value). Our result show that the perceived usefulness significantly influences intention to share (weight = 0.170) and intention to seek (weight= 0.329), thus both H3-a and H3-b are supported. This result suggests that investors can use virtual communities to share or to seek information. In addition, we observe a significant direct effect from perceived trust and perceived quality of opinions to perceived usefulness, supporting H4-a and H4-b. This finding indicates that perceived trust and quality of opinions play an important role

to enhance perceived usefulness of information on message boards. We now consider indirect effect of perceived quality of information and perceived trust on intention to share or seek via perceived usefulness. The significant indirect path coefficient from the quality of information (weight = 0.117 and 0.252, respectively for sharing and seeking) indicates that a high perceived quality of information influence perceived usefulness, which in turn leads to a high level of intention to share and seek. When investors perceive higher quality of information posted on message board, they believe this information is useful for their investment decisions, which, in turn, seeks information from others or reciprocally drives them to share their information with others. The indirect path from perceived trust on intention to share and seek via perceived usefulness (weight = 0.017 and 0.037, respectively) suggests that trust drives investors to share their knowledge and seek information. These results indicate that trust reduces concerns of others engaging in opportunistic behavior, and thus increases the perceived usefulness of others' messages. Consequently, investors are likely to share and seek investment information on the stock message boards. We also observe the impact of another community factor, perceived entertainment value, on intentions to share and seek. We find significant influence of entertainment value on intention to share (weight =0.114) and intention to seek (weight =0.081). Therefore, H5-a and H5-b, are supported. The results of community factors suggest that investors participate in stock message boards for both utilitarian and hedonic purposes.

We then analyze the influence of individual factor on two intentions. We find that the direct path from perceived knowledge to intention to share is not statistically significant. Thus, H6-a is not supported. This suggests that investors' cognitive capital may not motivate them to contribute their knowledge to stock message boards. On the contrary, the path from perceived knowledge to intention to seek is negative and statistically significant (weight = -0.177), and thus H6-b is supported. This finding is consistent with the argument that high perceived knowledge drives investors to invest on their own judgment rather seeking investment information from others.

We finally consider how two behavioral intentions influence our final dependent variables, information sharing behavior and information seeking behavior. We find that the direct effect of intention to share on sharing behavior is substantial (weight = 0.247). Thus, H7-a is supported. Investors who are intended to share their information with others are likely to post more actively. We also find that the intention to seek positively influences information seeking behavior (weight = 0.098). These results therefore support H7-b. Investors with a higher intention to seek are likely to spend more time to search for investment information. This result is consistent with our view that investors put more effort and time to the behavior they are planning to exert to reduce the dissonance.

Conclusion

Individuals can participate in virtual communities in two different ways, posting and seeking information. Our study highlights the factors that determine information seeking and information sharing behaviors of community members. This research provides a better understanding of the behaviors of online users in virtual communities. Furthermore, the effects of various antecedent factors leading to different user behaviors are carefully analyzed. Our research findings indicate that while intension to share and intension to seek have some common factors, other antecedent factors exert different effects to different user behaviors. For example, perceived knowledge is negatively related to intention to seek while is not statistically related to intention to share. Such compounding effect has not been reflected in prior studies of user behavior.

While our study is focusing on investors' active and passive participation in message boards, our theoretical model can be applied to other types of virtual communities and online social networks where users can interact with each other by sharing and seeking information. For example, in a product review website, when consumers have higher level of knowledge about a product and have strong motivation to enhance their reputation within the network, they are less likely to seek product-related advice but are more likely to share their opinions or experience with other consumers. Also, entertainment value can be a major predictor of intention to share and seek when people participate in online social network such as Facebook. Even though more explanatory variables may need to be added to our framework when it is extended to other contexts, our model can provide a good foundation for future research.

Our study also has a significant managerial implication. As indicated in our research findings, perceived usefulness is an important factor that induces both intentions to seek and share. Online community administrators should pay attention to these factors in order to make the communities successful. In particular, our analysis reveals that maintenance of high level of perceived usefulness can encourage online members to participate by sharing and seeking information. Such usefulness is maintained by high level of perceived trust and perceived quality of

opinions. To facilitate virtual communities, managers or administrators should take a proactive role in maintaining a high level of quality of opinions and trustworthy information sources by encouraging their members to provide insightful investment opinions and eliminating slipshod posts. One of the possible ways to maintain the high level of usefulness is to provide poster reputation systems. Like e-Bay's seller reputation systems, each member can have unique marks on their IDs such as stars or points to represent their reputation level in the communities. When members with a high level of reputation post their opinions, other members can see posters' reputation levels and easily judge the quality and trustworthiness of the opinions. Such systems may also encourage posters to provide high quality of information because posters are motivated by social rewards such as reputation. Apart from perceived usefulness, other important attributes such as entertainment value and sense of belonging should not be ignored as both factors significantly influence intentions to seek and share. Online community administrators can adjust community environment to make discussion of investment topics more interesting. In addition, prior literature has suggested some IT features that can enhance perceived identity verification (Ma and Agarwal 2007). Online community administrators can make use of these features to deepen the sense of belongings of community members.

There are further opportunities to build on this model. First, we only propose two intentions - intention to seek and intention to share. However, this concept can be further expanded and elaborated. Even though people's behavior in virtual communities can be categorized into two - reading or posting, their intentions can be divided into more dimensions. For example, some investors may intend to post to raise questions while others may intend to post to spread rumors to take an advantage of it. We believe that future research can incorporate other motivations into our model. Second, our study only analyzed stock message boards. To generalize our findings, we need to compare our results with those from other types of virtual communities. For example, our model can be applied to virtual communities for online shopping. Third, motivations to visit virtual communities are likely to differ across various types of communities. Comparing different levels of influence of our constructs will provide an insight to understand how users are motivated to participate in various types of virtual communities. Finally, in terms of methodology, we only used self-reported data to analyze participation intensity. Secondary data that captures user's behavior may reveal other kinds of behaviors in virtual communities. Analyzing both self-reported data and secondary data could provide more insights into user behavior and their motivation in virtual communities.

References

Ajzen, I. "The Theory of Planned Behavior," *Organizational Behavior and Human Decision Processes* (50:2) 1991, pp. 179-211.

Ashforth, B.E., and Mael, F. "Social Identity Theory and the Organization," The Academy of Management Review (14:1) 1989, pp. 20-39.

Allport, F.H. "A Structuronomic Conception of Behavior: Individual and Collective: I. Structural Theory and the Master Problem of Social Psychology," *The Journal of Abnormal and Social Psychology* (64:1) 1962, pp. 3-30.

Bagnoli, M., Beneish, M.D., and Watts, S.G. "Whisper Forecasts of Quarterly Earnings Per Share," *Journal of Accounting and Economics* (28:1) 1999, pp. 27-50.

Balasubramanian, S., Konana, P., and Menon, N.M. "Customer Satisfaction in Virtual Environments: A Study of Online Investing," *Management Science* (49:7) 2003, pp. 871-889.

Barber, B.M., and Odean, T. "The Internet and the Investor," *The Journal of Economic Perspectives* (15:1) 2001, pp. 41-54.

Barber, B.M., and Odean, T. "Online Investors: Do the Slow Die First?," *Review Financial Studies* (15:2) 2002, pp. 455-488.

Burns, T. "A Structural Theory of Social Exchange," *Acta Sociologica* (16:3) 1973, pp. 188-208.

Chircu, A.M., Davis, G.B., and Kauffman, R.J. "Trust, Expertise and Ecommerce Intermediary Adoption," Proceedings of the Sixth Americas Conference on Information Systems, ACM, Long Beach, 2000, pp. 710-716.

Churchill, G.A.J. "A Paradigm for Developing Better Measures of Marketing Constructs," *Journal of Marketing Research* (16:1) 1979, pp. 64-73.

Coleman, J.S. "Social Capital in the Creation of Human Capital," *The American Journal of Sociology* (94) 1988, pp. S95-S120.

Constant, D., Sproull, L., and Kiesler, S. "The Kindness of Strangers: The Usefulness of Electronic Weak Ties for Technical Advice," *Organization Science* (7:2) 1996, pp. 119-135.

Daniel, K., Hirshleifer, D., and Subrahmanyam, A. "Investor Psychology and Security Market under- and Overreactions," *Journal of Finance* (53:6) 1998, pp. 1839-1885.

Davis, F.D., Bagozzi, R.P., and Warshaw, P.R. "User Acceptance of Computer Technology: A Comparison of Two Theoretical Models," *Management Science* (35:8) 1989, pp. 982-1003.

Davis, F.D., Bagozzi, R.P., and Warshaw, P.R. "Extrinsic and Intrinsic Motivation to Use Computers in the Workplace," *Journal of Applied Social Psychology* (22:14) 1992, pp. 1111-1132.

Deci, E.L. *Intrinsic Motivation* Plenum Press, New York, 1975, pp. xi, 324 p.

Dennis, A.R., and Kinney, S.T. "Testing Media Richness Theory in the New Media: The Effects of Cues, Feedback, and Task Equivocality," *Information Systems Research* (9:3) 1998, pp. 256-274.

Eagly, A.H., and Chaiken, S. *The Psychology of Attitudes* Harcourt Brace Jovanovich College Publishers, Fort Worth, TX, 1993, pp. xxii, 794 p.

Fiske, A.P. "The Four Elementary Forms of Sociality: Framework for a Unified Theory of Social Relations," *Psychological Review* (99:4) 1992, pp. 689-723.

Gefen, D., and Straub, D.W. "The Relative Importance of Perceived Ease of Use in Is Adoption: A Study of E-Commerce Adoption," *Journal of the Association for Information Systems* (1:8) 2000, pp. 1-28.

Gouldner, A.W. "The Norm of Reciprocity: A Preliminary Statement," *American Sociological Review* (25:2) 1960, pp. 161-178.

Graham, J.R., Harvey, C.R., and Huang, H. "Investor Competence, Trading Frequency, and Home Bias," *Management Science* (55:7) 2009, pp. 1094-1106.

Granovetter, M. "The Strength of Weak Ties: A Network Theory Revisited," *Sociological Theory* (1) 1983, pp. 201-233.

Granovetter, M.S. "The Strength of Weak Ties," *American Journal of Sociology* (78:6) 1973, p 1360.

Gu, B., Konana, P., Rajagopalan, B., and Chen, H.-W.M. "Competition among Virtual Communities and User Valuation: The Case of Investing-Related Communities," Information Systems Research (18:1) 2007, pp. 68-85.

Hagerty, B.M.K., Lynch-Sauer, J., Patusky, K.L., Bouwsema, M., and Collier, P. "Sense of Belonging: A Vital Mental Health Concept," *Archives of Psychiatric Nursing* (6:3) 1992, pp. 172-177.

Huang, Li-Ting and Farn, Cheng-Kiang, "Effects of Virtual Communities on Purchasing Decision-Making: The Moderating Role of Informatoin Activities" 2009, PACIS 2009 Proceedings. Paper 55.

Jones, C., Hesterly, W.S., and Borgatti, S.P. "A General Theory of Network Governance: Exchange Conditions and Social Mechanisms," *The Academy of Management Review* (22:4) 1997, pp. 911-945.

Kankanhalli, A., Tan, B.C.Y., and Kwok-Kee, W. "Contributing Knowledge to Electronic Knowledge Repositories: An Empirical Investigation," *MIS Quarterly* (29:1) 2005, pp. 113-143.

Komiak, S.Y.X., and Benbasat, I. "The Effects of Personalization and Familiarity on Trust and Adoption of Recommendation Agents," *MIS Quarterly* (30:4) 2006, pp. 941-960.

Konana, P., and Balasubramanian, S. "The Social-Economic-Psychological Model of Technology Adoption and Usage: An Application to Online Investing," *Decision Support Systems* (39:3) 2005, pp. 505-524.

Lakhani, K.R., and von Hippel, E. "How Open Source Software Works: "Free" User-to-User Assistance," *Research Policy* (32:6) 2003, pp. 923-943.

Lin, H.F. "Understanding Behavioral Intention to Participate in Virtual Communities," *CyberPsychology & Behavior* (9:5) 2006, pp. 540-547.

Lin, H.F. "The Role of Online and Offline Features in Sustaining Virtual Communities: An Empirical Study," *Internet Research* (17:2) 2007, pp. 119-138.

Lin, N. "Building a Theory of Social Capital," *Connections* (22:1) 1999, pp. 28-51.

Ma, M., and Agarwal, R. "Through a Glass Darkly: Information Technology Design, Identity Verification, and Knowledge Contribution in Online Communities," *Information Systems Research* (18:1) 2007, pp. 42-67.

Marsh, H.W., and Hocevar, D. "Application of Confirmatory Factor Analysis to the Study of Self-Concept: First- and Higher Order Factor Models and Their Invariance across Groups," *Psychological Bulletin* (97:3) 1985, pp. 562-582.

Menon, T., and Pfeffer, J. "Valuing Internal Vs. External Knowledge: Explaining the Preference for Outsiders," *Management Science* (49:4), 2003, pp. 497-513.

Molm, L.D. *Coercive Power in Social Exchange* Cambridge University Press, Cambridge, UK; New York, NY, USA, 1997.

Montazemi, A.R., Siam, J.J., and Esfahanipour, A. "Effect of Network Relations on the Adoption of Electronic Trading Systems," *Journal of Management Information Systems* (25:1), 2008, pp. 233-266.

Nahapiet, J., and Ghoshal, S. "Social Capital, Intellectual Capital, and the Organizational Advantage," *Academy of Management Review* (23:2) 1998, pp. 242-266.

Nonnecke, B., Andrews, D., and Preece, J. "Non-Public and Public Online Community Participation: Needs, Attitudes and Behavior," *Electronic Commerce Research* (6:1) 2006, pp. 7-20.

Nonnecke, B., and Preece, J. "Lurker Demographics: Counting the Silent," Proceedings of the SIGCHI conference on Human Factors in Computing Systems, The Hague, 2000, pp. 73-80.

Nonnecke, B., Preece, J., and Andrews, D. "What Lurkers and Posters Think of Each Other," Proceedings of the 37th Annual Hawaii International Conference on System Sciences 2004a, p. 70195a.

Nonnecke, B., Preece, J., Andrews, D., and Voutour, R. "Online Lurkers Tell Why," Proceedings of the Tenth Americas Conference on Information Systems, New York, 2004b, pp. 2688-2694.

Preece, J., Nonnecke, B., and Andrews, D. "The Top Five Reasons for Lurking: Improving Community Experiences for Everyone," *Computers in Human Behavior* (20:2) 2004, pp. 201-223.

Rafaeli, S., Ravid, G., and Soroka, V. "De-Lurking in Virtual Communities: A Social Communication Network Approach to Measuring the Effects of Social and Cultural Capital," Proceedings of the 37th Annual Hawaii International Conference on System Sciences, 2004, pp. 1-10.

Rai, A., Lang, S.S., and Welker, R.B. "Assessing the Validity of Is Success Models: An Empirical Test and Theoretical Analysis," *Information Systems Research* (13:1) 2002, pp. 50-69.

Ridings, C.M., and Gefen, D. "Virtual Community Attraction: Why People Hang out Online," *Journal of Computer-Mediated Communication* (10:1) 2004, pp. 00-00.

Ridings, C., Gefen, D., and Arinze, B. "Psychological Barriers: Lurker and Poster Motivation and Behavior in Online Communities," *Communications of the Association for Information Systems* (18:16) 2006, pp. 329-354.

Robert, L.P.J., Dennis, A.R., and Ahuja, M.K. "Social Capital and Knowledge Integration in Digitally Enabled Teams," *Information Systems Research* (19:3) 2008, pp. 314-334.

Sarner, A. "The Business Impact of Social Computing on Crm," Gartner Research, 2009, pp. 1-15.

Sussman, S.W., and Siegal, W.S. "Informational Influence in Organizations: An Integrated Approach to Knowledge Adoption," *Information Systems Research* (14:1) 2003, pp. 47-65.

Taylor, S., and Todd, P.A. "Understanding Information Technology Usage: A Test of Competing Models," *Information Systems Research* (6:2) 1995, pp. 144-176.

Thibaut, J.W., and Kelley, H.H. *The Social Psychology of Groups* Wiley, New York, 1959.

Thomas-Hunt, M.C., Ogden, T.Y., and Neale, M.A. "Who's Really Sharing? Effects of Social and Expert Status on Knowledge Exchange within Groups," *Management Science* (49:4), 2003, pp. 464-477.

Van der Heijden, H. "User Acceptance of Hedonic Information Systems," *Management Information Systems Quarterly* (28:4) 2004, pp. 695-704.

Venkatesh, V., and Davis, F.D. "A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Field Studies," *Management Science* (46:2) 2000, pp. 186-204.

Venkatesh, V., Morris, M.G., Gordon, B.D., and Davis, F.D. "User Acceptance of Information Technology: Toward a Unified View," *MIS Quarterly* (27:3) 2003, pp. 425-478.

Wasko, M.M., and Faraj, S. "Why Should I Share? Examining Social Capital and Knowledge Contribution in Electronic Networks of Practice," *MIS Quarterly* (29:1) 2005, pp. 35-57.

Wixom, B.H., and Todd, P.A. "A Theoretical Integration of User Satisfaction and Technology Acceptance," *Information Systems Research* (16:1) 2005, pp. 85-102.

Yeow, A., Johnson, S., and Faraj, S. "Lurking: Legitimate or Illegimate Peripheral Participation," Proceedings of Twenty-Seventh International Conference on Information Systems, Milwaukee, 2006, pp. 967-982.