

發言或緘默：心理安全與自我效能對社會資本影響社群網站使用者知識分享行為上所扮演的中介角色

To Say or Not to Say: The Mediating Role of Psychological Safety and Self-Efficacy on the Influence of Social Capital on Users' Knowledge Sharing Behavior in Social Network Sites

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摘要

隨著以電腦為媒介環境與網路的普及，社群網站紛紛出現。社群網站不僅改變人們溝通與知識分享的方式，也創造出社群經濟 (Socialnomics) 與社群商務 (Social Commerce)，因而吸引研究者及行銷人員的興趣。過去社群網站研究聚焦於使用者行為，且大多採用探索性的研究途徑。本文提出一個整體架構，視社會資本的三個面向（結構、認知與關係）為社群網站使用者知識分享行為的影響因素，並以使用者心理安全與知識分享自我效能作為中介變數。本文使用 439 位 Facebook 使用者的問卷調查結果，以結構方程式模型驗證理論架構。結果顯示：認知社會資本對使用者在 Facebook 上的知識分享行為有著最高的正向影響，而且知識分享自我效能則擁有最高的中介效果。這項研究結果提供了豐富的學術洞見與行銷意涵。

【關鍵字】社會資本、心理安全、知識分享自我效能、社群網站

Abstract

The prevalence of the computer-mediated environment and the Internet have led to the emergence of social network sites. Social network sites have not only changed the way people communicate and share knowledge with one another, but have also created socialnomics and social commerce. Previous studies on social networks have focused on user behavior and mostly adopted an exploratory approach. In contrast, this article develops a holistic model that incorporates three facets of social capital (structural, cognitive, and relational) as determinants of users' knowledge sharing behavior and examines the mediating roles of users' psychological safety and knowledge sharing self-efficacy. The proposed structural equation model is empirically tested with survey data from 439 Facebook users in Taiwan. The results show that cognitive social capital exerts the strongest positive impact on Facebook users' knowledge sharing behavior and that knowledge sharing self-efficacy indeed plays a mediating role. The findings provide important insights for both theory and practice.

【Keywords】social capital, psychological safety, knowledge sharing self-efficacy, social network site

1. Introduction

The Internet has revolutionized individuals' lives by increasing accessibility to information, accelerating the transfer of information, and changing the way they communicate with one another. It has even surpassed other forms of media and become the mainstream medium for information exchange and social interaction. Knowledge and skills are the fundamental sources of competitive advantage for organizations to succeed (Vargo and Lusch, 2004), but for virtual communities, knowledge is mainly created by users through their knowledge sharing behaviors (Lee, Vogel, and Limayem, 2003). Without the availability of knowledge, people would be reluctant to participate in a virtual community because it would not be able to fulfill their knowledge needs (Wasko and Faraj, 2000). Many people now engage in social network sites (SNSs), posting messages, viewing friends' statuses, reading posts, and so on. Posting on SNSs entails viewing, which in turn activates posting, thus reinforcing each other. Therefore, knowledge sharing plays a salient role in the growth of SNSs. Posting behavior, such as posting product experiences and opinions in text, photo, audio, video, and link forms, is a form of knowledge sharing. This type of knowledge sharing constitutes word of mouth (WOM) and has a significant impact on the viewer because it comes from fellow consumers. People who share knowledge use SNSs not only to "talk about" products but also to show how they have used the products.

Acknowledging people's stickiness to and the influence on SNSs, increasingly more companies have become interested in why people share knowledge and how to capitalize on knowledge sharing for the benefit of their products. Unlike viewing or browsing, knowledge sharing can be costly for individuals because it can put them at risk. Wasko and Faraj (2005) argue that social capital, the main component of the SNSs, considerably influences individuals' knowledge sharing behavior. This article adopts Wasko and Faraj's social capital concepts as antecedents to set the stage for people's subsequent knowledge sharing activities.

Many people turn to SNSs to disclose their life experiences and exchange information with others. In addition to social capital, previous studies have explored other plausible influences of people's knowledge sharing behavior in organizations, such as psychological safety (Kahn, 1990) and self-efficacy (Bandura, 1982). Psychological safety is a psychological condition in which individuals feel safe in an interpersonal context and feel confident that fellow members in the context will not embarrass or punish them when they express themselves. In a knowledge sharing situation, self-efficacy is an individual's belief that what he or she shares with others is accurate, can assist others in solving problems, and

helps improve current situations in an organization. Factors that affect individuals' knowledge sharing in organizations (i.e., a physical environment), such as psychological safety and self-efficacy, can also influence their behavior on SNSs (i.e., a virtual environment). Yet scant research has addressed this issue. Thus, the goal of this article is to investigate how psychological safety and self-efficacy mediate the effects of social capital on individuals' knowledge sharing behavior on SNSs.

Unlike previous studies, which mainly analyze correlates of individual knowledge sharing behavior using an exploratory approach, this study aims to address the following questions: (1) Does social capital encourage knowledge sharing behavior on SNSs? (2) Do individuals' perceived psychological safety and knowledge sharing self-efficacy encourage their knowledge sharing behavior on SNSs? and (3) Do psychological safety and knowledge sharing self-efficacy play mediating roles on the impact of social capital on knowledge sharing behavior on SNSs? We test our proposed structural equation model using a sample of 439 Facebook users in Taiwan. The results show that cognitive social capital exerts the strongest positive impact on Facebook users' knowledge sharing behavior and that knowledge sharing self-efficacy indeed acts as a mediator. Our findings provide academic insights and highlight important implications for managers who are concerned about how to stimulate knowledge sharing behavior on SNSs.

2. Literature Review and Hypotheses

2.1 The Emergence of SNS

Garton, Haythornthwaite, and Wellman (1997) define a social network as a social entity comprising a group of individuals who share socially meaningful relationships and values. Such relationships can represent friends, family, and others. The study of social networks is to examine how a group of individuals are connected with one another, the hierarchical levels among them, and their motivations to become connected. Researchers have examined how individuals organize their social relations, how they act in response to one another, and the density in their social relations (e.g., Feld, 1981). The Internet and the innovative forms of computer-mediated communications (e.g., chat rooms) have not only affected the way individuals connect with one another but also influenced their lives. For example, the emergence of the Internet has led to the proliferation of SNSs, from the first recognizable site in 1997 (i.e., SixDegrees.com) to the most popular site (i.e., Facebook) (Boyd and Ellison, 2007).

According to Boyd and Ellison (2007), SNSs are web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) create a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system. Most studies suggest that SNSs are services that allow users to communicate with and maintain the existing social networks they made offline. On most SNSs, individuals do not necessarily search for new friends but communicate with those whom they already know. Ellison, Steinfield, and Lampe (2007) suggest that people use Facebook to maintain existing relationships or solidify offline connections rather than to meet new people.

People often use SNSs to view others' posts or post their own personal life experiences, questions, and opinions. Forms of communication on SNSs include texts, photos, audios, videos, and links. Pagani, Hofacker, and Goldsmith (2011) suggest that viewing (passive network use) and posting (active network use) are the fundamental elements on SNSs. Therefore, successful management of SNSs calls for promoting an endless cycle of content creation and content consumption (Pagani et al., 2011).

SNSs can provide benefits to users (Boyd and Ellison, 2007; Greenhow and Robelia, 2009; Valenzuela, Park, and Kee, 2009), which can be classified into three types. First, according to Valkenburg, Peter, and Schouten (2006), SNSs can help individuals construct personal identities and can affect their self-esteem positively or negatively. Second, Ellison et al. (2007) argue that SNSs can help develop, maintain, or enhance existing relationships. Third, SNSs can satisfy users' needs for entertainment, recreation, and education (Kim, Kim, and Nam, 2010).

2.2 Psychological Safety Theory and SNSs

Psychological safety plays an important role in organizations. Kahn (1990) defines psychological safety as a feeling that enables one to reveal one without fear of negative consequences to one's self-image, status, and career. In Kahn's study, he found that psychological safety was one of the three psychological conditions that affected individual behavior and engagement in organizations. Edmondson (1999) suggests that psychological safety in teams is a shared belief that the team is safe for interpersonal risk taking. Edmondson (2004) proposes that psychological safety can promote help seeking and feedback seeking, encourage people to raise errors and concerns, stimulate innovative behavior among employees, and increase learning behavior. Siemsen, Roth, Balasubramanian, and Anand (2009) define psychological safety as employees' belief that

their dyadic relationships are safe for interpersonal risk taking. Unless a sense of psychological safety is secured, individuals normally weigh the vulnerability or risks and decide whether to engage in opinion sharing and to expend efforts in an assignment.

Psychological safety and trust are psychological conditions related to interpersonal experience. Both concepts involve perceptions of risk or vulnerability and decisions whether to avoid negative consequences. Mayer, Davis, and Schoorman (1995) argue that “trust is the willingness of a party to be vulnerable to the actions of the other party, based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control the other party.” Jones and George (1998) also suggest that “trust is an expression of confidence between the parties in an exchange of some kind—confidence that they will not be harmed or put at risk by the actions of the other party, or confidence that no party to the exchange will exploit the other’s vulnerability.” In general, trust is similar to psychological safety in terms of making a choice about whether to put oneself at risk. However, they are different constructs. Edmondson (2004) identifies three different dimensions that separate them: self versus others, short versus long period, and group- versus individual-level analysis. Psychological safety is a self-assessment process, whereas trust focuses on the potential behavior of trustees. The tacit process in psychological safety is about whether to engage in a specific action (e.g., speak up), and such process is short; conversely, trust emerges over a long-term horizon. Finally, psychological safety is a group-level analysis about how safe a person feels in a group, while trust is individual specific.

Prior organizational behavior research has emphasized the importance of psychological safety in promoting learning, sharing knowledge, and expressing oneself in the workplace (Kahn, 1990), in project teams (Edmondson, 1999), and in manufacturing workshops (Siemens et al., 2009). Only recently pioneering studies (e.g., Zhang, Fang, Wei, and Chen, 2010) begun to apply the psychological safety concept in virtual communities. Unlike general computer-mediated communication platforms (e.g., chat rooms), on which individuals can meet new friends, most SNS members are acquaintances and are identifiable in offline settings. Therefore, users’ self-expressive behavior in the form of posting may put themselves at risk because people can trace the origins of messages back to the senders. Thus, psychological safety becomes an important issue when posting on SNSs.

In an online setting, psychological safety is individuals’ perceptions of whether it is safe to self-express in an interpersonal context. Kahn (1990) identifies four dimensions of psychological safety: interpersonal relationships, group and intergroup dynamics, management style and process, and organizational norms. This four-dimensional framework

is interpersonal context specific and related to the social capital of an individual. This means that psychological safety differs when people interact in different interpersonal contexts and results in different individual levels of social capital. The first three dimensions address characteristics of interactions among individuals and the social capital they derive from these interactions; the fourth reflects the rules that shape an individual's behavior. In addition, Edmondson (2004) indicates five similar dimensions of psychological safety: trusting and respectful interpersonal relationships, organizational interpersonal context support, leader behavior, emergent group dynamics, and practice fields. Both Kahn (1990) and Edmondson (2004) studies center on the interpersonal environment in which individuals feel safe (or unsafe) to interact with others.

First, according to Kahn (1990) four-dimensional framework, when people believe that their interpersonal relationships are supportive and trustworthy, they have a sense of psychological safety and thus have more confidence in self-expression without fear or threat. However, people who feel little connection with other members perceive a lower level of psychological safety and tend to be silent. Second, Kahn's group and intergroup dynamics dimension represents the informal roles that affect members' psychological safety experience. In the workplace, depending on level of authority, competition, or gender, members tend to play informal and unconscious roles. As Kahn (1990) depicts in his architecture company study, the president plays the father role, supporting functional-level members play the mother role, and other members play the child roles. When cast into these roles, individuals vary in how much they engage in work role performances (Minuchin, 1974). Members' psychological safety experience varies and depends on the roles they play in the workplace. Third, beyond the informal roles, the formal power structure in the workplace can also affect members' perceptions of psychological safety. Research has shown that supportive managerial behavior has a positive effect on creativity (Amabile, Conti, Coon, Lazenby, and Herron, 1996; Deci, Connell, and Ryan, 1989). Creativity is a form of self-expression, so it is likely to involve some degree of psychological safety in the workplace. Thus, supportive managerial behavior can also enhance psychological safety. Fourth, organizational norms are shared expectations about the general behaviors of members in a social system (Hackman, 1986). Psychological safety is related to role performances that clearly lie within the boundaries of organizational norms. Individuals feel more psychologically safe when their behavior stays within the organizational norms. As such, well-defined organizational norms can enrich individuals' psychological safety experiences.

2.3 Knowledge Sharing Self-Efficacy and SNSs

How individuals judge their capability of accomplishing an assignment (i.e., self-referent thought) affects their motivation and behavior. Prior research in the fields of psychology and organizational behavior has explored the role of self-referent thought (De Charms, 1968; Garber and Seligman, 1980; White, 1959). Normally, individuals avoid activities that they believe exceed their coping capabilities but assuredly undertake and perform those they judge themselves capable of managing (Bandura, 1977). According to Bandura (1982), self-efficacy refers to judgments of how well one can execute certain courses of action required to deal with prospective situations. Judgments of self-efficacy can also determine how much effort individuals will put forth and how long they will persist in the face of obstacles or aversive situations. Bandura (1982) suggests that self-efficacy influences thought patterns, actions, and emotional arousals; thus the higher the level of induced self-efficacy, the higher are the performance accomplishments and the lower is the emotional arousal.

With knowledge becoming increasingly more important in organizations, a growing number of studies have examined knowledge sharing self-efficacy. For example, research has shown that knowledge sharing self-efficacy improves individuals' motivation to share knowledge with colleagues in organizations (Ardichvili, Page, and Wentling, 2003; Cabrera, Collins, and Salgado, 2006; Kuo and Young, 2008). Such self-efficacy typically manifests in individuals' beliefs that their knowledge can help solve job-related problems (Constant, Sproull, and Kiesler, 1996), improve work efficiency (Ba, Stallaert, and Whinston, 2001), and make a difference to their organizations (Kollock, 1999; Wasko and Faraj, 2000). When individuals share expertise useful to the organization, they gain confidence in what they can do, and this confidence, in turn, increases self-efficacy (Constant, Kiesler, and Sproull, 1994).

In SNSs, posting personal experiences and opinions means sharing knowledge with friends, either in "closed" or "open" forms. With closed knowledge sharing, one sender shares his or her knowledge with only one recipient (e.g., through the mail function); with open knowledge sharing, knowledge is shared with multiple recipients (e.g., posting on one's own or others' "wall") (Kang, Kim, and Bock, 2010). In general, both senders and recipients are concerned about the accuracy of the content they receive or share. Thus, knowledge sharing self-efficacy plays a prominent role. Bandura (1982) suggests that self-efficacy involves a generative capability of integrating and making use of cognitive, social, and behavioral skills. In the following paragraphs, we discuss how these three types of

capabilities influence people's perceptions of self-efficacy.

2.3.1 Cognitive Capability

Bandura (1981) contends that the types of cues individuals have learned to use (e.g., the cognitive processing of self-efficacy information) can influence personal efficacy. In social learning studies, self-efficacy stems from four sources of information (Bandura, 1982). First, "performance accomplishment" provides the most influential source of self-efficacy information because it is based on previous mastery experiences. Previous successful (failed) experiences increase (decrease) self-efficacy. Second, self-efficacy is influenced by "vicarious experiences of observing others' success through their efforts," because seeing similar others' successful performance can increase the self-efficacy of observers who judge themselves with similar capabilities of fulfilling comparable activities. Third, "verbal persuasion and allied types of social influences that individuals possess certain capabilities to cope with situations successfully," indicating that individuals believe that their own capabilities help them achieve goals. Verbal persuasion has the greatest impact on individuals who believe that they can effect certain outcomes through their actions (Chambliss and Murray, 1979a, 1979b). Fourth, an individual's "physiological state" when facing challenges can affect self-efficacy. Individuals interpret their physical arousal in a stressful situation as a signal of vulnerability to failure. Because high arousal can lead to failed performance, individuals tend to expect success when they are not defeated by such arousal.

2.3.2 Social Capability

Social capability, such as support and interpersonal trust in the social environments and an individual's centrality in the social network, can also affect self-efficacy. Social environments may either put constraints on what individuals can do or assist them in doing something properly. For example, in Bandura (1982) study on post-coronary rehabilitation (i.e., recovering from a heart attack), patients' self-efficacy was affected not only by their cognitive capability but also by their social capability. In recovery processes, the reconstruction of self-efficacy to health promotion must be salient. Usually, psychological recovery in resuming their vocational and social lives is slow for patients who have had a heart attack. In other words, psychological recovery from a heart attack is not an individual but a social matter; those with spousal support tend to have higher self-efficacy.

Interpersonal trust also affects self-efficacy. Within the online context, one important dimension of relationships is how community members with common interests and shared goals establish peer relationships and interpersonal trust (Tseng and Kuo, 2010). As more

interpersonal trust develops in a group, members gain more confidence in sharing their knowledge and capabilities with others. Interpersonal trust in the social environments can also enhance individuals' self-efficacy (Cheung and Chan, 2000; Hsu, Ju, Yen, and Chang, 2007; Lu, Leung, and Koch, 2006).

2.3.3 Behavioral Capability

When facing unfamiliar or potentially adverse situations, individuals will naturally show anxious and stressful reactions. Anxiety increases individuals' fear arousal and decreases perceived self-efficacy. To alleviate fear, people strive to prevent, terminate, or lessen the severity of aversive events. Experiences of coping efficacy can decrease fear arousal and encourage individuals to cope with problems they have avoided before. Averill (1973), Lazarus (1981), and Miller (1979) all suggest that a sense of controllability (self-efficacy) can be achieved through behavioral or cognitive approaches. Under the cognitive approach, individuals believe that they can manage the threats posed by the environment, while under the behavioral approach, individuals take actions to modify the adverse events. In summary, knowledge sharing self-efficacy reflects individuals' confidence in effectively sharing knowledge. In general, people in an online setting will perceive a high level of knowledge sharing self-efficacy when they are on a psychologically safe social media platform in which they can share and exchange knowledge worry-free. In the organizational behavior literature, Edmondson (1999) reports that a team's psychological safety mediates the effects of team leader coaching and support on team learning behavior because psychological safety contributes to members' confidence in finishing the job. This concept can also apply to SNSs; that is, users' perceived psychological safety level can boost their confidence in knowledge sharing self-efficacy. Thus:

H1: Psychological safety positively affects individuals' knowledge sharing self-efficacy in SNSs.

2.4 The Dimensions of Social Capital

The central proposition of social capital theory is that networks of relationships are a valuable resource that can provide members with "the collectivity-owned capital" to conduct their social affairs (Bourdieu, 1986). Other researchers also corroborate this notion (Baker, 1990; Burt, 1992; Coleman, 1988, 1990; Loury, 1987). For example, knowledge sharing in an organization requires special facilities for the creation and transfer of tacit knowledge (Kogut and Zander, 1993, 1996; Nonaka and Takeuchi, 1995; Spender, 1996). In addition, it requires members to coordinate and communicate (Conner and Prahalad, 1996; Kogut and

Zander, 1992; Zander and Kogut, 1995) and requires social communities comprising social capital (Kogut and Zander, 1992, 1996).

In their conceptualization of social capital, Bourdieu (1986, 1993) and Putnam (1995) include the actual or potential resources that can be accessed through social networks. Bourdieu (1986) suggests that social capital comprises both the network and the assets that can be mobilized through the network. Putnam (1995) argues that social capital is not a uni-dimensional concept. Nahapiet and Ghoshal (1998) argue that social capital can be separated into three dimensions: structural, cognitive, and relational. These dimensions have two characteristics in common: (1) they contain some aspect of the social structure, and (2) they facilitate the actions of individuals within the structure (Coleman, 1990). Moreover, all three dimensions of social capital can increase the efficacy of action (Nahapiet and Ghoshal, 1998). For example, loose structural social capital can increase the diffusion of knowledge (Burt, 1992), while higher levels of trust in relational social capital can reduce the need for costly monitoring processes (Putnam, 1993). We next discuss how these three social capital dimensions influence psychological safety and self-efficacy.

First, structural social capital refers to the social system and the networks within it. It mirrors the impersonal configuration of linkage between individuals and the social system and also shows the pattern of connections between actors (e.g., who individuals reach and how they reach them). Structural social capital contains three facets (Nahapiet and Ghoshal, 1998): (1) the presence (or absence) of network ties between actors (Feld, 1991; Wasserman and Faust, 1994); (2) network configuration (Krackhardt, 1994) or morphology (Tichy, Tushman, and Fombrun, 1979), which describes the patterns of linkages; and (3) appropriable organizations, which provide accessibility of knowledge exchange to members. Because networked relationships represent a valuable resource in the form of “information,” network ties provide the channel to access the resources, decrease the search time for resources, and increase the available opportunity to receive the resources. Network configuration, or the density, connectivity, and hierarchy of network ties (i.e., how people link to each other in the social network), can also affect the transmission of resource. These three elements vastly affect the flexibility of information exchange. For example, a dense network is efficient in the transmission of resources but inefficient in the spread of diverse information, while weak social network ties facilitate information search but impede information transfer (Hansen, 1996). Last, social capital (e.g., ties, norms, trust) developed in one social setting can be transferred to another setting, such as the family, religious affiliations, and work (Fukuyama, 1995). These appropriable organizations give access to

individuals to reach one another when sending and receiving information and knowledge.

Second, meaningful communication typically requires some sharing of context between two parties (Boisot, 1995; Boland and Tenkasi, 1995; Campbell, 1969), reflecting two facets: shared language/codes and shared narratives (Nahapiet and Ghoshal, 1998). Cognitive social capital includes both shared language and codes (Arrow, 1974; Cicourel, 1973; Monteverde, 1995) and shared narratives (Orr, 1990). The sharing of a common language can help people access information. Moreover, language affects individuals' perceptions (Berger and Luckmann, 1966; Pondy and Mitroff, 1979), and codes organize data into perceptual categories and provide a schema for individuals to observe and interpret the environment. Thus, language filters out non-existent elements and filters in existent ones. In addition, cognition can arise in either information mode or narrative mode (Bruner, 1990). Information mode refers to a process of knowledge creation from a rational analysis, while narrative mode suggests systematic use of narratives such as fairy tales, myths, and legends. Orr (1990) shows that narratives in the form of stories with seemingly insignificant details can facilitate exchange of practices and tacit experiences between technicians.

Third, relational social capital refers to aspects of individuals' particular relationships, such as respect and friendship, through which individuals fulfill social motives, such as sociability, approval, and prestige (Nahapiet and Ghoshal, 1998). Relational social capital consists of four facets: trust (Fukuyama, 1995; Putnam, 1993), norms (Coleman, 1990; Putnam, 1995), obligations and expectations (Burt, 1992; Coleman, 1990; Granovetter, 1985; Mauss, 1954), and identity and identification (Hakansson and Snehota, 1995; Merton, 1968). Trust contains the following four aspects: (1) belief in positive intent to the other party (Ouchi, 1981; Pascale, 1990; Ring and Van de Ven, 1994), (2) belief in the other party's competence and capability (Sako, 1992; Szulanski, 1996), (3) belief in the other party's reliability (Giddens, 1990; Ouchi, 1981), and (4) belief in the other party's perceived openness (Ouchi, 1981). Previous studies have shown that with high levels of trust, individuals are more willing to exchange knowledge (Nahapiet, 1996; Ring and Van de Ven, 1992), combine different information (Luhmann, 1979), and exhibit greater openness to the potential for value creation.

"Norms" mean that the socially defined right to control an action is held not by the individual but by others (Coleman, 1990), indicating that individuals' behavior is controlled by informal rules in the social network. Norms can affect individual behavior of exchanging and creating knowledge in the organization. For example, Leonard-Barton (1995) found that norms of interaction were important in the creation of knowledge, including willingness to

value diversity, openness to criticism, and tolerance of failure. Obligations, as defined by Bourdieu (1986), are one individual's liabilities toward others. Coleman (1990) distinguishes obligations from norms, because obligations are expectations developed in specific personal relationships. These types of expectations can influence individuals' knowledge sharing. For example, the idiom "there is no such thing as a free lunch" means that exchange brings with expectations about future obligations (Bourdieu, 1977; Cheal, 1988; Mauss, 1954). Last, identification is the process by which individuals categorize themselves in relation to another individual or a group of individuals and take the values or standards of the other individuals as a reference group (Merton, 1968; Tajfel, 1982). According to Lewicki and Bunker (1996), salient group identification can increase the perceived opportunities to exchange knowledge. Conversely, groups with contradictory identities may face significant barriers of knowledge sharing and creation (Child and Rodrigues, 1996; Pettigrew, 1973; Simon and Davies, 1996).

2.4.1 Influence of Social Capital on Psychological Safety

As mentioned, four interpersonal context-specific factors (i.e., interpersonal relationships, group and intergroup dynamics, management style and process, and organizational norms) affect individuals' psychological safety experience in organizations. Because interactions in SNSs occur mainly among acquaintances, determinants of individual psychological safety in organizations also likely apply to individual psychological safety in SNSs. In addition, the three dimensions of social capital—namely, structural (how individuals link to one another), cognitive (how individuals communicate with one another), and relational (trust, norms, and identification)—are similar to the interpersonal context-specific antecedents of psychological safety. This discussion leads to the following hypotheses:

H2: Structural social capital positively affects individuals' psychological safety in SNSs.

H3: Cognitive social capital positively affects individuals' psychological safety in SNSs.

H4: Relational social capital positively affects individuals' psychological safety in SNSs.

2.4.2 Influence of Social Capital on Knowledge Sharing Self-Efficacy

As specified previously, self-efficacy in organizations consists of three antecedents: cognitive capability (processing of sources of information), social capability (support and interpersonal trust in the social environment), and behavioral capability (ability to decrease anxiety) (Bandura, 1982). Factors influencing individuals' self-efficacy in the organization may also affect their knowledge sharing self-efficacy on SNSs. Furthermore, the cognitive dimension of social capital reflects an individual's competence to communicate with others,

and the relational dimension of social capital represents the support for individuals. When individuals stay in an environment with significant competence and support, they gain a high level of knowledge sharing self-efficacy. This discussion leads to the following hypotheses:

H5: Cognitive social capital positively affects individuals' knowledge sharing self-efficacy in SNSs.

H6: Relational social capital positively affects individuals' knowledge sharing self-efficacy in SNSs.

2.5 Antecedents of Knowledge Sharing Behavior in SNSs

Previous studies have investigated the antecedents of knowledge sharing in organizations and virtual communities. Some focus on inherent motivational factors (Wasko and Faraj, 2005); others focus on interpersonal conditions, such as social capital (Chiu, Hsu, and Wang, 2006; Wasko and Faraj, 2005), social cognition (Chiu et al., 2006; Hsu et al., 2007), trust (Ridings, Gefen, and Arinze, 2002), satisfaction (Chen, 2007), and the social network (Wasko, Faraj, and Teigland, 2004); and still others focus on individuals' attachment to collective actions (Cheung and Lee, 2007; Wasko and Faraj, 2005; Wasko et al., 2004). Because SNSs mainly contain users and their colleagues, relatives, and friends, factors affecting individuals' knowledge sharing in organizations and virtual communities may also affect their knowledge sharing in SNSs. The subsections that follow address three major determinants of knowledge sharing behavior in SNSs: social capital (Nahapiet and Ghoshal, 1998), psychological safety (Kahn, 1990), and knowledge sharing self-efficacy (Bandura, 1982).

2.5.1 Influence of Social Capital on Knowledge Sharing Behavior

Structural social capital captures the connection (Scott, 1991; Wasserman and Faust, 1994) and configuration (Krackhardt, 1994) of a social system, and it provides the channel through which individuals can send and receive knowledge. In addition, both the language/code and the narratives of cognitive social capital can affect the fluency of knowledge sharing among people. Finally, relational social capital is also instrumental in interpersonal knowledge sharing. Thus, we propose the following hypotheses:

H7: Structural social capital positively affects individuals' knowledge sharing behavior in SNSs.

H8: Cognitive social capital positively affects individuals' knowledge sharing behavior in SNSs.

H9: Relational social capital positively affects individuals' knowledge sharing behavior in SNSs.

2.5.2 Influence of Psychological Safety on Knowledge Sharing Behavior

As mentioned previously, psychological safety can help strengthen employees' level of personal engagement at work (Kahn, 1990; May, Gilson, and Harter, 2004) and augment self-expressive behavior (Kahn, 1990). Detert and Burris (2007) report a positive impact of psychological safety on individuals' improvement-oriented speaking behavior. Regarding organizational levels, Wittenbaum and Stasser (1996) propose that psychological safety is an important driver of learning behavior, such as knowledge sharing among employees, which is more likely to be successful in environments perceived as psychologically safe (Edmondson, 1999; Gibson and Vermeulen, 2003; Lapré and Tsikriktsis, 2006; Tucker, 2007; Zellmer-Bruhn and Gibson, 2006). Deming (1986) advocates removing any fear of retribution from employees' minds so that they can fearlessly participate in quality improvement initiatives. In general, a lack of psychological safety in interpersonal relationships usually constitutes a barrier to knowledge sharing. Regarding psychological safety in virtual communities, Zhang et al. (2010) suggest that it has a positive effect on members' intentions to continue sharing knowledge. This line of logical reasoning also applies to SNSs. Thus, we propose the following hypothesis:

H10: Psychological safety positively affects individuals' knowledge sharing behavior on SNSs.

2.5.3 Influence of Self-Efficacy on Knowledge Sharing Behavior

Self-efficacy can enhance individuals' performance attainment. In the context of knowledge management, Kankanhalli, Tan, and Wei (2005) suggest that individuals' judgment of their abilities that contribute to organizational performance constitutes a self-motivating source of knowledge sharing. Perceived self-efficacy is critical in fostering cooperation among group members and thus increasing the benefits of knowledge sharing (Cabrera and Cabrera, 2002; Hsu et al., 2007; Lu et al., 2006). Moreover, Cabrera et al. (2006), Hsu et al. (2007), and Kuo and Young (2008) all contend that individuals' perceived knowledge sharing self-efficacy can significantly influence their intention to share knowledge as well as the level of engagement in knowledge sharing activities. Therefore, knowledge sharing self-efficacy can enhance individuals' knowledge sharing motivation and behavior.

H11: Knowledge sharing self-efficacy positively affects individuals' knowledge sharing behavior in SNSs.

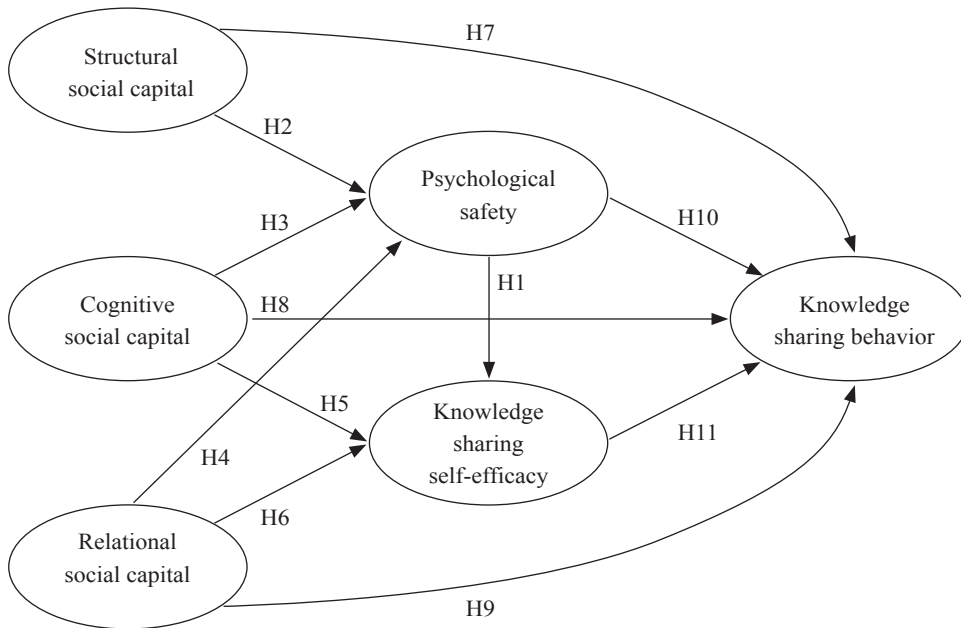


Figure 1 The Hypothesized Model

This study combines the concepts of social capital, psychological safety, knowledge sharing self-efficacy, and knowledge sharing behavior to conceptualize a causal model, as shown in Figure 1. It is assumed that the structural, cognitive, and relational dimensions of social capital affect individuals' psychological safety and knowledge sharing self-efficacy, which in turn lead to individuals' knowledge sharing behavior. Moreover, this study postulates that psychological safety and knowledge sharing self-efficacy both serve as mediators between the three dimensions of social capital and knowledge sharing behavior.

3. Method

3.1 The Sample

We administered the questionnaire (in Mandarin) to Facebook users in Taiwan. Specifically, we posted the URL of the online questionnaire in a Facebook forum on Bulletin

Board System (BBS) so that interested people could link to the questionnaire and answer page. Only registered and relatively active Facebook users were applicable for this study. To ensure that this requirement was met, five sleeper questions and contingency questions were asked. For example, all respondents were first asked to specify which Facebook functions they use more frequently, followed by questions about whether they had ever posted their own (or their relatives') photos on Facebook before. If answers to the first question contradicted those to the second, the person was prevented from participating further. Furthermore, responses that showed signs of logical inconsistency were filtered out to reduce sampling errors. In total, 439 Facebook users completed the survey, which constituted our valid sample.

3.2 Measurements of Constructs

Measurements for each of the six selected constructs were based mainly on items or scales reported in previous studies. First, measurements for structural and cognitive social capital came from Chiu et al. (2006) and Obst and White (2005), and measurements of relational social capital were derived from Nahapiet and Ghoshal (1998). As Zhang et al. (2010) note, most social capital studies were conducted in the organizational context (in which members are physically bound), so we modified previous measurement items to suit the SNS context (in which members are virtually bound). Second, we modified measurements for psychological safety from Siemens et al. (2009), who examine the influence of psychological safety on employees' knowledge sharing behavior. Third, we measured knowledge sharing self-efficacy by combining Constant et al. (1996) and Kalman (1999) studies, which centered on the organizational context. Finally, we measured knowledge sharing behavior using items from Lin, Hung, and Chen (2009). We undertook any necessary modifications and adaptations in accordance with the research purpose of this study. All items were measured on 7-point Likert scales, ranging from "strongly disagree" (1) to "strongly agree" (7).

4. Results

To examine whether the hypotheses were tenable, we undertook several statistical analysis procedures. We report the descriptive statistics first, followed by the confirmatory factor analysis (CFA) results to check fitness of the measures. Last, we test the hypothesized structural equation model using LISREL 8.8.

4.1 Sample Characteristics

The entire sample comprised 54.9% women (45.1% men), indicating that Facebook users in Taiwan are predominantly women ($t = 18.97$). Respondents ranged from age 15 to above 50 years, with 46.2% of the respondents falling in the 21~25 age range. More than half the respondents were students (50.3%); the majority were either undergraduates or postgraduate degree holders (89.8%). In total, our Facebook user sample consisted of mostly young adults who were relatively well-educated and knowledgeable. On the behavioral side, most respondents were registered Facebook users (ranging from 1.5 to 3.5 years of membership) at the time of study, and 20.3% spent 45~60 minutes on Facebook every day. A high proportion of respondents (89.7%) reported that their close relatives or friends were aware of their Facebook membership; 65.3% of the respondents used Facebook to maintain relationships with old friends (either often or always), whereas only 14.6% used Facebook to meet new friends. The sample profiles indicate that users visit Facebook mainly for maintaining current relationships already established offline rather than for meeting new friends online. Moreover, more than half the respondents (56.3%) either often or always interact with friends on Facebook, providing evidence of high-level interactions among Facebook users.

4.2 Evaluation of Measurement Models

Table 1 summarizes the constructs and their corresponding measurement items (including sources of scale), item loadings, and Cronbach's alpha values. As the table shows, the standardized factor loadings for all items were significant, and Cronbach's alpha values for all constructs were greater than 0.7. Before estimating our structural model, we performed a CFA to check the reliability, validity, and uni-dimensionality of measurements used in this study. The results of CFA, as summarized in Table 2, show that the measurement models fit the data well. The average variances extracted (AVEs) for all constructs were significantly higher than the stipulated criteria (50%). These figures thus demonstrated convergent validity of the measurement model. Moreover, all the inter-construct correlations in Table 2 were lower than the square root of the AVE, providing evidence of discriminant validity. Consequently, the measurement models passed both reliability and convergent/discriminant validity checks.

Table 1 Statistics of Measurement Model

Construct	Measurement item	Factor loading	Cronbach's α	Reference
Structural social capital	I know some friends on Facebook on a personal level.	.90	.75	Lin (2011) Chiu et al. (2006)
	I have frequent online contact with some friends on Facebook.	.90		Obst and White (2005)
Cognitive social capital	In Facebook communication, my friends and I both share interesting narratives.	.89	.73	Lin (2011) Chiu et al. (2006)
	In Facebook communication, my friends and I both share life events.	.89		Obst and White (2005)
Relational social capital	In Facebook communication, my friends and I have a common view regarding appropriate behavioral norms.	.82	.87	Lin (2011) Nahapiet and Ghoshal (1998)
	In Facebook communication, my friends and I both have obligations to support each other.	.78		
	In Facebook communication, my friends and I both identify with each other.	.88		
Psychological safety	I am not afraid to be myself on Facebook.	.89	.84	May et al. (2004)
	I am not afraid to express my opinions on Facebook.	.88		
	There is no threatening environment on Facebook.	.63		
Knowledge sharing self-efficacy	I have confidence in my ability to provide knowledge that my friends on Facebook consider valuable.	.88	.87	Constant et al. (1996) Kalman (1999)
	I have the expertise, experiences, and insights needed to provide knowledge that is valuable for my friends on Facebook.	.93		
	I have confidence in responding or adding comments to messages or articles posted by my friends on Facebook.	.69		

Construct	Measurement item	Factor loading	Cronbach's α	Reference
Knowledge sharing behavior	I frequently participate in knowledge sharing activities and share my knowledge with my friends on Facebook.	.76	.79	Lin et al. (2009)
	I usually spend a lot of time conducting knowledge sharing activities on Facebook.	.84		
	When discussing a complicated issue, I am usually involved in the subsequent interactions.	.63		

Table 2 Results of CFA

Construct	Number of items	Composite reliability	AVE	Correlation between latent constructs					
				1.	2.	3.	4.	5.	6.
1. Structural social capital	2	.80	.80	.90					
2. Cognitive social capital	2	.79	.79	.76	.89				
3. Relational social capital	3	.86	.69	.60	.76	.83			
4. Psychological safety	3	.85	.65	.44	.50	.46	.81		
5. Knowledge sharing self-efficacy	3	.88	.71	.45	.58	.49	.38	.84	
6. Knowledge sharing behavior	3	.79	.56	.46	.66	.48	.41	.68	.75

4.3 Model Fit and Hypothesis Testing

Regarding the hypothesized structural equation model, the resulting chi-square value divided by degrees of freedom does not exceed 3 ($\chi^2(90) = 233.56$), and all the fit indices (GFI = .94, AGFI = .91, RMR = .05, RMSEA = .06, NFI = .97, NNFI = .98, CFI = .98, PNFI = .73) were within the acceptable range, indicating a relatively good model fit to the data. Table 3 provides the estimated parameters and results of the hypotheses testing. The standardized path coefficients indicate that H1, H3, H4, H5, H8, and H11 are supported. For H1, psychological safety has a significant, positive effect ($\beta = .11, p < .01$) on knowledge sharing self-efficacy. As Table 3 shows, of the three facets of social capital, cognitive social capital has the greatest impact. Cognitive social capital has a significant influence on all three endogenous latent variables: psychological safety (H3; $\gamma = .25, p < .05$), knowledge sharing self-efficacy (H5; $\gamma = .46, p < .001$) and knowledge sharing behavior (H8; $\gamma = .54, p < .001$). In contrast, relational social capital has only limited influences on the endogenous latent variables because it only significantly affects psychological safety (H4; $\gamma = .19, p <$

.05). Surprisingly, structural social capital has no significant influence on any of the subsequent endogenous latent variables. Finally, the causal link between knowledge sharing self-efficacy and knowledge sharing behavior is positive and significant (H11; $\beta = .45$, $p < .001$).

Table 3 Standardized Path Coefficients

Path	sign	Path coefficient	t-value	Result
Psychological safety → Knowledge sharing self-efficacy	+	.11**	2.01	H1 supported
Structural social capital → Psychological safety	+	.13	1.25	H2 not supported
Cognitive social capital → Psychological safety	+	.25*	1.87	H3 supported
Relational social capital → Psychological safety	+	.19*	2.10	H4 supported
Cognitive social capital → Knowledge sharing self-efficacy	+	.46***	4.59	H5 supported
Relational social capital → Knowledge sharing self-efficacy	+	.09	.99	H6 not supported
Structural social capital → Knowledge sharing behavior	-	.01	-1.10	H7 not supported
Cognitive social capital → Knowledge sharing behavior	+	.54***	3.58	H8 supported
Relational social capital → Knowledge sharing behavior	-	.13	-1.41	H9 not supported
Psychological safety → Knowledge sharing behavior	+	.08	1.38	H10 not supported
Knowledge sharing self-efficacy → Knowledge sharing behavior	+	.45***	7.19	H11 supported

Note: * $p < .05$; ** $p < .01$; *** $p < .001$.

5. Discussions and Conclusion

The aims of this research were to examine the influences of three constituent dimensions of social capital (structural, cognitive and relational) on Facebook users' knowledge sharing behavior and to determine whether users' perceived psychological safety and knowledge sharing self-efficacy act as mediators between facets of social capital and knowledge sharing behavior. Empirically, this article employed a structural equation model to investigate why people are willing to share knowledge on Facebook, even though such

conduct may generate certain risk for them. The findings offer four significant empirical contributions. First, cognitive social capital is the most influential factor in determining Facebook users' perceived psychological safety and knowledge sharing self-efficacy, as well as their knowledge sharing behavior. Engaging in a meaningful exchange of knowledge requires at least some level of shared language and vocabulary (Nahapiet and Ghoshal, 1998). Although Facebook users use photos, audio, and video content to communicate with one another, written language still seems to be the major communication vehicle. Our findings indicate that in social networks, cognitive social capital represents the shared language and narratives (Nahapiet and Ghoshal, 1998), which ultimately stimulate users' knowledge sharing behavior by strengthening their sense of psychological safety and knowledge sharing self-efficacy.

Second, relational social capital significantly influenced psychological safety, but its impact on knowledge sharing self-efficacy and knowledge sharing behavior was negligible. One reason behind this observation is that relational social capital (i.e., interpersonal levels of trust, norms, obligations, and identification) may not develop easily in SNSs (e.g., Facebook) because of the possible lack of highly interdependent and frequent interactions and co-presence (Nahapiet and Ghoshal, 1998). In addition, because most interactions on SNSs are acquaintance based, users occasionally meet one another in offline settings; thus, online knowledge sharing self-efficacy and behavior may become relatively less critical. Moreover, our results show that psychological safety does not exhibit a significant influence on knowledge sharing behavior. Many users may believe that Facebook is not a safe place to share knowledge because of unpredictable risks, such as when users' self-disclosures cause a misalignment of their actual self-images with ideal ones in terms of online impression management.

Third, our findings indicate that structural social capital has no direct effect on either knowledge sharing behavior or psychological safety. This result differs from that in research in the fields of organizational behavior (Bourdieu, 1986) and virtual communities (Wasko and Faraj, 2005). A plausible explanation is that structural social capital as manifested in organizational behavior/virtual community studies develops from a "closed environment" context. That is, the participating members are well-defined and identifiable, and the purpose or objective for knowledge sharing (which may be work related, interest driven, need based, or goal oriented) is also specific. Those who occupy pivotal or central positions in social networks may possess more influential power or share more knowledge. However, Facebook is not a closed environment, but an open and loose system with no finite boundaries and

strict membership definition, insofar as the structure of a social network is concerned. Furthermore, knowledge sharing on Facebook is usually not limited and does not revolve around specific topics, and as such, users may need a wide range of knowledge. In Facebook users' interpersonal networking configurations, structural characteristics such as "centrality" and "betweenness," as defined in social networking analyses, are difficult to describe and rarely examined, not to mention their impacts on users' perceived psychological safety and subsequent knowledge sharing behavior. The non-significant causal links between structural social capital and users' psychological safety and knowledge sharing behavior may indicate a less important role of structural characteristics in shaping knowledge sharing on Facebook.

Fourth, the results reveal a positive causal relationship between psychological safety and knowledge sharing self-efficacy. Thus, psychological safety acts as a precursor of knowledge sharing self-efficacy on Facebook. Edmondson (1999) shows that a team's psychological safety mediates the effects of team leader coaching and support on team learning behavior; a similar reasoning in organizational behavior can also be applied to Facebook, in that users' psychological safety perceptions can raise their confidence in knowledge sharing.

5.1 Implications

According to Nahapiet and Ghoshal (1998), social capital is 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. The findings of the current study reveal that social capital exists on SNSs, especially the cognitive aspects of social capital, which exhibit the greatest impact on users' psychological safety, knowledge sharing self-efficacy, and knowledge sharing behavior. In addition, this study finds that users' knowledge sharing self-efficacy has a positive impact on their knowledge sharing behavior, consistent with previous results (e.g., Ardichvili et al., 2003; Cabrera et al., 2006; Kuo and Young, 2008). By examining the social capital → psychological safety → knowledge sharing self-efficacy → knowledge sharing behavior loop of causal relationships in SNSs, this article provides concrete insights for researchers and practitioners into the internal functioning of SNSs. This study provides useful guidelines to and pinpoints key psychological factors for marketers facing the challenge of running successful SNSs or using SNSs as their marketing platforms.

Traditional wisdom views structural and relational social capital as the most crucial elements in encouraging SNS users' willingness to share knowledge. However, our research

shows that cognitive social capital is the most important dimension in explaining users' knowledge sharing. With shared language and narratives, SNS users are more willing to conduct knowledge sharing. Thus, marketers should identify and cultivate groups of people who are more likely to build up abundant cognitive social capital through interactive platforms such as interest-based clubs on SNSs and then motivate both group leaders and members to engage in knowledge sharing. Marketers could also create commonly shared language, narratives, and product storylines so that the resultant cognitive social capital leads to users' knowledge sharing self-efficacy and knowledge sharing behavior. Furthermore, although relational social capital has no significant impact on either knowledge sharing self-efficacy or knowledge sharing behavior, it still has a significant and positive influence on psychological safety, which in turn significantly affects knowledge sharing self-efficacy. Thus, cultivating groups of users with high levels of mutual trust, norms, obligations, and group identification can help marketers strengthen users' perceived psychological safety and knowledge sharing self-efficacy.

5.2 Limitations

We collected data for this research from Facebook only, and thus the generalizability of the findings must be taken with caution. Moreover, because the majority of respondents were young female students, the representativeness of our sample may be limited. Our data may differ from data collected from other types of SNSs (e.g., Twitter, Plurk) in terms of user profiles. In addition, this article does not rule out the possibility of two-way causation between the endogenous latent variables because it is often difficult to exclude reciprocal relations in structural equation models using cross-sectional data. Methodological problems of this nature might be alleviated by adopting a longitudinal research design that uses staged data collection techniques.

5.3 Future Research Directions

One direction for further research pertains to the mediating roles of psychological safety and knowledge sharing self-efficacy. Although we show that knowledge sharing self-efficacy mediates the effect of cognitive social capital on knowledge sharing behavior, other mediating variable may exist between social capital and knowledge sharing behavior. In addition, research could refine the measurement items, which were mostly borrowed from the organizational behavior field, and extend them to fit the SNS setting, thus improving measurement validity. Finally, this study broadly measured knowledge sharing behavior with

participation frequency, time spent on knowledge sharing, and interaction involvement. To modify the empirical model, research could broaden knowledge sharing behavior to include other indicators, such as recommendation and positive/negative WOM.

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