ABSTRACT

Knowledge management is often associated with the need for change and related shifts in ontologies, ways of knowing and ways of working. Combine the centuries-old debates about what defines knowledge with proposed paradigm shifts to become knowledge-oriented, focused on inter-relationships, and cognisant of the complex and voluntary nature of knowledge work, and there is bound to be controversy and ambiguity. However, knowledge management research and practice becomes more focused and less ambiguous when set in the context of an urgent need. This chapter describes a study of a Canadian public sector science initiative. The terrorist attacks of 9/11 catalyzed ripples of reflection and innovation over great distances. In Canada, the federal government initiated the Chemical, Biological, Radiological and Nuclear (CBRN) Research and Technology Initiative (CRTI) to enable learning and progress, using what is essentially a communities of practice model. CRTI established a knowledge management office, to help this network of communities generate, share and use tacit and explicit knowledge. Some aspects of the initiative were working better than others and I was asked to conduct research to explore how CRTI members understand their work in a complex, knowledge-rich environment. I collected data through interviews and observation, and used phenomenography: a qualitative methodology from Scandinavia, which reveals qualitatively different ways of understanding phenomena. Phenomenography is usually driven by the desire to improve something, rather than simply to deepen understanding. As part of the analysis, I used a model for understanding communities of practice that was developed by [then] Major Pete Kilner in his work with the internationally respected CompanyCommand community.
Participants who understood their work as complex and unpredictable tended to emphasize connections and relationships, focused on learning more than doing, spontaneously referenced all aspects of Kilner’s model, saw knowledge as more of a flow than a thing, and were more satisfied with their individual and community effectiveness. This research had added value in that CRTI is considered successful and is being considered as a potential model for other science and technology work in the Canadian public service. The research has implications for knowledge-intensive work in complex environments and suggests that there is fertile ground for more qualitative research that integrates thinking from knowledge management and complexity thinking.

INTRODUCTION

Senior managers often initiate knowledge management work because issues or crises push them to think in new ways and to encourage their staffs to innovate and adapt. The terrorist attacks of 9/11 were one such crisis, which led to ripples of reflection and innovation far from the physical impacts of the planes. Canadian officials recognized the need to improve counter-terrorism capacity and capability and launched the Chemical, Biological, Radiological and Nuclear (CBRN) Research and Technology Initiative (CRTI) to enable learning and capacity-building. CRTI is now situated in a unit called the Centre for Security Science. They employ what is essentially a communities of practice model in which a threat type (such as radiological/nuclear) forms the domain of each community. Community members who work in different parts and levels of government interact in these communities to learn from each other, and they undertake projects that make sense to the members. The named leaders of these communities work without positional authority. When I conducted research in CRTI, there were four such communities. The original three were threat-based: chemical, biological and radiological/nuclear. The newer forensics community focused on front line response and procedures for gathering evidence so that it would stand up in a court of law. Since then, an explosives community—which was approved in principle at the time of the interviews—has been formalized, expanding the acronym to CBRNE. Members of these groups often refer to them as clusters, so I retain this term where it was used in direct quotes.

CRTI’s knowledge management office helps this network of communities generate, share and use tacit and explicit knowledge. They have taken on initiatives as diverse as the development of a portal, support of scientific and social science research, and the organization of an annual symposium, the goal of which is “to provide a forum to share and exchange the knowledge created by CRTI partners and to learn about related allied work in CBRN” (Proceedings of the 2006 CRTI Summer Symposium).

CRTI knowledge management leader Susan McIntyre contacted me in 2005 when I was directing knowledge management graduate programs at Royal Roads University. She wanted to better understand why some aspects of CRTI were working better than others. She also relayed her interest in spanning disciplines and her desire to ground her work in theory.

Susan said the comments and case studies in my response whetted her appetite. I had written that the highly contextual nature of the work is what makes knowledge management so interesting. “Part of it is a function of the newness of the field; part of it is the complex and messy nature of human beings, organizational cultures and emergent needs.” In 2006, our conversations
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