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Integrating social networking support for dyadic knowledge exchange: A study in a virtual community of practice

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ABSTRACT

Virtual community of practice (VCoP) is an important form of knowledge management systems. Would the integration of social networking support into traditional forum-based VCoP benefit knowledge exchange in the community? If so, why? Based on social capital theory and transactive memory system research, this study suggests that social networking support will enhance knowledge exchange in VCoP. In a field study, this study found that social networking support intensifies dyadic knowledge exchange among friends and reduces the probability that dyads stop knowledge exchange. These findings empirically confirm the effect of social networking support integration in VCoP, offering an investment justification for practitioners.

1. Introduction

Typical employees spend one third of their time looking for information [19]. Managers spend up to 2 h a day on this activity [2]. Facilitating knowledge seeking and sharing is an important element in boosting productivity. Various knowledge management systems (KMS) have been deployed in organizations to support the capturing, storage, and exchange of knowledge [55]. However, the usage of KMS often sees only limited success, plagued by problems such as low knowledge contribution intention [31], low usage [27], and a cold environment where the interpersonal relationship between knowledge sharers and seekers is difficult to maintain [55].

Although it is well known that interpersonal relationships are an integral part of knowledge management, how to boost interpersonal relationships in KMS remains a challenge. As observed by [28], seekers do not rely on the documents in KMS but use KMS as a means to locate experts for offline interaction because KMS do not satisfy their needs to build a closer relationship [55]. Even when an expert directory is available in KMS, users still fret over "bothering the experts" [3] because their relationship with the expert is not close enough to overcome various concerns.

To address these challenges, [55] suggested there is a need to build "relational knowledge management systems," whereby the management of interpersonal relationships is well supported along with content management. Online social networking, a prevailing technology available today, is considered as an effective mechanism to instill relationship management into KMS. Although some organizations have already adopted this practice, including IBM, Ford [22], and Caterpillar [42], many are still lagging behind.

Does the integration of social networking support really help knowledge exchange? Unfortunately, there is very little empirical evidence in the literature. Past research on knowledge management has uncovered various motivational, social–psychological, and environmental factors in knowledge sharing [31] and seeking [4,53], but there is a scarcity of research that investigates the effect of technological mechanisms, particularly online social networking support, on knowledge exchange.

We define knowledge exchange as the dyadic knowledge sharing and seeking between VCoP members. We differentiate knowledge exchange from knowledge sharing. Knowledge sharing can be one-way, whereas knowledge exchange indicates a reciprocal relationship. Knowledge sharing can occur in a

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broadcast fashion [56], whereas knowledge exchange occurs at dyadic level, although others can observe such exchanges. Knowledge exchange is a component of knowledge sharing. This study focuses on dyadic exchanges because this study is theoretically based on an interpersonal perspective, and the notion of dyadic exchange aligns with this perspective.

To address the research gap, this study seeks to (1) provide a theoretical justification of why online social networks boost knowledge exchange and (2) provide a field study to empirically verify the effect of social networking support on knowledge exchange in the context of virtual community of practice (VCoP). Drawing on social capital theory [40] and the transactive memory system research [30,52], we propose that the integration of social networks and KMS brings about three benefits. (1) It makes strangers in the community start sharing. (2) It makes weak ties in the community share more frequently. (3) It makes sharing relationships less likely to break up. These three benefits represent a comprehensive set of criteria to evaluate the knowledge exchange outcomes of system integration. We collected second-hand data from a large VCoP before and after its implementation of social networking functions. Our results support the effectiveness of integration on all three criteria.

The primary contributions of this study are as follows. First, we propose a set of dyadic behavioral measures that captures the birth rate, intensity, and death rate of dyadic knowledge exchange. Second, whereas past literature has suggested the effects of social factors on knowledge sharing [9,10,12,14,51], this study investigates the effect of an actual social technology that supports relationship management, particularly social networking support. Finally, whereas past literature has investigated individual knowledge sharing intention and behavior, this study takes a dyad as unit of analysis and looks into the dyadic behavior of knowledge exchange. Dyadic behavior outcomes are more direct measures of community outcomes than are individual behavior outcomes.

The paper is organized as follows. First, we review the literature on knowledge sharing and virtual community of practice. We then propose our hypotheses of the effectiveness of social networking integration in KMS based on social capital and transactive memory system literature. After that, we report our empirical study, which is followed by discussion and implications.

2. Conceptual background

2.1. Virtual community of practice

In the age of Web 2.0, users not only receive knowledge online but also create and transmit content. A VCoP is such an online community for like-minded individuals in geographically dispersed areas [23]. A VCoP is an emergent online community where professionals in an industry share and seek knowledge related to their practice [29]. In accordance with the characteristics of a conventional community of practice, it is a place where a rich shared repertoire community identity (i.e., common interest, theme, organization) and individual member identity (i.e., moderators, experts) are developed through social interactions. Different from online commonplaces, a VCoP is "as much a space for knowledge creation as for knowledge sharing" [56]. For example, StackExchange is a VCoP where programmers create and exchange coding knowledge. VCoPs are particularly celebrated for the generation and dissemination of tacit knowledge.

VCoPs leverage various information technologies for knowledge sharing, including blogs, wikis, forums, chat rooms, and question-and-answer systems [38]. A typical technological infrastructure of VCoP is the forum, whereby content is organized into topics, and topics comprise threads that include posts and discussions raised by these posts. Members typically post information to a suitable thread, and other members can respond to or comment on the post. In this study, by default, we refer to forum-based VCoP. Although popular forum software such as Discuz!, vBulletin, and Webcrossing traditionally did not support social networking, some have incorporated social networking in recent years. For example, Discuz! incorporated social networking in 2010; as a result, many VCoPs based on Discuz! now have social networking support in addition to the traditional forum functions.

Similar to other KMS, VCoPs face the challenge of knowledge sharing. Dixon [21] noted that "build it and they will come" is hardly the truth for knowledge sharing. First, with no offline communication, the relationship between members in VCoPs is inevitably more fragile than in traditional organizations [29]. These weak ties discourage voluntary participation and hence fail to stimulate individuals to share knowledge [13]. Furthermore, [24] proposed ten reasons why people do not share knowledge in VCoPs. Particularly, they are not motivated to share and do not see the personal benefits of sharing. On the one hand, participants fear losing superiority and ownership of knowledge [47]. On the other hand, there is a considerable codification effort even if one is willing to share [31]. These and other reasons scare individuals away from knowledge sharing in VCoPs [8]. Consequently, even after initial acceptance, most VCoPs suffer from alack of continuous member participation, which threatens their eventual success [10].

2.2. Knowledge exchange in VCoPs

Knowledge creation and exchange are identified as hallmarks of VCoPs [56]. Typical knowledge creation activities in VCoPs include writing initial and creative posts and providing constructive comments to a discussion. Knowledge exchange typically occurs in the form of question-and-answer [56]. Another typical form is post-and-comment. An initial post is often detailed, and a comment is often brief. However, a comment, even a brief one, shall not be dismissed as having no value. Cross and Sproull [18] found that actionable knowledge includes an indication of (dis)confirmation, approval, or support. Therefore, both a comment with technical content and a comment that indicates support and confirmation are knowledge exchanges. The knowledge exchange process is also a part of the knowledge creation process. The discussion among members, including approvals and disapprovals, manifests a knowledge co-creation process that is beyond individual creativity.

It is important to understand the underlying motivation for knowledge exchange. Numerous studies have investigated the antecedents of knowledge sharing behavior in the context of VCoPs from various theoretical perspectives. For instance, Chiu et al. [12] examined knowledge contribution in VCoPs from social capital theory perspective. They identified individual motivational factors (i.e., reputation, enjoying helping), structural capital (i.e., social interaction ties), cognitive capital (i.e., shared vision and shared language), and relational capital (i.e., trust, norm of reciprocity, identification) as significant motivators of knowledge sharing. Based on social cognitive theory and social exchange theory, Chen and Hung [11] identified reciprocity, interpersonal trust, self-efficacy, and perceived relative advantage as significant factors for knowledge sharing behaviors in professional virtual communities. Appendix A summarizes relevant research on knowledge sharing in VCoPs and the major antecedents identified.

The literature reveals that the antecedents for knowledge sharing in VCoP can be grouped into three categories, i.e., social factors, cognitive factors, and technical factors. Social factors pertain to the relational motivations and intrinsic motivations in knowledge sharing. Individual motivators include altruism, reputation, identification, and commitment [9,12,14,23,51], and relational factors include social interactions, trust, reciprocity, and justice [6,9,11,13,23]. Cognitive factors pertain to the factors that