

Chapter IX

Knowledge Exchange in Electronic Networks of Practice: An Examination of Knowledge Types and Knowledge Flows

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ABSTRACT

This study examines knowledge exchange in a worldwide, extra-organizational, Usenet-based electronic network of practice. Participation in such networks is voluntary, globally distributed, and network participants generally do not have personal or organizational ties. The purpose of the study was to investigate two questions: first, what type of knowledge is being transferred in these networks, and second, how is knowledge transferred across individuals in electronic networks. To address these questions, we observed and saved all messages posted to comp.lang.C++ for a period of 7 weeks. Our analyses include content analysis of 1,562 messages, survey responses from 593 participants, and objective data from the electronic message postings. The study illuminates how people use computer-mediated communication to support knowledge transfer, the types of knowledge transferred, as well as how knowledge flows in this network.

INTRODUCTION

Recent advances in information and communication technologies have led to the emergence of virtual social spaces where individuals self-

organize electronically to discuss and debate issues based on shared interests. Internet-based technologies have enabled the development of thousands of freestanding open-membership forums focused on discussing the problems of

practice (Butler, 2001; Sproull & Faraj, 1995). In these networks, an unlimited number of geographically dispersed individuals who come from diverse organizational, national, and demographic backgrounds (Sproull & Faraj, 1995) are able to share knowledge by helping each other solve problems, telling stories of personal experiences, and debating issues relevant to the network (Wasko & Faraj, 2000). An enduring characteristic of these networks is the propensity of individuals to provide their valuable knowledge and insights to strangers (Kollock and Smith, 1996; Rheingold, 1993; Wasko & Faraj, 2000). Individuals benefit from these networks since they gain access to new information, expertise, and ideas that are often not available locally.

We refer to these informal electronic communication networks as “electronic networks of practice” or ENoPs. Following Brown and Duguid (2000) in their use of the term “networks of practice,” we add the term “electronic” to highlight that communication within this type of network of practice occurs through asynchronous computer-based communication technologies, such as bulletin boards, listservs, and Usenet newsgroups. We define an electronic network of practice as a self-organizing, open, activity system focused on practice that exists through electronic communication. These defining characteristics have some unique technical and social features that influence how knowledge is created and exchanged. Conceptually, electronic networks of practice share characteristics with virtual teams, communities of practice, and networks of practice. They share with virtual teams a distributed membership and reliance on computer networks to bridge distance and time. However, an electronic network of practice differs from virtual teams in that there is no established performance goal or recognized end point. In electronic networks of practice, participation is voluntary, and its form left entirely to the individual. In contrast, in most virtual teams, membership is controlled; it is either assigned or approved by some authority. Additionally, an

electronic network of practice is self-organizing in the sense that no organizational mandate or sponsorship is required for its sustenance.

An electronic network of practice shares with a community of practice the focus on shared practice, learning, and joint problem solving. However, participants in an electronic network of practice typically do not share a common geographic and organizational setting, and these networks can become extremely large due to their open worldwide membership and reliance on electronic communication technology. Such networks differ from communities of practice in that their members are typically strangers and do not share a common organizational or geographical setting. Communities of practice are characterized by strong personal ties and reciprocal interactions related to mutual engagement, mentoring, and learning (Orr, 1996; Wenger 1998). In contrast, electronic networks of practice are characterized by weak electronic ties that connect strangers worldwide, and interactions are limited by the technological infrastructure.

Electronic networks of practice are similar to what Brown and Duguid (2000, 2001) refer to as networks of practice. Individuals in networks of practice have practice and knowledge in common, but individuals may never get to know one another. Knowledge flows through newsletters, Web sites, meetings, and professional conferences. As a result, exchanges tend to be highly reliant on text representations of knowledge, which also holds true for electronic networks of practice. However, electronic networks of practice differ in that they exist primarily through computer-mediated, asynchronous exchange. Communication between members occurs through message threads, which resemble conversations, rather than static documentation.

Electronic networks of practice play an important role in the transfer of knowledge. For example, electronic networks are supporting distributed R&D efforts (Ahuja et al., 2003; Orlikowski et al., 1995) and enabling cooperation around open

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