

Chapter 3

Exploring Determinants of Knowledge Sharing in a Social Network of Practice

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Abstract Network of practice (NoP) operating on social media have been rapidly grown in recent years since the social media allows users not only to create contents, but also to interact with each other. A new type of NoP using social networking services (SNS) is defined as a social network of practice (sNoP). SNoP involves a collection of individuals who communicate, collaborate, and exchange knowledge openly with others sharing a common practice. Relatively little has been published focusing on the factors that influence the participation in knowledge sharing within the sNoP. This study focuses on the determinants of knowledge sharing in sNoP whose inquiry requires not only social theories, but also socio-technical views. Building on the social cognitive theory, the social capital theory, and the technology acceptance theory, this research-in-progress paper aims to explore how personal cognition, social capital, and technology acceptance attitude affect knowledge sharing in sNoP.

Keywords Social network · Network of practice · Social network services · Knowledge sharing

3.1 Introduction

In the knowledge economy, social networks play a critical role since knowledge work is often getting done through knowledge sharing. Recently with the explosion

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of social media, social networks enter a new level. Social media empower individuals to form social networks not only of personal relationships, but also of the shared interest or practice. In particular, using SNS like Facebook and Twitter, practitioners engage in social interaction, exchange information, and share their knowledge through a wide variety of devices.

As more people communicate, interact, and socialize through social media, both businesses and academics are keenly interested in understanding the factors affecting the participation in sNoP. This is because the sustainability and success of sNoP are dependent upon the participation in knowledge sharing. Understanding the factors of the participation in sNoP is of concern to organizations, which want to create value from the use of social media. Academics have been interested in theorizing factors that influence knowledge sharing in communities and networks [8, 18, 33, 35].

This study focuses on the determinants of knowledge sharing in sNoP whose inquiry requires not only social theories, but also socio-technical views. Drawing on the social cognitive theory, the social capital theory, and the technology acceptance theory, this paper proposes a model and tests it with a sNoP of IT professionals in Korea to explore determinants of knowledge sharing through social networks. This study contributes to the literature by exploring determinants of individuals' participation in sNoP through a holistic view by considering the context not only of social but also of technical factors.

The paper is organized as follows: after an overview of the new issues of knowledge sharing in sNoP, literature review is summarized in Sect. 3.2. Sect. 3.3 provides a research model with hypotheses to explore determinants of member participation in sNoP. Sect. 3.4 discusses the plan of an empirical study for the research model developed. Conclusions and expected contributions are discussed in Sect. 3.5.

3.2 Backgrounds and Literature Review

3.2.1 Knowledge Sharing through Social Media

The importance of using social connections and social relations in achieving goals is well understood. It is through these informal networks-not just through traditional organizational hierarchies-that information or knowledge is acquired and work gets done [38]. Individuals are no longer restricted by the formally commanded relationships in organizations or the organizational boundary.

When individuals have a common interest or are engaged in a similar practice, they create network of practice (NoP) to engage in knowledge sharing. Knowledge management discipline distinguishes two kinds of communities: community of practice (CoP) and NoP. In NoP, relations among network members are significantly looser than those within a CoP. In NoP, relations among members are loose and most of the people within such a network may never know or come across one

another. In NoPs, participation is open and voluntary, and no control over the operation of the network is exercised, individuals are willing to mutually engage with others to help solve problems.

With the advance in information and communication technologies, NoP is able to extend its reach. Wasko and Faraj [33] coined a term electronic NoP (eNoP) and consider it as a special case of the broader concept of NoP. eNoP typically coordinates through technologies such as blogs, listservs or bulletin boards [33, 36]. Recently, it has been pointed out and demonstrated that social media carries great promise for knowledge management [13, 27]. In particular, SNS offers a platform for online users to interact with one another and to maintain interpersonal relations [6, 13]. Practitioners began to capitalize the potential of SNS such as Facebook and Twitter [20]. A new type of NoP using social networking services (SNS) is defined as a social network of practice (sNoP). The emerging sNoP can be distinguished from eNoP as it is based on the SNS technology.

People in NoP spend their valuable time and effort to share knowledge with others even when there is no direct benefit for helping other members. In sNoP, the knowledge contributed by members is visible and accessible to all other members. Wasko et al [32] points out that the collective knowledge generated by network members exhibits aspects of a public good, which has two important characteristics: nonexcludability and nonrivalry. In sNoP, members might lurk and free-ride in knowledge sharing [37]. Thus, it is important to understand why individuals forgo their apparent inclination to behave out of self-interest and volunteer to participate in knowledge sharing through communities or networks. That is critical because the success and sustainability of NoP are solely dependent on the willingness to share knowledge with other members. Both practitioners and academics are interested in a more in-depth understanding of the factors that predict members' participation in knowledge sharing through communities or networks. Knowledge management field has investigated this important research question of factors affecting individuals' participation in knowledge sharing.

This study focuses on this new kind of NoP based on SNS, i.e., sNoP. The 'social' part of the term 'sNoP' indicates the use of SNS, such as Facebook or Twitter. The participation in sNoP takes place through the activities of posting or viewing of information and knowledge. In sNoP, different context of NoP and its SNS platform might involve different perceptions and behaviors among the participants. It is noted that the motivation for participation in communities or networks like sNoP is mainly context dependent [4, 16]. A few researchers have recognized the new opportunity of sNoP for knowledge sharing [15, 27]. Thus, the research question for this study is why individuals volunteer to participate in knowledge sharing in sNoP. A thorough literature review will show us concepts and theories that are applicable to this specific context for this study.

3.2.2 Social Cognitive, Social Capital, and Technical Acceptance Theory

Extant studies highlighted various factors affecting an individual's motivation to share knowledge. These studies covered individual and social factors, and the role of information technology. Factors that are examined range from recognition to anonymity, from identification to network ties, and from monetary incentive to altruism, among others. Recognition, in the form of elevated social status or reputation, is identified as a determinant to participate in the community or network [17]. Self-efficacy and expertise, which will improve one's visibility, are known to motivate participation [8, 33]. The choice of anonymity is also suggested to encourage participation in communities and networks [2]. Identification, in the sense of community identity, and commitment enhance the likelihood of members' participation and contribution [8]. Network ties and trust, which will increase as social interactions continue over time, are also found to determine participation in knowledge sharing [33]. Hsu and Lin [14] found that altruism has positive effect on blogger's attitude.

In examining factors affecting knowledge sharing in communities or networks, information systems researches have applied a variety of relevant theories from a number of related disciplines. Most previous studies have applied theories dealing with personal, contextual, and social factors. Among other theories, the social cognitive theory and the social capital theory are widely applied to investigate social factors of participating in knowledge sharing in community or network [8, 33].

The social cognitive theory addresses personal cognition and contextual factors which influence an individual's behavior in a social setting. In information systems researches, the concept of self-efficacy and personal outcome expectations are considered to be most relevant to the social cognitive theory [8, 25]. Chen and Hung [7] consider norm of reciprocity and interpersonal trust factors in applying the social cognitive theory. Chiu et al [8] points out the limit of the social cognitive theory. That is, the social cognitive theory does not deal with what resources are embedded within a social network and how they affect an individual's behavior.

The social network theory is applied to consider the nature of social interactions and the set of resources embedded within the social network. Wasko and Faraj [33] apply the social capital theory from an individual's perspective. They view that individual relations are important sources of social capital and determine how individual members behave in relation to others. Chiu et al [8] integrates the social cognitive theory and the social capital theory. In both studies the social capital theory is adapted to examine individual motivations for participating in knowledge sharing in communities or networks.

The technology acceptance theory has been integrated with other theories in order to identify factors determining members' participation in knowledge sharing through the blog community [14, 25]. The approach in these studies takes the socio-technical perspective, which views an online community as a socio-technical system [14, 25, 26]. This view considers both technical and social components of a commu-

nity or network, and highlights perceived usability and sociability as corresponding antecedents of participation for the community or network [26].

The literature on the determinants of participating in knowledge sharing in communities or networks has provided a better understanding of the factors underpinning knowledge sharing from both social and technological perspective. While past studies generated valuable findings, it is not clear whether the studies can be extended to the new context of sNoP, where social network and SNS characteristics are distinct. Thus, the extant literature for the participation of knowledge sharing in the community or network is far more limited in addressing the impact of social and technical factors on sNoP. This study presumes that the behavior of an individual to participate in knowledge sharing in sNoP is affected by personal cognition and social capital as well as the technology in use. The model in this study attempts to address issues related to the technology use behavior as well as both personal cognition and social network.

3.3 Research Model and Hypotheses

3.3.1 Research Model

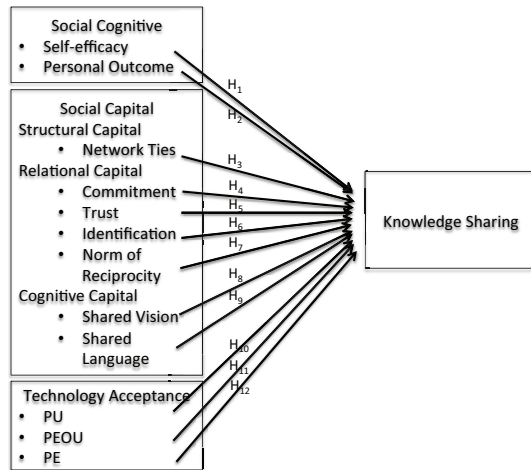
The goal of the current study is to investigate factors determining individuals' participation in knowledge sharing through sNoP. In sNoP, people interact not only to share information and knowledge, but also to engage in social interactions. It is necessary that issues related to both personal cognition and social network should be addressed. To this end, this study applies two social theories: the social cognitive theory and the social capital theory. In addition to these two theories, the technology acceptance theory is also included. A technology (in this study, Facebook) allows knowledge sharing to take place since sNoP is basically a practitioner's social network through SNS. Fig. 3.1 shows the proposed research model.

3.3.2 Hypotheses

(1) Social cognitive theory

The social cognitive theory argues that a person's behavior is partially shaped and controlled by the influence of community or network and the person's cognition. In the social cognitive theory, self-efficacy is a prominent concept and outcome expectation is another major cognitive factor in influencing individuals' behavior. Self-efficacy is an individual's belief in his (or her) ability to succeed and achieve the desired outcome under certain circumstances [3]. Personal outcome expectations are concerned with individual's esteem and sense of accomplishment.

Fig. 3.1 Research model for knowledge sharing in sNoP



Individuals' behavior can often be better predicted by their beliefs they hold about their capabilities than by their capability of accomplishing something. Pajares [24] notes that self-efficacy beliefs provide the foundation for an individual's motivation and personal accomplishment. Chen and Hung [7] view the knowledge sharing self-efficacy as an individual's confidence in an ability to provide knowledge that is valuable to others. Self-efficacy has been used in information technology adoption researches [9].

Studies have shown that higher member's self-efficacy boosts his (or her) intrinsic motivation and therefore makes him (or her) more likely to stay in a community or network. Wang and Fesenmaier [34] confirm that self-efficacy is the major factor in affecting active contribution online. Self-efficacy is found to influence positively the intention to share knowledge [19, 25]. This leads to the following hypothesis:
Hypothesis 1. Self-efficacy is positively related to the knowledge sharing.

Bandura [3] argues that people anticipate the likely consequences of their prospective actions. Wasko and Faraj [33] note that people contribute knowledge in NoP as they expect some new value to be created. Chiu et al [8] views personal outcome expectation as the knowledge contributor's judgment of likely consequences that his (or her) knowledge sharing behavior will produce to himself (or herself).

Butler et al [5] points out that, besides altruistic motivation, individuals would participate in communities since they expect to get benefits such as information, social relationship, and visibility. Hu and Kettinger [15] assert that the primary perceived value of SNS is manifested in the course of construction and enhancement of the relational value among social network members. Compeau et al [9] views that personal outcome expectation is related to expectations of change in image or status or to expectations of rewards, such as promotions, raises, reputation, or praise.

Papadopoulos et al [25] refers personal outcome expectation to image and reward following actions of individuals. They claim that people share knowledge in return for benefits, such as reputation and expected relationship. It has been found

that personal outcome expectation positively influences attitude towards knowledge sharing among bloggers [14, 25]. Wang and Fesenmaier [34] discovered that satisfying other members' needs and being helpful to others are the major reasons to contribute to the community or network. This leads to the following hypothesis:

Hypothesis 2. Personal outcome expectation is positively related to the knowledge sharing.

(2) Social capital theory

The social capital theory proposes that social relationships constitute a valuable resource for the conduct of social affairs and provide their members with the community-owned capital [22]. Nahapiet and Ghoshal [22] define social capital as the sum of the actual and potential resources embedded within, and derived from the social relationships possessed by an individual. Social capital, the network and resources which may be mobilized through it, is critical to individuals in achieving objectives.

Nahapiet and Ghoshal [22] suggest to examine the social capital from three distinct dimensions: structural, relational, and cognitive. The structural dimension of social capital is concerned with the structure of social relations and manifested as social interaction ties or network ties. The relational dimension of social capital is concerned with the content of social relations and manifested as commitment, trust, norm of reciprocity, and identification. The cognitive dimension of social capital is concerned with the shared system of meaning within a group and manifested as shared vision and shared language.

(a) Structural Capital

Network tie or social relation provides access to resources, i.e., knowledge in sNoP. The more interconnected a member in a network is to another member, the more the member is able to share knowledge. The overall configuration of these ties constitutes an important facet of social capital [22]. They refer the relational strength of ties in a network as the nature and the quality of relations between the network members. Centrality is related to how deeply an individual is embedded. If an individual is central in his (or her) community or network, he (or she) is the most popular individual in the community or network and gets the most access.

Much of the social interaction on the Internet occurs among those with pre-existing social ties [5]. The relational strength of ties influences cooperative behaviors and collective action among the network members [33]. Tsai and Ghoshal [30] found that centrality strongly affects on knowledge exchange. This leads to the following hypothesis:

Hypothesis 3. Network tie is positively related to the knowledge sharing.

(b) Relational Capital

While the structural dimension of social capital covers social interaction, the relational dimension of social capital refers to assets that are rooted in these relationships [22]. Relational capital is related to the affective nature of social relationships within a community or network [33, 37]. Relational dimensions of social capital include obligation, trust, identification, and norm of reciprocity as the predictor of knowledge sharing [22]. This study replace obligation with commitment, as it is more appropriate for the context [8, 33].

Allen and Meyer [1] introduce two types of organizational commitment: normative commitment and affective commitment. The normative commitment to the community or network represents a perceived duty or obligation to engage in future action to meet organizational goals and interests. A committed community or network member feels a sense of responsibility towards the community or network and therefore helps other members through knowledge sharing. The affective commitment, sense of belonging, predicts that the more affinity a member feels with a community or network, the more he (or she) contributes to that community or network.

Commitment builds over repeated interactions with other members [22, 33]. These frequent interactions will likely strengthen his (or her) feelings of obligation to provide help to other members by contributing his (or her) knowledge. Chiu et al [8] views that community-related outcome expectations are related to commitment. They view that the success, growth, and continuance of the virtual community are outcomes which come from members' commitment to the community.

When commitment to the community or network increases, members feel a sense of responsibility to help others in the community or network by sharing their valuable knowledge [33]. It is this commitment that motivates members to contribute content [33, 37]. This leads us to propose the following:

Hypothesis 4. Commitment is positively related to the knowledge sharing.

Trust is viewed as the confidence a person has in his (or her) favorable expectations of what another person will do, based on previous interactions [12]. Mayer et al [21] refers ability, benevolence, and integrity as factors of perceived trustworthiness. Nahapiet and Ghoshal [22] suggest that when trust exists between the parties, they are more willing to engage in cooperative interaction. In a community or network, trust facilitates the ease of cooperation without worrying that a member will be taken advantaged of by another member.

Trust has been identified as an important antecedent of intellectual capital exchange [22], resource exchange and combination [30], and e-commerce [12, 29]. Trust is an essential component of social relationships and a necessity in knowledge sharing in a community or network on the Internet [7, 8, 30]. This leads to the following hypothesis:

Hypothesis 5. Trust is positively related to the knowledge sharing.

Nahapiet and Ghoshal [22] define identification as the process whereby individuals see themselves as one with another person or group of people. Identification reflects individual identification with a community or network, such as senses of belongingness and attachment. Both commitment and identification deal with the similar phenomenon of sense of attachment to a community or network, and the dynamics that influence a member's behavior within the community or network. Identification requires individual members to maintain an active relationship with other members [39]. Chiu et al [8] interprets identification as an individual's sense of belonging and positive feeling toward a virtual community.

Nahapiet and Ghosal [22] found that emotional identification fosters loyalty and citizenship behaviors in the group setting. Shen et al [28] and Zhou [39] found that an individual's intention of participation in online community is affected by

identification. This leads to the following hypothesis:

Hypothesis 6. Identification is positively related to the knowledge sharing.

The social exchange theory distinguishes social exchange and economic exchange since social exchange entails unspecified obligations. Although an exchange intrinsically entails reciprocation, a social exchange involves favors with a general expectation of a future return. The social norm of reciprocity is a sense of mutual indebtedness so that individuals reciprocate by returning equivalent benefits they receive from others. In a community or network, when a member perceives that a norm of reciprocity governs the knowledge sharing within the community or network, they trust that their valuable knowledge sharing will be reciprocated in the future.

The norm of reciprocity can serve as a motivating mechanism for the cooperative behavior required for community or network members. Previous researches indicated that knowledge sharing was facilitated by a strong sense of reciprocity [7]. Wang and Fesenmaier [34] found that the reciprocity norm motivates knowledge sharing in online communities. Wasko and Faraj [33] suggested that individuals who share knowledge in NoP believe in reciprocity. This leads to the following hypothesis:

Hypothesis 7. Norm of reciprocity is positively related to the knowledge sharing.

(c) Cognitive Capital

The cognitive dimension of social capital refers to those resources providing shared interpretations and systems of meaning among members [22]. This dimension of social capital captures the essence of the public good aspect of social capital [30]. Cognitive social capital is created through communicative language, narratives, and codes. They influence perceptions of meaning and reality in relationships. Nahapiet and Ghoshal [22] maintain that meaningful communication requires some sharing of context between the parties. They identify two ways of sharing: shared language and sharing of collective narratives (i.e., shared vision).

Nahapiet and Ghoshal [22] maintain that shared language has a direct and important function in social relations. To the extent that people share a common language, this facilitates their ability to gain access to people and their knowledge. Shared language is essential to learning in virtual communities [8]. It provides an avenue in which participants understand each other and build common vocabularies in their domains. Accordingly, shared language will help motivate the participants to actively involve in knowledge sharing. This leads to the following hypothesis:

Hypothesis 8. Shared language is positively related to the knowledge sharing.

A shared vision or shared code facilitates a common understanding of common goals and proper ways of acting in a social system [30]. The shared vision through the collective goals helps members to see the potential value of their resource exchange. Tsai and Ghoshal [30] found that shared vision has a significant effect on knowledge exchange. The shared vision will help members to actively participate in knowledge exchange. This leads to the following hypothesis:

Hypothesis 9. Shared vision is positively related to the knowledge sharing.

(3) Technology acceptance theory

The technology acceptance theory addresses the issues of how users come to acceptance and use of a technology and is used to predict an individual's intention to use and acceptance of an information system or information technology. The technology acceptance theory suggests two determinants that positively impact the acceptance of a technology: perceived usefulness and perceived ease of use [10, 11]. Perceived enjoyment is added later as another important construct related to beliefs of the user [11]. The technology acceptance theory has been integrated with other theories in search of identifying factors determining participation for knowledge sharing through blog community [14, 25].

Individuals adopt technology because they derive some benefits from its use. A plausible reason is that individuals will use technologies only if they perceive that such usage would help them to achieve the desired task performance. Perceived usefulness is the perception of individuals on their performance when they use a technology. Perceived usefulness is attributed to extrinsic motivation, which refers to an individual's involvement in an activity as something that is perceived to be instrumental in achieving valued outcomes [11].

Previous research has found that perceived usefulness has a strong and consistent relationship with the use of a technology [10, 11]. Perceived usefulness is positively related to Internet use [31]. This leads to the following hypothesis:

Hypothesis 10. Perceived usefulness is positively related to the knowledge sharing using Facebook.

Perceived ease of use is defined as the degree to which an individual believes that using a technology is free of effort. In general, if a technology is easy to use, it requires less effort on the part of users, thereby increasing the likelihood of its adoption and usage. Perceived ease of use is attributed to intrinsic motivation, which refers to doing something because it is inherently enjoyable or interesting [11].

Perceived ease of use has been found to influence computer technology usage directly [10, 11]. It is confirmed that perceived ease of use is positively related to Internet use [31]. Hsu and Lin [14] found that perceived ease of use is important for blog usage. This leads to the following hypothesis:

Hypothesis 11. Perceived ease of use is positively related to the knowledge sharing using Facebook.

Individuals may engage in a particular activity if it yields fun and enjoyment. This implies that individuals may adopt a technology because its use is enjoyable. Perceived enjoyment is defined as the extent to which the activity of using a technology is perceived to be enjoyable in its own right, apart from any associated performance consequences [11].

Perceived enjoyment is supported in Internet use [23, 31] found that fun is the most motivating factor for active participants of Wikipedia. Perceived enjoyment is found to have a significant effect on the use of blog [14, 17, 25]. Chen [6] confirms that the positive influence of perceived enjoyment on the use of SNS. SNS allows individuals to interact with others, exchange knowledge, and participate in groups and events. Thus, the use of SNS is hedonic as users experience fun and entertainment. This leads to the following hypothesis:

Hypothesis 12. Perceived enjoyment is positively related to the knowledge sharing using Facebook.

3.4 Research Methodology

Our continuing research will empirically test the model. All the measurement items in the study will be adapted from prior researches with minor refinements to fit the research context. In this study the terms knowledge and information are used interchangeably, as there is not much practical utility in distinguishing them [35]. Data for the empirical test will be gathered through a web-based survey from an sNoP in Korea. The results will be analyzed and discussed in a scientific manner.

The survey will be conducted to the members of the ‘I Love Semantics (ILS)’. ILS is an sNoP whose members primarily are in the field of IT related business and academics in Korea. ILS uses Facebook to establish more as a platform of an sNoP rather than as a general social network. In sum, ILS is a social network whose members are primarily interested in the technology of Semantic Web.

3.5 Conclusion

In this research-in-progress paper, a research model was proposed in order to investigate factors affecting the participation of professionals in knowledge sharing through an sNoP. This paper is expected to contribute from both theoretical and practical perspectives. This study is likely to be the first empirical study on an sNoP. Secondly, this study adopts a holistic theoretical perspective with which to examine the determinants of the success and sustainability of sNoP. This study will also allow organizations to better understand which factors are important and require attention when managing employees who participate in sNoP.

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