Social Capital and Knowledge Sharing in Virtual Communities

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ABSTRACT

Virtual communities of special interests are computer-mediated forums that enable individuals to exchange experiences, solve practical problems, and generate new ideas with others of common interests. However, why individuals are willing to share their knowledge with others in virtual communities is not well understood. In this study, we examine how social capital influences individuals' knowledge sharing in computer programming forums by empirically testing a theoretical model. The results show that people will share their knowledge in virtual communities when the knowledge sharing enhances their social network. These findings should help organizations to provide effective virtual communities by clarifying the dynamics of knowledge sharing in virtual communities, allowing managers to nurture effective ones to further the knowledge creation of organizations.

INTRODUCTION

In a knowledge-intensive organization, efficient knowledge management is a crucial ingredient of success (Huysman and Wulf, 2004). Van den Hooff et al. (2004) conducted a study showing that knowledge sharing was a key issue in determining the performance of knowledge management in many organizations. On the Internet, many computer programmers have developed and voluntarily shared their works through discussion in programming forums and news groups. However, ignoring social conditions is one of the key causes of ineffective usage of knowledge management tools (Huysman, 2004). Therefore, understanding social factors that cause knowledge sharing in virtual communities may help organizations to fortify their managerial approach towards knowledge. Nahapiet and Ghoshal (1998) applied social capital in creation of new intellectual capital, which involves the combination and exchange of knowledge within organizations. This study adopts the concept of social capital to examine why individuals are willing to share knowledge in virtual communities. This research focuses on and examines the relationships between social capital and knowledge sharing by empirically testing a theoretical model using a Web questionnaire to survey members of professional computer programming forums.

LITERATURE REVIEW

Social Capital in Virtual Community

Social capital is an investment in social relationships. Social capital allows members, who are identified as members in a society or community, to access resources unavailable to nonmembers, and also to accumulate resources from members (Huysman and Wulf, 2004). A virtual community is one which adopts Internet technology for its platform and is unbounded by geographic constraints. In the virtual community context, Wasko and Faraj (2004) stated that connecting to virtual communities was an approach to access external resources from wider sources. Wellman and Gulia (1996) asserted that virtual communities had developed their own norm and structure as a social network.

However, some researchers suggest that lack of physical interaction, shared history and kinship solidarity poses difficult in developing social capital (Wasko and Faraj, 2005; Nahapiet and Ghoshal, 1998). There are four forms of social capital discussed in this paper.

Identity

Through interaction and participation, members create a collective sense that separates them from nonmembers (Wellman and Gulia, 1999). The salient group identification increases the opportunity of information exchange as well as frequency of cooperation. Therefore, the sense of identity in community influences exchange of knowledge and information (Nahapiet and Ghoshal, 1998). Thus, the first hypothesis in this study is as follows:

H1: Group identity positively influences knowledge sharing in the virtual community.

Trust

Trust might be necessary for people to work together and share knowledge. It could enable people to believe their partners will do their obligation to provide resources and complete their work (Lang, 2004). If the relationship has a high trust factor, people are more likely to engage in social exchange, particularly in cooperative interaction (Nahapiet and Ghoshal, 1998). Thus, the second hypothesis in this study is as follows:

H2: Trust positively influences knowledge sharing in the virtual community.

Shared Norm

Norm represents the degree of consensus in a society. Portes (1998) and Putnam (1993) suggest that norm generates reciprocity. However, Wasko and Faraj (2005) found that knowledge contributors would not expect the reciprocity of their help when there was a lack of shared history, high interdependence, frequent interaction or co-presence. Thus, the third hypothesis in this study is as follows:

H3: Shared norm positively influences knowledge sharing in the virtual community.
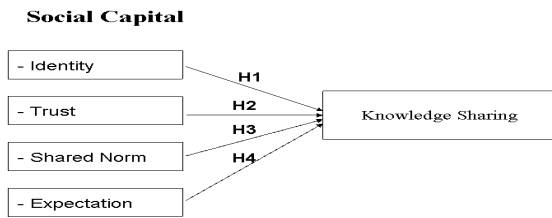
Expectation

When people have had a good experience with virtual communities, they will expect a good experience with the next community. Wasko and Faraj (2005) found that when an expert helps others, they expect no reciprocity. Participants of online forums both offer help and receive help from others they do not know. Thus, the forth hypothesis in this study is as follows:

H4: Expectation positively influences knowledge sharing in the virtual community.

The research model is show in Figure 1.

Figure 1. Research model

Figure 2. Representative model of the causal relationship between social capital and knowledge sharing

* p<0.05   GFI = 0.94; NFI = 0.93; CFI = 0.99; NNFI=0.98; SRMR= 0.046

METHODOLOGY

The target population was participants in professional forums. Four forums were selected from Google Members of Codeguru (157,524 members), GIDForums (6,235 members), Coding Forums (7,299 members), and MacRumors (64,134 members) were invited to fill out an online questionnaire.

According to previously published researches, the measurement of identity and trust were developed from the work of Wasko and Faraj (2005); the social norm measurement were developed from the work of Bock et, al. (2005); the expectation measurement were developed from the work of Hoegl et al (2003) and Wasko and Faraj (2005); the knowledge sharing measurement were developed from the work of Bock et. al. (2005) and Wasko and Faraj (2005). The measurement had adjusted several times to fit this research with a pilot study. The five-point Likert scale was used for self-reporting, and the response's range from 1="Strong disagree" to 5="Strong agree". The reliability of identity were 0.888 (Cronbach's Alpha), 0.667 for trust and 1.000 for shared norm and expectation. The results of measurement assessment are shown in Table 1. As shown in Table 2, all factor loadings exceeded 0.5, which indicates acceptability (Fornell and Larcker, 1981). The t-value shows that all measurements above 1.96 (Table 1) have statistic meaning (Huang, 2003).

In this study, we collected 201 responses based on snowball sampling method (Thompson et al, 2002). We encouraged members of forums to fill up the questionnaire and also forward this hyperlink to someone they know and meet to our sample condition by email, instant messenger or posting on author participating forums.

There are several research limitations that should be addressed. A sample frame was not possible to obtain in the virtual community and the return rate was difficult to measure in this study. The samples obtained in this study might not be representative of the whole population of a particular virtual community. Moreover, due to social capital theory is a new theory to apply to virtual communities, the factors of social capital adopted in this study might be merely a subset of all social capital factors and thus may not represent all social capital factors in the virtual community.
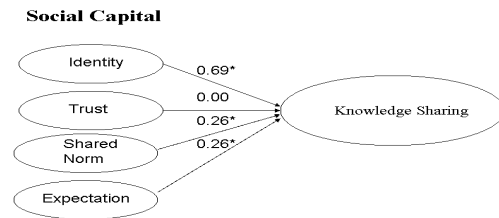
RESULTS

The theoretical model and hypothesized relationship were estimated using Structural Equation Model (SEM) by LISREL 8.52 (Joreskog and

Sorbom, 2002). SPSS 13.0 was adopted to perform additional statistics analyses.

The diagram of relationships of the model as well as its indicators of goodness of fit is shown in Figure 2. As it can be seen, the analysis of the model indicates a good level of fit. All the indicators of goodness of fit significantly exceed values they recommended. The assessment of standardized parameters showed that identity had a positive influence on knowledge sharing (H1) (β = 0.69, p<0.05); shared norm had a positive influence on knowledge sharing (H3) (β = 0.26, p<0.05); and expectation had a positive influence on knowledge sharing (H4) (β = 0.26, p<0.05). Although an individual's trust had a significant correlation with knowledge sharing, trust was not significant in the overall model (H2) (β = 0.00, p<0.05).

DISCUSSION AND CONCLUSION

Analysis indicated that identity plays an important role on knowledge sharing. The influence of shared norm on knowledge sharing was shown to be significant, consistent with the spirit of flourishing sharing behavior in the Internet community. As Coleman (1990) suggested, when a norm was developed in a social space, actors will behave according to the expectations of the society. The influence of expectation on knowledge sharing was shown to be significant, which supported that participants of computer programming forums expected help from others as a result of sharing their knowledge (Wasko and Faraj, 2005).

One interesting finding of this study was about the lack of significant influence of trust on knowledge sharing. From a theoretical perspective, trust enables partners to believe each other and obligates them sharing knowledge (Lang, 2004). However, data collected from our participants disagrees with this hypothesis. Moreover, prior research discussed that participants often played anonymous role in the world of the Internet (Wiszniewski and Coyne, 2002 reference??). This situation may lead to a weaker connection between trust and knowledge sharing. Therefore, the influence of trust on sharing knowledge in virtual communities presents a fertile ground for future research.

This study provided a better understanding of social capital of Internet users' knowledge sharing in a virtual community. Participation and commitment among members (group identity) and social network extension through cooperation within a virtual community (expectation) influence an individual's knowledge sharing. Individual participation in such virtual communities extends employees' knowledge and therefore benefits the organization. Therefore, we suggest that organisations should encourage team members to build relationships and to extend their individual networks in order to accumulate social capital that leads to access to external valuable resources.

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Table 1. Result of factor loading and path analysis

Latent Variable	Measurement	Factor Loading	Coefficients	t-value
Identity	Identity 1	0.79	0.70	8.91
	Identity 2	0.88	0.90	8.81
	Identity 3	0.79	0.70	8.91
	Identity 4	0.88	0.90	8.81
Trust	Trust 1	0.73	0.34	5.10
	Trust 2	0.57	0.37	4.50
	Trust 3	0.58	0.28	3.74
	Trust 4	0.79	0.59	5.50
Shared Norm	Shared Norm 1	0.95	0.88	9.17
	Shared Norm 2	0.95	0.88	9.17
Expectation	Expectation 1	0.78	0.84	10.36
	Expectation 2	0.77	0.84	10.36

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