
Factors Affecting Bloggers' Knowledge Sharing: An Investigation Across Gender

SANGMI CHAI, SANJUKTA DAS, AND H. RAGHAV RAO

SANGMI CHAI is an assistant professor at the Ewha School of Business, Ewha Womans University, Seoul, Korea. Before joining Sangmyung University, she was an assistant professor of information systems at Slippery Rock University in Slippery Rock, Pennsylvania. She received her Ph.D. in management information systems from the State University of New York at Buffalo, MBA with an MIS concentration from Seoul National University, and a B.S. in politics from Ewha Women's University. Her primary research areas are behavioral issues in information systems, information assurance, and knowledge management. Her research has been published in *IEEE Transactions on Professional Communication*, *Decision Support Systems*, *International Journal of Information Management*, and *IEEE IT Professional*.

SANJUKTA DAS is an assistant professor of management science and systems at the University at Buffalo, New York. She received her Ph.D. in operations and information management from the University of Connecticut, M.S. in management science from Clarkson University, and master of business management (human resource concentration) bachelor of commerce (accounting) from Calcutta University. Her research has been published in *Information Systems Research*, *INFORMS Journal on Computing*, and *Journal of Organizational Computing and Electronic Commerce*.

H. RAGHAV RAO is SUNY Distinguished Service Professor of management science and systems at the University at Buffalo, New York, and World Class University Visiting Professor in the Department of Service Systems Management and Engineering, Sogang University, Korea. He received his Ph.D. in management information systems from Purdue University, MBA in information systems from the University of Delhi, and bachelor of technology in chemical engineering from the Indian Institute of Technology. He has published over 130 papers in journals such as *Management Science*, *MIS Quarterly*, *Journal of Management Information Systems*, *Information Systems Research*, *Decision Support Systems*, *IEEE Transactions on Systems, Man, and Cybernetics*, and *Information Systems Frontiers*. He has won best paper and best paper runner-up awards at ICIS and AMCIS and in *Information Systems Research*. He is, or has been, senior editor and association editor of several top-tier journals. His research is funded by the National Science Foundation and the Department of Defense.

ABSTRACT: Blogs have emerged as an innovative tool for sharing information and knowledge, and they command significant interest from information technology (IT) users as well as providers. Our study establishes a research framework to provide an understanding of the factors affecting knowledge sharing among bloggers in online social networks. The research results indicate that bloggers' trust, strength of social ties, and reciprocity all have a positive effect on their knowledge-sharing behavior. Further,

the impact of each factor on such behavior varies by gender. Our results provide evidence that offline expected social norms tend to persist in the online blogosphere and that gender differences need to be considered as a significant factor in understanding the IT usage behavior in the context of social capital theory. For IT managers and blog service providers, our results also highlight the importance of being gender aware in an effort to elicit participation from all constituent members for the successful adoption and usage of blogs as a knowledge-sharing mechanism.

KEY WORDS AND PHRASES: bloggers, blogs, gender, information privacy, knowledge sharing, trust.

IN TODAY'S INCREASINGLY INTERCONNECTED WORLD, Web 2.0 technologies, such as blogs, are emerging as one of the most popular online communication tools—not just for individuals but also for corporate entities. For example, Wells Fargo and Motorola have implemented blogs for both knowledge sharing and interactions. Their employees use blogs to promote the sharing of information and creation of new ideas within the organization [50]. At a special lecture to celebrate the G20 Business Summit in Seoul, South Korea, at Korea University, on November 10, 2010, Paul E. Jacobs, chairman and chief executive officer of Qualcomm, mentioned that blogs were an important “engine for innovation” at his company [56]. According to Young et al., many medium to large companies use at least one Web 2.0 technology for knowledge generation and dissemination, most commonly blogs, wikis, and social networking tools [114].

Organizations usually consider technology infrastructure to be the most important component contributing to the success of knowledge-intensive projects, which leads to a tendency to focus only on the technological factors when they introduce knowledge management systems. In reality, because users' knowledge-sharing behavior is occurring via a social process, implementing knowledge management technology without consideration of social and environmental factors may set up these projects for failure [35]. The behavior of acquiring and sharing knowledge ultimately connects people together. Blogs allow for the gathering, codifying, and storing of knowledge and provide links among sources of knowledge [3]. For the successful utilization of blogs as part of a knowledge management system, it is critical for organizations to understand the value of blogging knowledge and skill and to note that a blog's value does not come from the technology itself, but rather from its contents.

Prior studies have focused on the effect of either basic human motives such as sense of achievement, affiliation, and power [112], or characteristics that enable a sharing culture such as fairness, identification, and openness [112] in driving knowledge sharing in online communities. These are primarily individualistic traits. In contrast, the present study relies on constructs such as trust, reciprocity, and social ties, which are dependent on the quality of interactions fostered by the blogging environment, including both the platform and the community. Such interactions

between blog authors and blog responders collectively form a social network called the *blogosphere* [84].

Social capital theory and social role theory form the theoretical basis of our study of knowledge sharing in the context of the blogosphere. The effect of social capital on knowledge acquisition and sharing is well established. The key constructs of social capital that have been studied in knowledge sharing include trust, reciprocity, and social interactions. Recent research using social capital theory has established a positive relationship between knowledge sharing and attitude toward blogging [52]. In this paper, we extend these results and add to social capital theory by evaluating knowledge-sharing behavior in blogs through the lens of social role theory that focuses on gender differences. Prior gender-related studies in information technology (IT) have mainly focused on differences in usage of various IT artifacts by men and women [10, 47, 67, 71, 101, 107], while the knowledge component has been mostly neglected. One notable exception is an article in the area of social cognitive theory, in which gender differences were shown to exist in the desire for self-expression in terms of making frequent posts on weblogs (i.e., blogs) [69]. Understanding the gender-based differences in the motivation for knowledge sharing can enable strategic utilization of blogs as a knowledge-sharing platform with many settings.

This study has two objectives:

1. to identify the factors affecting knowledge-sharing behavior in the blogosphere, and
2. to investigate gender differences regarding bloggers' knowledge-sharing practices.

In summary, this paper extends the aforementioned research to understand the knowledge-sharing component of blogging actions and further investigates the existence of significant differences among men and women in terms of how the key constructs of social capital affect their knowledge-sharing behavior. Social role theory affords us a theoretical framework in which to study such gender differences in knowledge sharing in the specific context of the blogospheres and allows us to examine the extent to which offline social traditions persist in the blogosphere. The rationale for our research is not to enforce well-known gender stereotypes [51], but rather to elucidate the factors affected by gender in relation to knowledge-sharing behavior in social networks. Knowledge of differences between the genders regarding such behavior can be successfully leveraged by firms in light of their employee/product/industry profile as part of an effort to encourage greater participation in and adoption of blogs as a knowledge management platform.

Among the key findings in our research is the notion that factors such as trust and social ties have a significant impact on bloggers' knowledge-sharing behavior. Women bloggers tend to value reciprocity and social ties much more than men bloggers, and these constructs have a significant impact on their sharing of knowledge. Interestingly, men bloggers' concerns regarding online information privacy are much more significant in terms of the decision to share knowledge, even though women tend to

show a heightened degree for such concerns generally. Our findings highlight the caveat that, in promoting blogs as a knowledge-sharing mechanism, ignoring gender differences may result in firms expending resources on strategies that fail to benefit both groups uniformly.

The following sections are organized as follows. We first provide a detailed review of the appropriate literature and lay out the theoretical background of our research, which leads to the development of our hypotheses. We then present our methodology and the results of our study. We conclude with a discussion of the results and their implications for future research possibilities.

Theoretical Background and Prior Literature

TO SET THE CONTEXT OF OUR RESEARCH, we draw on two important theories: social capital and social role theory. The basic assumption of social capital theory is that a set of social resources embedded within a relationship that improves people's collective action is good [32]. Memberships in groups and networks can affect both men and women [98]. Our study raises an additional question—whether there is an asymmetry within these relationships based on gender. To address this issue, we draw on social role theory, which suggests that social norms are the main cause of gender differences that emerge during social interactions. We investigate various aspects of social capital and their impact on knowledge sharing in the blogosphere, and use social role theory to explore how gender moderates this impact.

Social Capital Theory

Social capital has been defined as “the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit” [76, p. 243]. It represents embedded values, such as social ties, trusting relations, and value systems that facilitate actions of individuals [104]. Within this framework, if a partner does not behave as expected, the relationship will not be successful. In the process of creating social networks, social capital plays a role in enforcing behavioral norms among the various members of the network [109] as well as promotes a diffusion of information [32]. The formed network serves to develop social constraints, which directs the flow of information in the building and maintaining of social capital [109].

If the environment is high in social capital, as identified by the existence of a strong network, trust, shared behavioral norms, reciprocity, and respect, the environment significantly contributes to the creation and sharing of knowledge [76, 94]. Thus strong social interaction and network ties are positively associated with knowledge acquisition [113].

Because bloggers also form a relational network in cyberspace, social capital theory provides a useful lens through which to examine the factors promoting knowledge sharing in cyberspace. While social ties, reciprocity, and trust enable knowledge shar-

ing among bloggers, the presence of information privacy concerns erodes that social capital, which in turn influences the degree to which knowledge is shared.

Social Role Theory

According to Eagly and Wood [37], women and men show different social behaviors because of different societal and cultural expectations for the two genders. Social role theory proposes that all types of women's and men's social behavior can be framed within the two extremes of a continuum: men are agentic and women are communal [7]. As a consequence of these characteristics, the behaviors of men tend to focus heavily on outcome, whereas those of women are greatly dependent on interpersonal relationships.

Prior research relating to social role theory has amply demonstrated these gender differences in social interactions. In general, it suggests that women focus on cooperation, intimacy, friendships, and efforts to maintain harmonious relationships, whereas men emphasize dominance and competitiveness [70]. The differing social expectations of women and men establish social norms that encourage men to be openly competitive and women to be openly cooperative. In addition, these societal expectations significantly influence communication differences between men and women. In their communications, men show a heightened awareness of social hierarchies, whereas women tend to be more network oriented [100].

Our study adopts social role theory as a means to explore gender differences in knowledge-sharing behavior within the blogosphere. To a large extent, the social and cultural norms that are pervasive in the offline world are reflected in the blogosphere, as individuals interact in both worlds. To share knowledge and information, bloggers need to interact with other bloggers. We suggest that social and cultural norms affect how bloggers share knowledge via the online community of blogs and that gender differences affect bloggers' knowledge-sharing behavior. Men and women perceive social factors such as trust, reciprocity, and information privacy differently and, therefore, behave differently when using information systems. We argue that these differences extend to their behavior when sharing knowledge on the social networks. Compared to men, the communal nature of women and their "open cooperativeness" leads us to believe that the social capital constructs of social ties, reciprocity, and trust have a deeper and more meaningful impact on the relationships of women within the blogging community. Next, we provide a detailed review of the pertinent literature surrounding these constructs.

Knowledge Sharing in the Blogosphere

EVEN THOUGH BLOGS ARE EMERGING AS A POPULAR TECHNOLOGY for sharing knowledge online, few studies to date have investigated bloggers' knowledge-sharing behaviors. Bloggers exchange tacit knowledge through links and postings to maintain the community (i.e., the blogosphere). Bloggers actively share their knowledge and experiences

with other bloggers due to their desire to increase the welfare of the blogosphere [52] and increase the cohesiveness of the blogging community [96]. Blogs are also discussed as a useful tool for knowledge management in organizations [9, 75, 108]. They help create social ties as well as transfer knowledge among people who may not have direct contact in the offline world [55]. The role of blogs is especially valuable in large and geographically distributed companies.

In their study, Jackson et al. [55] focus on how blogs strengthen social ties, but they do not explore the impact of these bonds on knowledge sharing in blogs. Because bloggers sometimes interact with large quantities of posts, emphasizing the role of blogs and their structure on knowledge diffusion can be beneficial for managers [45]. Guo et al. [45] highlight the fact that blogs facilitate interactions among users, but do not investigate the impact of reciprocity on the sharing of knowledge in blogs. Finally, while Hsu and Lin [52] do incorporate social ties and reciprocity in their investigation of attitudes toward blogging, they do not consider gender differences in the relevance of such constructs to knowledge sharing behavior in blogs.

Knowledge Sharing and Trust

Trust is an important factor affecting knowledge transfer in society [81]. Without trust in those who impart knowledge, different kinds of knowledge, such as scientific and moral, cannot be properly acquired or distributed [115]. Developing trust in both the technical aspects of the Internet and the human community is the first step needed for users to participate in a relationship via online transactions [40]. As Nonaka has pointed out, interpersonal trust plays a key role in creating a knowledge-sharing atmosphere in organizations [79]. Information quality positively influences the establishment of trust for online users [78]. In blogging situations, interpersonal trust may be more difficult to establish but exists nonetheless [84] and, therefore, is studied in our research. In blogging communities, trust is usually built on the basis of the reliability and validity of the information posted. Users' beliefs about the trustworthiness of information and knowledge, which they obtain through other blog pages, also induce them to share their own knowledge.

Current knowledge-sharing research in blogs utilizes a unidimensional view of trust [52]. Our research extends this view and acknowledges the multidimensional aspect of trust as it relates to the blogging community and platform.

Knowledge Sharing and Reciprocity

Reciprocity has been discussed as an important factor affecting knowledge sharing [18, 28, 35, 54, 58, 68, 110]. It is "a behavioral response to perceived kindness and unkindness, where kindness comprises both distributional fairness as well as fairness intentions" [38, p. 294]. From the knowledge-sharing perspective, reciprocity is a fair mutual knowledge exchange behavior [28]; a reciprocal relationship is the degree to which an individual believes that he or she can improve mutual relationships with

others through knowledge sharing [18]. In the online network environment, Wasko and Faraj [110] examine the effect of reciprocity on knowledge sharing and confirm a positive influence.

Knowledge Sharing and Social Ties

Social networks, personal contacts, membership, and social class are all factors that influence individuals' willingness to transmit tacit and explicit knowledge to other members of the network [33]. Prior studies [76, 104] indicate that social interactions and networks have a positive impact on sharing knowledge. Tsai and Ghoshal [104] suggest that the ties of social interaction are channels through which information and resources can flow. More social interactions lead to a more frequent and intense knowledge exchange behavior [63]. From the organizational perspective, a strong social network positively influences members' perceptions of the knowledge-sharing norm [30]. In addition, strong social relationships increase members' knowledge sharing through electronic communication media [47].

Knowledge Sharing and Information Privacy

Information privacy has been defined as "the claim of individuals, groups or institutions to determine of themselves when, how, and to what extent information about them is communicated to others" [111, p. 7]. Advanced IT both creates new and dynamic online environments and generates challenges regarding the safe management of information. Prior studies have investigated the impact of information privacy concerns on users' intentions to provide information to Web sites [10, 23, 72]. Even though many e-commerce sites have implemented measures to protect customers' privacy and security, people with high information privacy concerns tend to withhold their personal information from such Web sites [10]. For instance, users' online privacy concerns have been found to be negatively associated with their decision to provide personal information to a Web site [23]. In the specific context of knowledge sharing, our study explores whether such a dampening effect persists in the blogosphere, where transfer of knowledge may include a transfer of personal information of the knowledge sharer as well.

Knowledge Sharing and Gender

In the area of IT, research regarding the impact of gender on IT implementation and usage is sparse [2, 107]. A few studies have explored gender differences based on negative assumptions about women, such as their supposed lack of computer self-efficacy [103], or has enforced well-known gender stereotypes [51]. Other studies have pointed out that men and women engage in very different activities when they use the Internet [11]. In particular, women have been found to have different perceptions from men when it comes to e-mail usage [43]. Women tend to use the Internet

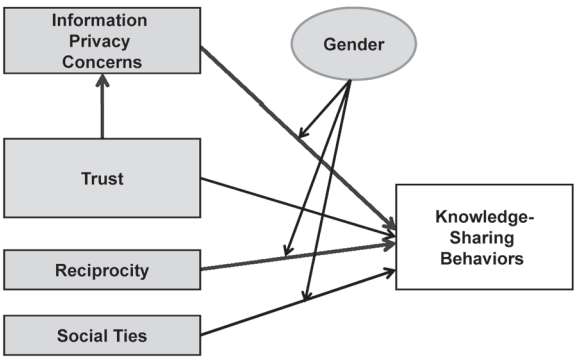


Figure 1. Conceptual Model

to communicate and to search for information about products and services, whereas men use the Internet to play games; read about the weather, sports, or the news; and perform Internet banking [11]. Moreover, these differences in preference are seen in the blogosphere in terms of the common topics of discussion.

Gender differences in usage behavior also appear in knowledge management systems. Taylor [101] has empirically shown that men use the data mining functions in knowledge management systems more frequently than women. Overall, men use all the components of knowledge management systems with greater frequency than women—a difference that can be explained by the notion that women prefer to use interpersonal and socialization strategies to acquire knowledge [101].

Extant gender studies in information systems have a distinct technology usage or competency focus. Our study, however, emphasizes gender differences in the knowledge-sharing aspect of online communities. Further investigation of the moderating effects of gender might aid blog service providers in determining how to cater to their “typical” users in a more targeted manner.

Figure 1 summarizes the preceding discussion.

Research Model and Hypotheses Development

AS ARTICULATED IN THE PREVIOUS SECTIONS, the foundation of our study lies in social capital theory and social role theory. The combined effects of reciprocity, social ties, trust, and online information privacy concerns constitute the social capital in our case, which ultimately determines the inclination to share knowledge on blogs. Further, following social role theory, we expect gender differences to permeate the blogosphere in terms of how significantly the social capital constructs affect knowledge sharing.

Knowledge Sharing and Trust

Without trust in those who impart knowledge, different kinds of knowledge cannot be properly acquired or distributed. Developing trust in both the technical aspects of the

Internet and the human community behind it is the first step needed for users to participate in a knowledge-sharing relationship [36]. Mutual trust needs to be established as a precondition for the effective exchange of knowledge [35, 79]. Specifically, the trustworthiness of the information and knowledge exchanged through this medium depends on the information quality. On blogging Web sites, trust is usually built on the basis of the reliability of the information provider [78].

In previous research, trust has been found to facilitate online information transaction decision making [44, 57, 60, 92, 102]. Extending this notion to the blogosphere, to enhance the ability of a blog to be a knowledge sharing platform, it must be recognized that trust is of great importance [21, 28, 53, 91, 99], especially given the virtual anonymity of the online world and the diminished ability of bloggers to evaluate the veracity of the information being relayed.

Trust has been discussed as a multidimensional concept [21, 44, 61, 64, 82, 88]. The research of Chai and Kim [21] examined the direct effect of trust on bloggers' knowledge sharing along different dimensions, including trust in bloggers and trust in blog service providers. In this research, while we include the following three trust dimensions—trust among bloggers, trust in blog service providers, and trust in information and knowledge—in contrast to Chai and Kim [21], the dimensions of trust in our model are subsumed within a broader trust artifact and we evaluate the impact of this overall trust on bloggers' knowledge-sharing behavior and also explore its gender implications.

Prior literature in this area points out that trust between two parties is composed of trust beliefs related with predictability in a trustor's expectations about the trusted party's behavior as well as confidence in such a party's benevolence [83]. Trust is based on the assumption that parties will mutually behave in a fair manner and will neither take advantage of nor harm each other, leading to a belief in the fair intentions and motives of both parties [5, 6]. Bloggers' knowledge-sharing behavior includes posting knowledge and leaving comments as a means to share useful documents, framed experience, and contextual information [35]. In this transactional behavior, bloggers need to interact with other bloggers within their online social network. Therefore, in the blogosphere, interactions between two or more parties—the various blog authors and the blog responders—require interpersonal trust. Bloggers need to have a belief in other bloggers' goodwill. To ensure fruitful knowledge exchanges online, they need to believe that other bloggers participating in knowledge transactions will not take advantage of them even though opportunities to do so may arise. Thus, trust among parties who participate in knowledge transactions is an important factor affecting knowledge transfer in society [81].

In the online environment, institutional trust has been proposed as an important factor influencing information exchanges [72, 116]. Institutional trust provides impersonal structures such as technical standards and technical mechanisms to both parties, thereby ensuring successful communication transactions [89]. If users feel assured about the success of their transactions based on situational cues such as an explicit privacy policy, third-party certification, and programs such as BBBOnline and e-Trust, their trust in the e-vendor will increase [44]. According to McKnight et al. [73], structural

assurance is the belief that structures such as guarantees, regulations, and legal resources are provided to increase the success of transactions in e-commerce. In the online environment, structural assurance refers to legal and technological assurance, such as data encryption and privacy protection policies [73]. Users' trust in structural assurance also increases their trust in IT artifacts so that they have a greater propensity to use new IT devices [106].

Choudhury and Karahanna [29] extend McKnight et al.'s [73] framework to suggest that trust is a multidimensional concept composed of trust in structural assurance and informational trust. According to these authors, informational trust is defined as a user's beliefs about the reliability, credibility, and accuracy of information gathered through the Web [29]. Users' belief about the trustworthiness of the information and knowledge gleaned from a blog site is a critical factor in persuading users to provide their information on the Web site. Bloggers obtain information and knowledge through experience with other blog pages. An increase in trust in information and knowledge acquired from the blogosphere may, in turn, induce further knowledge exchanges in the blogosphere.

This research hypothesizes that bloggers take into account the presence of strong privacy policies and information security functions on Web sites as a sign of structural assurance. This factor positively influences their participation in the knowledge-sharing process on blogs. In addition, trust in other bloggers indicates interpersonal trust. If bloggers have a higher level of trust in other bloggers, they will share more knowledge with other bloggers.

We argue that a positive relationship exists between bloggers' knowledge-sharing behavior and their level of trust. We expect that the trust of bloggers, as measured along these dimensions, will increase their knowledge sharing in the online social networking community. This relationship leads to our first hypothesis:

Hypothesis 1a: Bloggers' trust is positively associated with their knowledge-sharing behavior, for both men and women.

Trust has been discussed as a critical element in terms of forming social relationships [20]. Trust contributes to increasing smoothness in communication as well as to reducing opportunistic behaviors of participants in the relationship [67]. In addition, trust has been discussed as a motivator for maintaining close interpersonal relationships [90]. In particular, gender differences have been identified in social interactions: compared to men, women emphasize maintaining relationships [70]. Social role theory provides a theoretical background for explaining gender differences in social relationships. According to this theory, different social expectations for women and men establish social norms that emphasize competition and control for men versus cooperation, intimacy, and friendship for women in social interactions. Therefore, we would expect to see gender differences in the ways in which trust affects knowledge sharing.

When women bloggers interact with other bloggers to share knowledge, they are more concerned with maintaining relationships than men, who place more value on competition and control. Trust as a facilitating factor for sustaining social relationships will, therefore, have a stronger influence on women bloggers than on men bloggers.

We would expect women bloggers to place a stronger emphasis on trust compared to men based on the preceding discussion, which leads to our next hypothesis:

Hypothesis 1b: The positive relationship between trust and knowledge-sharing behavior will be stronger for women bloggers than for men bloggers.

Knowledge Sharing and Reciprocity in Blogs

Falk and Fischbacher identify reciprocity as “a behavioral response to perceived kindness and unkindness, where kindness comprises both distributional fairness as well as fairness intentions” [38, p. 294]. From the knowledge-sharing perspective, reciprocity is a fair mutual knowledge exchange behavior [28]. It is the degree to which an individual believes that he or she can improve mutual relationships with others, and positively affects attitudes toward knowledge sharing [18]. In the online network environment, reciprocity has been shown to increase knowledge sharing [110].

In the blogosphere, reciprocity is one significant reason why bloggers post new content on their blogs. Nardi et al. [77] conducted extensive interviews to research the motivation of bloggers. Their results indicate that bloggers expect “a kind of reciprocity” because they read others’ blogs, where they have to make certain contributions by posting their comments. Because of the conversation-like quality of many blogs, which usually tend to have a common thread, reciprocity is greatly facilitated by the very nature of the blogging environment, where the life of a blog is often sustained by the involvement of other bloggers by virtue of their comments and postings. Reciprocity enables individual blogs to evolve. Reciprocity, in this setting, is a mutually fair behavioral response to the helpfulness and kindness of other bloggers in a knowledge exchange. If bloggers expect fair rewarding responses, they will have a greater incentive to share knowledge in blogs. For example, bloggers who believe that their knowledge-sharing behavior will be rewarded by other bloggers’ reciprocal behavior, in terms of responses to their questions and provision of proper knowledge or information, will be encouraged to engage in more knowledge sharing. Therefore,

Hypothesis 2a: Reciprocity is positively associated with bloggers’ knowledge-sharing behavior, for both men and women bloggers.

In addition, women and men respond differently to norms of reciprocity. Ben-Ner et al. [16] carried out an experiment to investigate the factors affecting reciprocal behavior. In their research, men participants allocated more money to an anonymous partner regardless of reciprocity. In contrast, women were more strongly influenced by reciprocity than men in deciding how much money would be allocated to the anonymous partner. Analogous to the decision about the amount of money to allocate is the decision of whether to disburse knowledge. In that respect, we would expect women to reciprocate more or place a greater emphasis on past interactions with other bloggers when determining whether to share their knowledge in the blog environment.

As research related to social role theory points out, women are much more network oriented in their social relationships and weigh intimate bonds much more heavily

in encouraging the construction of such networks [37]. Because such intimate bonds and tight networks cannot be built without reciprocity, we would expect women to be highly reciprocal. Clark and Ayers [31] find that men are less reciprocal than women when they maintain social relationships. Viewing blogs as part of the online society, we would expect such gender differences to persist in the blogosphere. In an attempt to maintain and grow online social relationships and networks, women bloggers will make a greater effort to share knowledge online as a reciprocal gesture, compared to men bloggers. This understanding leads to the following hypothesis:

Hypothesis 2b: The positive relationship between reciprocity and knowledge-sharing behavior will be stronger for women bloggers than for men bloggers.

Knowledge Sharing in Blogs and Social Ties

Bloggers maintain online social networks in a number of ways. For example, they connect to one another through their blogs when they put links to other blogs as references. They actively post their comments, information, and knowledge when they read other blogs [75]. Bloggers establish an online community by sharing information, news, and other user-created content via RSS (Really Simple Syndication; a Web feed format) and feedback or the comments function [66]. They maintain strong relationships with other bloggers based on their common interests [62]. Indeed, “Web friendship” among bloggers connects each interest group in the blogosphere [62]. These friendships, in turn, generate peer pressure among bloggers to post and share their knowledge within their interest group [77]. Because Web technology enables people to overcome geographical limitations, there are more opportunities to create new social ties in the blogosphere.

Social ties represent bloggers’ perceived strength of social relationships with other bloggers. These social ties are largely driven by their perceptions about the closeness of their relationships with other bloggers. Such ties may be strengthened (or weakened) over time based on the length and frequency of interaction. Thus, we hypothesize:

Hypothesis 3a: Social ties are positively associated with bloggers’ knowledge-sharing behavior, for both men and women bloggers.

Gender difference also influences the creation of social relationships. In a virtual community, women are more willing to receive and give social support than men [42]. While examining the difference in peer relations and social networks between men and women, Benenson [15] found that men have larger social networks than women. Whereas men care more about their position in such networks and tend to create formal relationships, women are concerned more about the essentials of the relationship and the level of intimacy in the relationship [15, 19]. According to Tannen, men and women see the world differently: men see themselves as “an individual in a hierarchical social order,” whereas women engage as an “individual in a network of connections” [100, pp. 24–25]. We posit that this focus on relationship intimacy, and the consequent value placed on social ties, points toward the formation of a more informal blogging

network when viewed from the perspective of women bloggers. An informal network can generate more innovative knowledge [40]. Thus,

Hypothesis 3b: The positive relationship between social ties and knowledge-sharing behavior will be stronger for women bloggers than for men bloggers.

Knowledge Sharing in Blogs and Online Information Privacy Concerns

Because a blog is a Web-based technology, serious challenges arise for its users in terms of their ability to manage their online identities and lives (e.g., how users can protect their privacy in cyberspace). Many blogs serve as a sort of online personal diary, and many of them contain privacy-sensitive content [86] such as daily diaries, personal photos, and even home or work addresses. This personal information can be easily searched by other visitors owing to the archive-oriented characteristic of blogs. Sometimes bloggers can face unexpected consequences—such as dismissal from work—because of their postings on blogs chronicling their inappropriate behavior or negative opinions about their employer or workplace [97]. Moreover, personal information posted on blogs can lead to cybercrimes such as cyberstalking, identity theft, and cyberbullying, all of which can threaten the user's safety [22]. Thus, information privacy can be of critical importance when it comes to people's decisions to participate in blogging.

In our study, we investigated the influence of information privacy concerns on the bloggers' knowledge-sharing behavior. Following the path established by prior research, we define online information privacy as controlled or restricted access to personal information in cyberspace [22]. As discussed earlier, bloggers may face various types of privacy invasion in cyberspace due to the very nature of blogs. The link between online information privacy concerns and bloggers' knowledge-sharing practices is an important aspect of knowledge sharing via blog Web sites. Online information privacy concerns among bloggers will cause them to guard their behavior and, therefore, might dampen to a great extent the amount and quality of knowledge that they share online. In regard to this issue, we put forward the following hypothesis:

Hypothesis 4a: For both men and women bloggers, online information privacy concerns have a negative relationship with bloggers' knowledge-sharing behavior.

Drawing from the work of Altman and Taylor [4] and from Petronio et al.'s communication privacy management theory [85], Metzger [74] discusses privacy disclosure as a dialectic process where people balance the competing needs for privacy and accessibility and where benefits are equally important as risks in understanding privacy behavior. According to Metzger [74], people try to maintain equilibrium between the risks of disclosure and the benefits of maintaining close relationships [37, 74], and they have a tendency to disclose their personal information to maintain or enhance social relationships [34]. Social role theory [37] indicates that women, more so than men, focus more on relationships when they participate in social interactions. Thus, in an

effort to build and maintain close relationships while maintaining this balance, women are likely to give more weight to the benefits of disclosing personal information and simultaneously be more accepting of the risks of disclosure than men.

Although women may demonstrate relatively high privacy concerns in terms of the risk of disclosing personal information, they will still be inclined to disclose their personal information so as to maintain close social relationships. A prior study has shown that women engage in less privacy-protective behavior and men adopt various privacy-protective practices when both have privacy concerns in the online environment [14]. In our study, we extend this discussion to the blogosphere. When bloggers interact with other bloggers to share knowledge, women would be expected to show less protective behavior regarding their personal information than men. Compared to men, they would also have a tendency to reveal more personal information in an effort to maintain close social relationships with other bloggers.

Therefore, we anticipate that when bloggers engage in knowledge-sharing behavior through blogs (which serves as a precursor to establishing relationships), the influence of privacy concerns will be relatively weaker on women's behavior compared to that on men. Based on the preceding discussion, we would expect that the negative effect of privacy concerns on knowledge sharing will be stronger for men compared to women:

Hypothesis 4b: The negative relationship between privacy concerns and knowledge-sharing behavior will be stronger for men bloggers than for women bloggers.

Trust and Information Privacy Concerns

Social capital theory identifies trust as one of the critical factors in ensuring people's benefit through social networks by decreasing various risks of social interaction [76]. Trust reduces uncertainty and complexity in interactions among people because it contributes to having people behave according to their anticipation of establishing a relationship [41]. In the online environment, lack of trust is a major source of concern for users. In their study, Culnan and Armstrong [34] showed that trust has a direct effect on online customers' privacy calculative process in assessing the risks and benefits of personal information disclosure on the Internet. Moreover, Hoffman et al. [48] pointed out that the lack of trust toward e-vendors makes online users feel as though they have no control over their personal information. Similarly, if bloggers feel that they cannot control their personal information when they interact with other bloggers, they will have a high level of privacy concerns. However, trust among bloggers will play a significant role in mitigating their privacy concerns in the event of interactions among bloggers.

Based on the preceding discussion, we argue that bloggers who are more trusting in their relationships with other bloggers and blog service providers and those who affirmatively believe in the structural assurances that the service providers' offer and the information presented therein are likely to have fewer concerns related to their

information privacy online. Lack of trust has been identified as a strong predictor for privacy concerns; conversely, we suggest that development of trust will make a significant contribution in reducing bloggers' online information privacy concerns. Therefore, we hypothesize:

Hypothesis 5: Bloggers' trust has a negative relationship with bloggers' information privacy concerns, for both men and women.

Relationship of Reciprocity with Trust and Social Ties

In social capital theory, norms of trust and reciprocity are viewed as important characteristics. According to Ostrom [80], reciprocity positively reinforces trust. Reciprocity aids the creation of social capital such as trust, which in turn encourages further exchanges [82]. Reciprocity among people contributes to creating trusting relationships [17]. As Hollis [49] has argued, reciprocity provides the foundation for a trusting relationship.

The exchange of information and knowledge over time works toward building trust among bloggers. For this reason, our study examined the positive role that bloggers' reciprocity plays in determining their level of trust toward other bloggers. We suggest that bloggers' reciprocal behavior in sharing knowledge will increase their trust in other bloggers.

Also, reciprocity is a key element in the density of social relationships [105]. Social ties allow one person to gain access to others' resources [110]. In the context of blogs, such resources can include both connections and knowledge. The frequent interchange of information and knowledge on blogging Web sites enables individuals to learn about one another, thereby enabling them to establish and further develop social ties. Without reciprocity, social ties cannot be formed and reinforced, especially among participants in an online network who may not have social interactions in the physical world. Therefore, we argue that a positive relationship exists between bloggers' norms of reciprocity and the strength of their social ties:

Hypothesis 6a: Reciprocity is positively associated with social ties.

Hypothesis 6b: Reciprocity is positively associated with bloggers' trust.

Social Ties and Trust

To create social networks, personal-level contacts and interactions need to occur. According to prior research, personal contact, frequent interactions, and socializing are all positive influential factors for building trust among individuals and organizations [8, 24]. Traditionally, dense social networks, personal contacts, membership, and social class have been considered to be direct sources of trust [79]. Frequent communications also play an important role in formulating trusting relationships in virtual teams [20]. Knowledge comes from interactions among individuals in the group [65]. Also, with increased communication, bloggers obtain enough information about one another to

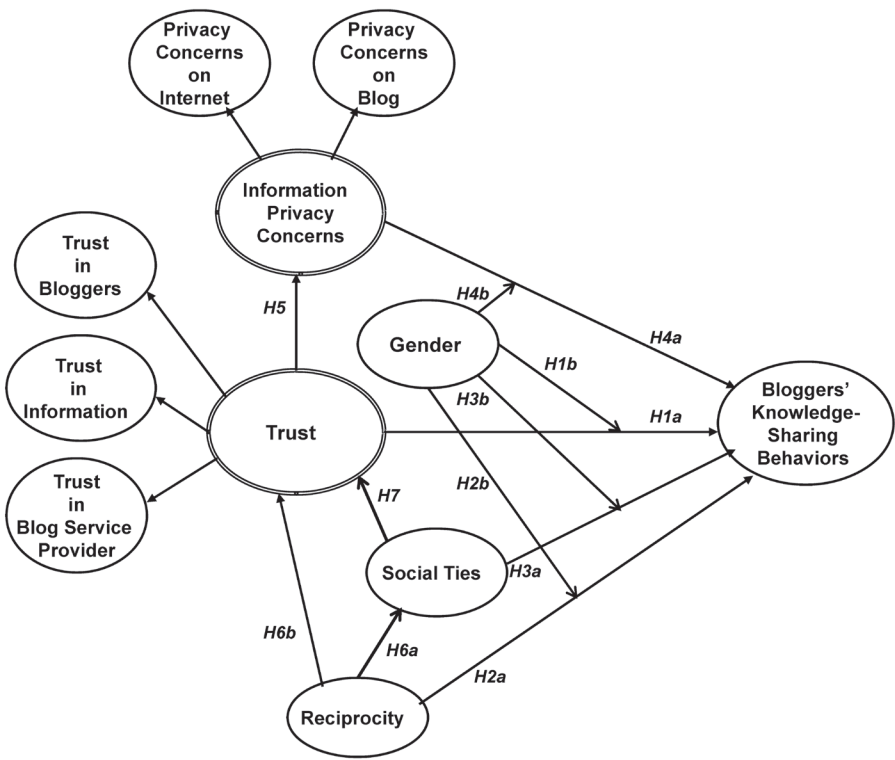


Figure 2. Research Model

form an opinion regarding trustworthiness, as increased communication usually leads to greater levels of trust. Therefore,

Hypothesis 7: Social ties are positively associated with bloggers' trust.

Our research model is presented in Figure 2.

Methodology

TO CONDUCT OUR RESEARCH, we used a structured survey method. We created a questionnaire that was administered to individuals who had personal blogs. To ensure the validity and reliability of the survey instrument, a pilot study was conducted in December 2007. A total of 43 completed surveys were collected during this trial. Based on the results of the factor analysis and the reliability test, unfeasible survey items were dropped.

Subsequently, a large-scale survey was carried out between March and May 2008. Respondents were volunteers at two large universities in the midwest and northeastern parts of the United States. Surveys were distributed to students who were business majors, and extra credit was given to survey participants as a reward for filling out

the survey. A total of 454 completed surveys were collected. The response rate was 58 percent. According to Agarwal and Karahanna, it may be appropriate to utilize student subjects if the observation does not include phenomena [1] such as social norms or political views that are structured over time [2, 93].

After we examined the completed surveys, all unsatisfactory surveys were dropped. Unsatisfactory cases included unanswered surveys (e.g., surveys that had answers only for one or two questions) and surveys in which respondents gave the same number for all questions including a dummy question. There were 446 viable cases that we could use for our data analysis. In terms of gender, 59 percent of the respondents were men, and 41 percent were women.¹

Measurement

To construct the survey instrument, we adopted many of the measurement indicators from prior literature about knowledge management, trust, and information privacy and modified them to fit the blog and knowledge-sharing context. For each measurement indicator, we used a seven-point Likert scale.

Measurement indicators of online information privacy concerns were adopted from Malhotra et al. [71] and modified to reflect the blog environment. The measurements for each dimension of trust were adopted from prior literature and were adjusted to fit the bloggers' knowledge-sharing behaviors: trust in other bloggers [28], trust in information [29], and trust in blog service providers [41]. The measurement of reciprocity was adopted from Bock et al. [18] and modified to reflect the blog environment. Measurement indicators for social ties came from the research of Nahapiet and Ghoshal [76] and Tsai and Ghoshal [104]. Indicators for bloggers' knowledge-sharing behavior were adapted from Davenport and Prusak [35], Hsu and Lin [52], and Hsu et al. [53] and modified to reflect bloggers' behavior.

All measurement indicators used in this research are latent variables that are not observables and cannot be measured directly [27]. Measurement indicators are presented in Table 1.

Because this study focuses on gender difference, we also examined the mean differences of the men and women subgroups. This study used the Kolmogorov-Smirnov (K-S) nonparametric test. As the results in Table 2 indicate, no significant gender differences were found regarding bloggers' knowledge-sharing behavior. However, trust in blog service provider, reciprocity, and privacy concerns regarding blogs show different perceptions between men and women bloggers.

Data Analysis

The partial least squares (PLS) method was used to analyze the structural model. Compared to a structural equation modeling technique such as Amos or LISREL, PLS is free of strict assumptions regarding the population or scale of measurement [46]. A bootstrap resampling procedure was performed to examine the stability of estimates [27] and to develop robust confidence intervals. All factor loadings of 30 stan-

Table 1. Measurement Indicators

Constructs/ literature	Measurement indicator
Knowledge sharing behavior (KSB): Davenport and Prusak [35]; Hsu et al. [53]	<p>I frequently visit other blogs to get information and knowledge.</p> <p>I frequently leave my feedback/comments on other blogs.</p> <p>I spend some time on my blog to update new information.</p> <p>I update my blogs regularly.</p> <p>I frequently share my experience or knowledge with other bloggers.</p> <p>I provide my knowledge and useful information at the request of other bloggers.</p> <p>I share my knowledge from my education or training with other bloggers.</p> <p>I post useful documents or files on my blog to share with other bloggers.</p>
Reciprocity (REC): Bock et al. [18]	<p>When I share information through blogs, I believe that my questions will be answered in the future.</p> <p>I believe that other bloggers I interact with would help me if I was in need.</p> <p>When I share my knowledge and information through my blog, I expect some other bloggers to respond when I am in need.</p>
Privacy concerns in the Internet (PCI): Malhotra et al. [71]	<p>It usually bothers me when companies ask me for personal information when I use online services (e.g., Internet shopping).</p> <p>I am concerned about threats to my personal privacy when I use the Internet.</p> <p>It is important for me to protect my privacy on the Internet.</p>
Privacy concerns in blogs (PCB)	<p>When other bloggers ask me for personal information, I think twice before providing it.</p> <p>When I blog, personal privacy is important.</p> <p>It usually bothers me when other bloggers ask me for personal information.</p> <p>It bothers me to give personal information to so many people.</p>
Trust in bloggers (TRB): Chiu et al. [28]	<p>The other bloggers who I interact with do not use personal information without the owner's permission.</p> <p>The other bloggers who I interact with are truthful in dealing with one another.</p> <p>The other bloggers who I interact with will not take advantage of others even when the opportunity arises.</p>
Trust in information (TRIF): Choudhury and Karahanna [29]	<p>The information that I get from other blogs is trustworthy.</p> <p>The knowledge that I get from other blogs is trustworthy.</p>
Trust in blog service provider (TRBSP): Gefen et al. [44]	<p>The blog service provider (e.g., LiveJournal, Orkut) that I use provides enough safeguards to make me feel comfortable using it to post my information.</p> <p>The blog service provider (e.g., LiveJournal, Orkut) that I use provides a robust and safe environment in which to transact my information.</p> <p>I feel assured that legal and technological structures adequately protect me from problems on the blog service provider.</p>

Constructs/ literature	Measurement indicator
Social ties (ST):	I maintain close social relationships with other bloggers.
Nahapiet and	I spend a lot of time interacting with other bloggers.
Ghoshal [76];	I know other bloggers on a personal level.
Tsai and Ghoshal [104]	I have frequent communication with other bloggers.

dardized indicators were above the ideal cutoff level of 0.7 [12, 25], which indicates that the reliabilities of measurement items are acceptable (Table 3).

To ensure the level of construct validity, the composite reliabilities should be greater than the acceptance level of 0.7 [39]. All composite reliabilities of the constructs used in our research model ranged from 0.903 (online privacy concerns) to 0.950 (social ties), which indicates that our research model ensures construct-level reliability. Cronbach's alpha for each construct was also checked for the reliability of the constructs (Table 4).

To test the discriminant validity of each variable, the average variance extracted (AVE) and the interconstruct correlation were compared. The results in Table 5 show that all AVEs for the latent variables, which were measured by reflective indicators, were greater than the required minimum level of 0.5. Every construct had a larger square root of AVE than its correlations with other constructs. This result indicates that our measurement items have discriminant validity. The values of AVE, composite reliability, and correlation are reported in Table 5.

To examine common method variance (CMV), we employed Harman's single-factor test. All variables of this study were loaded into a principal component factor analysis and the unrotated factor solution examined. More than one factor emerged to explain the variance, with the first factor accounting for 20.5 percent of the total variance. Test results indicated that neither (1) "a single factor will emerge from the factor analysis" nor (2) "one general factor will account for the majority of the covariance among the measures" [84, p. 1282]. Therefore common method bias in the data was relatively limited.

The research model in this study presents several mediation relationships: the relationships among reciprocity, social ties, and knowledge-sharing behavior; the relationships among stoical ties, trust, and knowledge-sharing behavior; and the relationships among reciprocity, trust, and knowledge-sharing behavior. To examine mediations, this study followed the steps described by Baron and Kenny [13]. All mediating relationships described in our study satisfied the conditions laid out by Baron and Kenny:

[F]irst, the independent variables must affect the mediators in the first equation; second, the independent variable must be shown to affect the dependent variable in the second equation; third, the mediator must affect the dependent variable in the third equation. If these conditions all hold in the predicted direction, then the effect of the independent variable on the dependent variable must be less in the third equation than in the second. [13, p. 1177]

Table 2. Construct Characteristics and Kolmogorov-Smirnov Test Results by Subgroup

Constructs	Men (<i>n</i> = 263)		Women (<i>n</i> = 183)		Kolmogorov–Smirnov test
	Mean	Standard deviation	Mean	Standard deviation	
Knowledge-sharing behavior	3.23	1.34	3.11	1.34	0.614
Trust in bloggers	3.96	1.18	4.12	1.21	0.248
Trust in information	4.02	1.32	3.92	1.30	0.576
Trust in blog service provider	4.26	1.33	3.85	1.44	0.007**
Reciprocity	4.23	1.20	4.03	1.23	0.015*
Social ties	3.45	1.59	3.48	1.65	0.790
Privacy concerns about Internet	5.14	1.23	5.33	1.10	0.502
Privacy concerns about blogs	5.37	1.19	5.82	1.06	0.001**

* Statistically significant at the 0.05 level; ** statistically significant at the 0.01 level.

Table 3. Cross Loadings for Measurement Indicators

	PCI	PCB	KSB	TRB	TRIF	TRBSP	REC	ST
PCla	0.728	0.461	-0.117	-0.053	-0.076	-0.136	-0.066	-0.035
PClb	0.846	0.503	-0.039	-0.061	-0.141	-0.239	-0.082	-0.034
PClc	0.798	0.596	-0.106	-0.024	-0.062	-0.117	-0.072	-0.060
PCBa	0.234	0.845	-0.165	-0.020	-0.101	-0.180	-0.113	-0.137
PCBb	0.395	0.845	-0.119	-0.024	-0.103	-0.162	-0.110	-0.060
PCBc	0.235	0.878	-0.215	-0.115	-0.149	-0.201	-0.161	-0.205
PCBd	0.281	0.835	-0.198	-0.089	-0.145	-0.206	-0.174	-0.163
KSBa	-0.024	-0.100	0.711	0.315	0.403	0.226	0.377	0.442
KSBb	-0.088	-0.092	0.779	0.302	0.290	0.178	0.311	0.467
KSBc	-0.079	-0.167	0.854	0.333	0.296	0.213	0.352	0.534
KSBd	-0.074	-0.183	0.849	0.332	0.299	0.207	0.355	0.541
KSBe	-0.120	-0.222	0.881	0.368	0.354	0.215	0.384	0.578
KSBf	-0.103	-0.182	0.861	0.385	0.384	0.245	0.422	0.502
KSBg	-0.088	-0.173	0.847	0.355	0.404	0.230	0.414	0.468
KSBh	-0.142	-0.216	0.800	0.350	0.334	0.174	0.312	0.447
TRBa	-0.032	-0.002	0.354	0.792	0.480	0.281	0.363	0.298
TRBb	-0.016	-0.072	0.375	0.893	0.230	0.308	0.386	0.373
TRBc	-0.088	-0.096	0.356	0.903	0.270	0.282	0.385	0.372
TRIFa	-0.098	-0.145	0.398	0.389	0.964	0.367	0.491	0.410
TRIFb	-0.128	-0.138	0.407	0.256	0.965	0.407	0.499	0.396
TRBSPa	-0.147	-0.158	0.229	0.295	0.372	0.927	0.388	0.278
TRBSPb	-0.185	-0.202	0.249	0.313	0.377	0.937	0.391	0.287
TRBSPc	-0.235	-0.244	0.226	0.309	0.355	0.885	0.385	0.263
RECa	-0.060	-0.118	0.383	0.394	0.444	0.367	0.875	0.445
RECb	-0.149	-0.194	0.395	0.395	0.477	0.411	0.910	0.200
RECc	-0.042	-0.128	0.413	0.380	0.455	0.358	0.894	0.158
STa	-0.027	-0.117	0.571	0.381	0.393	0.282	0.556	0.917
STb	-0.095	-0.217	0.592	0.373	0.400	0.313	0.525	0.916
STc	0.015	-0.094	0.474	0.344	0.330	0.209	0.439	0.863
STd	-0.080	-0.163	0.557	0.375	0.388	0.281	0.513	0.939

Notes: Boldface values indicate factor loadings. PCI = privacy concerns in Internet; PCB = privacy concerns in blog; KSB = knowledge-sharing behavior; TRB = trust in bloggers; TRIF = trust in information; TRBSP = trust in blog service providers; REC = reciprocity; ST = social ties.

Results

H1 IS SUPPORTED BY THE RESULTS OF OUR DATA ANALYSIS. According to our model, trust is a second-order factor reflected by trust in bloggers, trust in information, and trust in blog service providers [26]. Regarding the relative importance of the three dimensions, trust in information has a higher path coefficient and, therefore, is relatively more important than the other three dimensions of trust.

The data analysis results also supported H2, H3, and H4. From the results, we can conclude that strong social ties among bloggers increase both trust and knowledge-sharing behaviors. Figure 3 summarizes the research results, and Table 6 presents the path coefficients and *t*-values for each path.

Table 4. Cronbach's Alpha

Constructs	Number of items	Cronbach's alpha
Knowledge-sharing behavior (KSB)	8	0.927
Social ties (ST)	4	0.922
Reciprocity (REC)	3	0.870
Privacy concerns in Internet (PCI)	3	0.710
Privacy concerns in blog (PCB)	4	0.852
Trust in bloggers (TRB)	3	0.832
Trust in information (TRIF)	2	0.920
Trust in blog service provider (TRBSP)	3	0.903

Table 5. Reliabilities and Discriminant Validity

Variables	KSB	TRU	ST	REC	PC	CR
KSB	(0.824)*					0.944
TRU	0.373	(0.712)				0.919
ST	0.606	0.414	(0.907)			0.950
REC	0.444	0.536	0.563	(0.893)		0.922
PC	-0.183	-0.319	-0.162	-0.168	(0.756)	0.903

Notes: KSB = bloggers' knowledge-sharing behavior; TRU = trust; ST = social ties; REC = reciprocity; PC = privacy concerns; CR = composite reliability. * The number in parentheses is the square root of AVE. For adequate discriminant validity, the number in parentheses should be greater than the corresponding off-diagonal elements.

To test gender differences on each relationship (H1b, H2b, H3b, H4b), we followed the direction established by Chin et al. [27]. Our study adopted multigroup PLS analysis [87, 95]. There is some debate about which method produces more rigorous results when investigating the moderating effect of gender—the interaction term or the subgroup analysis [2]. Several researchers have suggested that subgroup analysis is the proper methodology for examining the strength of the moderating effect in the case of nominal moderating variables such as gender and cultural difference among countries [2, 59, 107]. Because our research uses gender as a nominal moderating variable and examines the strength of the moderating effect, we conducted a subgroup analysis of female and male subjects.

We followed the steps described by Ahuja and Thatcher [2], as they also examined gender differences in the perception of the IT work environment. We first estimated the structural model for full samples. We then did the same for each subgroup—women and men. To test the moderating effect of the gender, we figured out the differences suggested by Chin and Gopal [26] and Keil et al. [59].

Our analysis supports H1b, H2b, H3b, and H4b at the 0.01 level of significance. These results indicate that there are strong gender differences in the relationship between factors and knowledge-sharing behaviors. The subgroup analysis results for the paths where the results are significant as reported in Table 7.

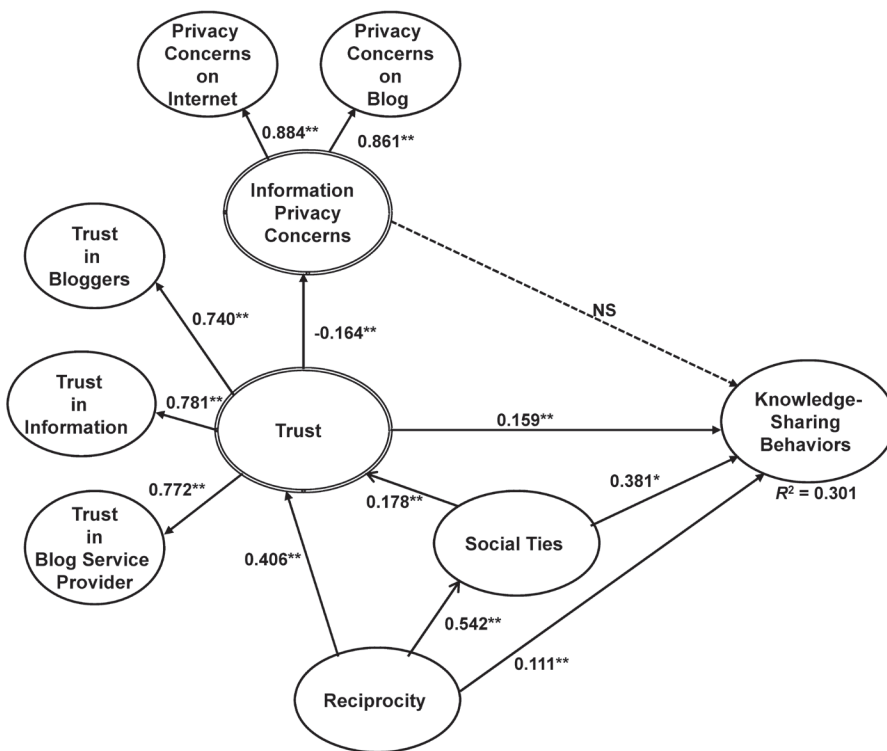


Figure 3. Research Results

Notes: * $p < 0.05$; ** $p < 0.01$; NS = nonsignificant.

Our results confirm the findings from prior social capital studies and suggest that the bloggers' trust regarding technology artifacts (i.e., blog Web pages) and community members (other bloggers) and the trustworthiness of information and knowledge both have a positive effect on bloggers' knowledge-sharing behavior. An additional finding is that social ties and norms of reciprocity shared by bloggers also contribute to promoting knowledge sharing on the Internet. Data analysis confirms that users' information privacy concerns have a greater negative influence on male bloggers' knowledge-sharing behavior than on women's behavior. In contrast, bloggers' trust has a positive effect on reducing their online information privacy concerns, eventually increasing users' knowledge sharing through blogs. Finally, our results show that strong social ties in cyberspace contribute to increasing the trust of bloggers as well as promoting knowledge-sharing practices in the blogosphere.

Discussion and Conclusion

Theoretical Implications

The significant theoretical impact of our study of knowledge sharing by bloggers derives from its investigation of social capital theory constructs through the lens of

Table 6. Path Coefficients and *t*-Values for a Baseline Model (Whole Sample)

Constructs	Standardized path coefficient	<i>t</i> -value
Trust → trust in blog service provider	0.740**	18.987
Trust → trust in information	0.781**	30.965
Trust → trust in bloggers	0.740**	22.261
Trust → knowledge-sharing behavior	0.159**	2.515
Reciprocity → knowledge-sharing behavior	0.111*	1.832
Reciprocity → social ties	0.542**	13.547
Reciprocity → trust	0.406**	6.578
Social ties → knowledge-sharing behavior	0.381**	4.297
Social ties → trust	0.178**	3.059
Trust → information privacy concerns	-0.164**	2.451
Information privacy concerns → privacy concerns on Internet	0.884**	31.075
Information privacy concerns → privacy concerns on blog	0.861**	29.239
Information privacy concerns → knowledge- sharing behavior	0.003 ^{NS}	0.065

* 0.05 significance; ** 0.01 significance; NS = statistically not significant.

gender differences, which is an important factor for understanding IT usage behavior. This subject has not been studied before, as gender research in IT has traditionally been limited to the area of modeling IT adoption behavior.

Our research unearthed significant gender differences in the relationship between the various constructs and bloggers' knowledge-sharing behavior using social role theory, which explains these gender differences based on expected social norms for each gender. Our research empirically shows that women bloggers emphasize reciprocity and social ties in sharing knowledge—more so than do men bloggers. It confirms that social norms exist in the blogosphere, reflecting the social norms and cultures seen in offline society. Although we did not find a significant direct effect on gender difference in the context of knowledge-sharing behaviors between women bloggers and men bloggers, trust, norms of reciprocity, and strength of social ties have a more significant effect on women bloggers' knowledge-sharing behavior than the behavior of men bloggers. In addition, trust has a greater influence on the privacy concerns of women than of men, but the knowledge-sharing behaviors of women are relatively unencumbered by such privacy concerns.

First, this paper confirms that offline expected social norms tend to persist in the online blogosphere. This finding lends credence to the extensibility of well-established gender-based social sciences research from the offline world to online communities to test its applicability in this domain. This point is especially valid in light of our finding that even though women have higher privacy concerns than men, online privacy concerns are a more influential factor for the knowledge-sharing behavior of

Table 7. Statistical Comparison of Paths

Constructs	Men $R^2 = 0.371$ ($n = 263$)		Women $R^2 = 0.334$ ($n = 183$)		Statistical comparison of paths
	Standardized path coefficient	t -value	Standardized path coefficient	t -value	
Trust → Knowledge-sharing behavior	0.142	2.839**	0.158	3.043**	-2.925**
Reciprocity → Knowledge-sharing behavior	0.068	1.177	0.111	2.105*	-10.723**
Social ties → Knowledge-sharing behavior	0.470	8.534**	0.555	10.268**	-14.410**
Trust → Information privacy concerns	-0.119	2.923**	-0.287	3.893**	33.2088**
Information privacy concerns → Knowledge-sharing behavior	-0.106	2.050*	-0.05	0.179	-17.353**

* 0.05 significance; ** 0.01 significance.

men. That the need to establish relationships persists in online communities despite heightened concerns regarding online privacy is an indicator of the strength of this intrinsic urge. Other offline behavioral characteristics can be tested and verified or repudiated in this manner.

Second, our research can inform the application of social capital theory in other contexts by underlining the need to incorporate gender differences into such investigations. While a limited amount of recent research has explained knowledge sharing in blogs using social capital theory, to date it has not unearthed any differences in the knowledge-sharing motivation of the two genders. As we explain next, knowledge of such differences can be particularly significant for blog service providers or organizations looking to utilize blogs for knowledge-sharing purposes. This paper highlights the point that, by excluding gender differences from the analysis, research using social capital theory might be missing nuances in the effect of key constructs on the phenomenon being studied.

Practical Implications

Our research results indicate that IT managers and blog service providers could promote adoption and usage of blogs as a knowledge-sharing mechanism by being gender aware and by designing and implementing IT services such that they encourage participation from all constituent members. In many cases, organizations are increasingly utilizing information gathered from blogs maintained by internal and external customers to spur new product development and existing product upgrades, to offer targeted marketing and innovative customer service solutions, and to streamline operations. IT managers can apply the results of our study to encourage these customers to share more knowledge among themselves—knowledge that the firm can, in turn, use to offer innovative products and services.

Specifically, we conclude that promoting social networking among bloggers by frequent communications and interactions would increase users' trust as well as knowledge sharing through blogs. For the successful adoption of blog technologies as knowledge-sharing tools for organizations, it is important to provide various ways to induce increased communication and interaction in the system. Augmenting blogs with chat tools serves the superficial need for facilitating greater interaction, which helps establish social ties and, in turn, facilitates greater knowledge sharing. At the same time, these tools can serve a deeper purpose, as a means to privately clarify and confirm blog discussions in real time. This type of communication can help reduce the information asymmetries that might otherwise erode users' trust and negatively affect knowledge sharing.

The results also indicate that perhaps women bloggers, at least in our limited context, may react more sensitively to trust issues regarding privacy concerns. These findings indicate that women users' knowledge-sharing behavior would not be promoted simply through technological measures for protecting their online privacy, but rather by increasing their trust in other members, information and knowledge, and technology artifacts. Hence, the privacy of chat conversations may assuage some of women blog-

gers' trust and credibility issues related to other bloggers and the information they disseminate. This may permit a concerned blogger to discuss issues, questions, and concerns that she might not feel comfortable airing publicly on the blog itself because, as our research shows, she may be more driven to build, maintain, and preserve social ties than are male bloggers. In this manner, blog providers and managers can improve knowledge sharing and participation from their women employees by being cognizant of the specific contributing factors as discussed earlier and by cleverly employing IT artifacts (such as chat tools in the previously mentioned example) that encourage desirable outcomes (such as trust building).

Strong privacy policies may have a significant *direct* positive effect on men bloggers' urge to share knowledge, as shown by our results. However, for women, although stronger privacy policies may assuage their information privacy concerns, this strategy ultimately may not be the key to getting them to share knowledge in any greater degree. Thus, blog providers might elicit greater participation from men by instituting stronger data security policies, whereas women might be more encouraged to participate by the incorporation of interactive features such as chat tools that enable the formation of social ties. Given that the results also indicate that women are more concerned about reciprocity when they share knowledge than are men, adding functions that reward users' knowledge-sharing behavior on these systems, such as the ability to rate the helpfulness of a response, would encourage users to share knowledge through the system. Features that enable the sharing, management, sorting, and rating of specific information (such as health-care advice) also facilitate searching, which in turn may permit bloggers to respond to other bloggers' posts in an expedient manner. Such tools may, therefore, make it easier for women bloggers to reciprocate, which will provide further impetus for knowledge sharing. Rating mechanisms on blogs can also serve as signaling tools that can help reduce information asymmetry and build trust. This outcome is especially likely if the rater's identity is known, as a positive rating from an already trusted rater may encourage extension of trust to new community members.

The previously discussed implications involving gender do not entail, either implicitly or explicitly, specific punitive actions against or the denial of equitable benefits to a particular gender. Instead, we advocate that a firm, when desiring to use blogs as a knowledge-sharing platform, could greatly enhance participation by catering to the needs and concerns of its target constituents who, according to our research, do display differences in knowledge sharing behavior based on their gender. For example, when a recommendation is made for the inclusion of chat tools, while both genders may benefit from this feature, women bloggers in particular might be more strongly induced to share knowledge through this means, as it may address their reciprocity, social ties, and trust needs—all of which our research indicates are significant for that group. Likewise, for all our recommendations, we indicate the specific ways in which suggested IT artifacts would affect each gender. Knowledge of these gender-specific outcomes can aid organizations in deploying such tools more strategically, so as to encourage participation from all members. Such responsiveness to particular gender needs is well accepted in practice, as evidenced by the myriad examples of gender segmentation in consumer marketing (e.g., retail clothing). Similarly, our

recommendations can be utilized by both genders but the effect of a recommendation on each gender may be different, as discussed previously. Thus, the firm may wish to undertake certain recommendations with the purpose of inducing greater knowledge sharing among currently underrepresented bloggers.

Limitations and Suggestions for Future Research

The limitations of the study provide some salient ideas for future research. Although our research controlled for education, age, and blog experience based on sample characteristics, it could not consider social class and ethnicity, which may influence IT usage behavior. To generalize these findings, more user characteristics—including race, educational background, age, and geographic area—need to be considered. Moreover, the research surveyed student populations. Even though our subjects were quite diverse in terms of their age and work experience, future research based on a business organizational environment would likely provide interesting findings.

Investigating the impact of a blogger's country of origin would also likely yield interesting results, as the amount of credence given to online privacy may be dependent on the culture of that country. Because ITs globally connect Internet users, investigating cultural differences in IT usage would also provide useful knowledge for successful IT implementation. A recent study indicates that culture is a significant factor in terms of trust [36, 95]. Comparing and contrasting populations from various cultural backgrounds may, therefore, provide useful cues to understanding bloggers' knowledge-sharing behavior.

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NOTE

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1. In this study, gender refers to the biological sex of the respondents [2, 43].

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