

## Chapter 1.5

# Computer–Mediated Knowledge Sharing

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### ABSTRACT

Computer-mediated communication has become the foremost means of sharing knowledge in today's knowledge-based economy. However, not all Internet-based knowledge-sharing channels are created equal: they differ in their effectiveness when used for exchanging knowledge. A number of factors influence the efficacies of knowledge exchange, including: (1) characteristics of the knowledge being exchanged and, (2) characteristics of the channels used. It is therefore necessary to define key knowledge and channel attributes in order to understand how knowledge can be effectively shared using computers. This chapter examines the computer-mediated knowledge sharing mechanisms and proposes a typology based on media richness and social presence characteristics that can serve as a preliminary conceptual basis to select the most appropriate channel. The chapter concludes with a discussion of key issues and future research directions. While much

of the research has been done in organizational settings, the chapter is applicable to all forms of computer-mediated communication.

### INTRODUCTION

Computer-mediated communication may be defined as “communication that takes place between human beings via the instrumentality of computers” (Herring, 1996, p. 1). Computer-mediated knowledge sharing makes use of a number of computer-based channels, where a channel is defined as the specific technological application or tool used to communicate. The means of computer-mediated communication we have at our disposal today are much more diverse than just a decade or so ago. From the original e-mail and Usenet messages of the mid-1980s, communication channels have expanded to include, among others:

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- E-mails, listservs, and mailing lists
- Newsgroups, bulletin boards, personal homepages, and blogs
- Internet relay chat and instant messaging
- Collaborative workspaces such as wikis
- Streaming media such as Web cams, Web casts, podcasts, or Youtube
- Business teleconferencing, videoconferencing
- Internet commerce, for example, iTunes to purchase and download music
- Voice over Internet such as Skype, and
- Collaborative or Web-based learning (e.g., Kreijns, Kirschner, & Jochems, 2003).

Knowledge sharing is no longer constrained by synchronous on-site face-to-face meetings. Furthermore, new tools continue to emerge such as synchronous broadcast messaging. Wiesz et al. (2006) describe the IBM Community Tools, a computer-mediated communications system used to broadcast instant messages within IBM. The most common form of broadcast is an invitation to a group chat (called a "FreeJam"). "Jamming" continues to be a popular and frequently used application, and the feature most valued by users, due to its immediacy. The speed with which questions can be answered, and problems can be solved, provided valuable boosts to productivity of all community members.

Boase et al. (Boase, Horrigan, Wellman, & Rainie, 2006) purport that computer-mediated communication, such as the Internet, is rapidly becoming seamlessly integrated with other knowledge-sharing channels such as the telephone and face-to-face exchanges. They report the phenomenon of "media multiplicity"; the more people see each other in person and talk on the phone, the more they use the Internet. This suggests interconnectedness and an embedding of new channels within existing channels. The Internet is contributing to this trend by moving society towards "networked individualism" by allowing people not only to socialize online, but

also to link up with more knowledgeable peers and experts to make better decisions.

Computer-mediated communication has evolved into person-to-person connections (much like the cell phone transformed calling a physical place to calling a specific individual, regardless of their physical location). Computer-mediated knowledge sharing thus appears not only to help people find answers to questions and work together, but also to cultivate or maintain the online social networks that people have become a part of. The communication channels provide an easy means of reaching out to tap into this form of "social capital" in both professional and personal contexts (Field, 2004). Social capital is an important form of intellectual capital (or knowledge resource) that encompasses the value of networks and the value inherent in the movement or sharing of knowledge with others in the network.

It is therefore quite important to better understand the factors that affect computer-mediated knowledge sharing. Following a review of the literature from such diverse disciplines as educational technology, computer-mediated communication, human-computer interaction, library and information studies, and knowledge management, a number of critical factors that impact the effectiveness of knowledge sharing can be identified, namely:

- The type of channel (e.g., e-mail), the mode of communication it enables (e.g., text, audio, etc.) together with the degree of social presence possible (the perception of being in communication with another individual, for example, facial expressions, tone of voice etc.), and the degree of media richness (interactivity, immediacy, cues);
- The characteristics of knowledge (stickiness vs. leakiness);
- The characteristics of the participants (gender, age, number, one-to-one, many-to-many, degree of Internet literacy);

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