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# Knowledge sharing in virtual communities: an e-business perspective

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## Abstract

Thanks to availability of the Internet, virtual communities are proliferating at an unprecedented rate. In-depth understanding of virtual community dynamics can help us to address critical organizational and information systems issues such as communities-of-practice, virtual collaboration, and knowledge management. In this article, we develop a virtual community activity framework, integrating community knowledge sharing activity into business activities in the form of an e-business model. We examine how the level of community knowledge sharing activity leads to virtual community outcomes and whether such community outcomes are related to loyalty toward the virtual community service provider. Based on a field survey of 77 virtual communities currently operating in Freechal.com, one of Korea's largest Internet community service providers, we found that the level of community knowledge sharing activity is related to virtual community outcomes and such outcomes are significantly associated with loyalty to the virtual community service provider. These results imply that the level of community knowledge sharing activity may be a proper proxy for the state of health of a virtual community. Implications of the findings and future virtual community research directions are discussed.

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## 1. Introduction

Owing to the limits of IT-driven knowledge management for interactive innovation processes, a community-based approach has been alternatively spotlighted (Swan, Newell, & Robertson, 2000). Among a variety of approaches to knowledge management in organizations (Choi & Lee, 2002; Lee & Kim, 2001; Wiig, Hoog, & Spek, 1997), the community-based approach has been considered as one of the most effective tools for knowledge creation and transfer (Brown & Duguid, 1991; Wegner & Synder, 2000). The approach emphasizes dialogue through social networks (person-to-person contact) (Swan et al., 2000), and helps to informally share knowledge which is obtained from experienced and skilled people (Jordan & Jones, 1997).

As the Internet revolution has evoked an unprecedented proliferation of virtual communities all over the world (Fernback, 1999; Hiltz & Wellman, 1997), exchanging information and knowledge inside virtual communities rapidly has dramatically changed our lives. Now information and knowledge are often sent directly from member

to member and any member is able to disseminate information electronically without hierarchical channels (Alavi & Leidner, 2001; Larsen & McInerney, 2002; Liebowitz, 1999). A virtual community may be understood as one of the knowledge community types via computer-mediated communications (CMC). On the commercial front, the most successful e-commerce initiatives turn out to be the community-based ones such as Internet auction or group purchasing. For instance, eBay has established an Internet auction community of 16 million registered members as of January 2001 (Sinclair, 2001) and outperforms virtually every type of e-commerce rival. On the non-commercial front, growth of Internet community service providers worldwide has been phenomenal. The [ilove-school.co.kr](http://ilove-school.co.kr), an on-line alumni association support site in Korea, attracted 7 million members in 12 months (Jan 2000–Jan 2001) and, as of July 2002, is hosting about 1 million virtual communities. The websites such as [geocities.com](http://geocities.com) or [iloveschool.co.kr](http://iloveschool.co.kr) are also trying to develop various community-based business models.

What implications does this unprecedented growth of virtual communities have on the information systems (IS) community? First, understanding of virtual community dynamics may facilitate virtual collaboration among

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organizations across their organizational boundaries (Butler, 2001; Espinosa, Cummings, Wilson, & Pearce, 2003; Finholt & Sproull, 1990; Scott, 2000). Secondly, transforming the traditional off-line communities-of-practice (CoPs) (Brown & Duguid, 1991; Wegner & Synder, 2000) into on-line virtual communities will greatly improve their community scope (within-site  $\Rightarrow$  inter-site), interaction efficiency (face to face communications  $\Rightarrow$  on-line, multimedia communications), and sharing of critical information and knowledge (physical documents  $\Rightarrow$  on-line repository) (Abbott, 1988; Kim, Yu, & Lee, 2003; Scott, 2000). Lastly, changing our views of an organization from a hierarchy of command and control into a network of competency-based virtual communities will lead us to a radically different set of organizational design options (Lee & Kim, 2001; Miles, Miles, Perrone, & Edvinsson, 1998; Wiig et al., 1997). Sometimes, this may take the form of Nonaka's (1994) *hyper-text organization* where critical organizational knowledge is created through multiple modes and media of interaction among individuals and groups across departmental boundaries and management levels. In the cases of firms such as Dell Computer and Cisco Systems, this has been materialized through their extremely well-maintained global supplier and customer community networks (Patel, 2002). By transforming suppliers and customers into their corporate community members, Dell and Cisco have been able to exchange valuable information and knowledge with them while, using the same Electronic Data Interchange (EDI) connection, other firms are processing orders and invoices (Kraemer & Dedrick, 2002; Magretta, 1998).

Despite the virtual communities' explosive growth and non-trivial implications for the IS community, virtual community service providers (e.g. [geocities.com](http://geocities.com)) that mainly focus on offering to users their websites as the place to build virtual communities for knowledge sharing are searching for their unique profitable business models. In Korea, major virtual community providers including the well-known site Daum communications (<http://www.daum.net>), try to develop various profitable strategies such as selling avatars, cyber characters that symbolize a community member's identity in cyberspace, or charging a community service fee. As the potential profits of the Internet services for the virtual community providers are being spotlighted, the link between the level of community knowledge sharing activity and loyalty toward the community service provider is stimulating the curiosity of IS researchers as well as practitioners. Whether virtual community services are profitable for the community providers is still in question although Hagel and Armstrong (1997) and more recently Rothaermel and Sugiyama (2001) suggested the revenue potential of virtual communities. In fact, many community service providers (portals) are hesitating to invest their money in nurturing their communities owing to the lack of assurance that community activation or knowledge sharing activity will finally lead to

a profit. In this study, we intend to examine whether the level of community knowledge sharing activity predicts a community service provider's outcomes (e.g. loyalty) as well as the virtual community's outcomes. More specifically, we ask:

- Is the level of community knowledge sharing activity associated with virtual community outcomes such as community participation or community promotion?
- Is community knowledge sharing activity or community stimulation really meaningful to virtual community service providers? Are virtual community outcomes related to loyalty toward the virtual community service provider?

Section 2 reviews the literature on the definitions of virtual community, virtual community activity for knowledge sharing, and the business value of virtual communities. In Section 3, we introduce the research model and related hypotheses of the study. Data collection and analysis methods are described in Section 4. In Section 5, we report the results of the statistical tests of the given hypotheses. Finally, in Sections 6 and 7, we discuss our findings and implications as well as the limitations of the study.

## 2. Conceptual background

### 2.1. Virtual community

A community is mainly characterized by the relational interaction or the social ties that draw people together (Heller, 1989). A community can also be seen as a group where individuals come together based on an obligation to one another or as a group where individuals come together for a shared purpose (Rothaermel & Sugiyama, 2001). Gusfield (1975) distinguished between two kinds of communities. The first is the traditional territorial or geographic community. In this sense, community refers to a neighborhood, town, or region, thus sense of community implies the sense of belongingness to a specific spatial setting (Obst, Zinkiewicz, & Smith, 2002). The second is a relational community, concerned with human relationship without reference to location. For example, there are communities of interest such as hobby clubs, religious groups, or fan clubs. These two types of communities are not necessarily mutually exclusive; many interest groups can also be location-based communities. Most of the communities sprouting in the Internet, called virtual communities, seem to fall under the definition of relational community since their members are not physically bound together (Wellman & Gulia, 1999). However, instead of just exchanging e-mail messages, members of a virtual community actively interact with each other for knowledge sharing on a specific site in cyberspace, thus displaying the same kind of emotional attachment to their site as people do towards their physical

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