ATHABASCA UNIVERSITY

DESIGN AND SUPPORT STRATEGIES FOR LEARNING IN VIRTUAL COMMUNITIES OF PRACTICE

BY

JANE HUNTER

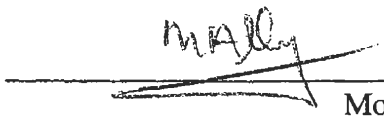
A thesis submitted to the
Athabasca University Governing Council in partial fulfilment
of the requirements for the degree of

MASTER OF DISTANCE EDUCATION

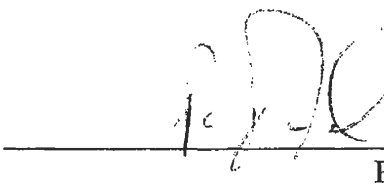
Athabasca, Alberta
November, 2002

ATHABASCA UNIVERSITY

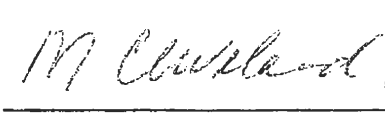
The undersigned certify that they have read and recommend to the Athabasca University Governing Council for acceptance a thesis "DESIGN AND SUPPORT STRATEGIES FOR LEARNING IN VIRTUAL COMMUNITIES OF PRACTICE" submitted by JANE HUNTER in partial fulfilment of the requirements for the degree of MASTER OF DISTANCE EDUCATION.



Mohamed Ally, Ph.D.
Committee Supervisor



Patrick Fahy, Ph.D.
Committee Member



Marti Cleveland-Innes, Ph.D.
Committee Member

Date: November, 2002

DEDICATION

I dedicate this thesis to the memory of my late father and mother, Jack and Helen Hunter. They inspired in me the virtues of hard work and perseverance, they encouraged my academic pursuits despite the fact they didn't have the same opportunities, and they provided me with a safe haven to learn and grow. I would also like to honour the following people who have inspired and supported me throughout my graduate education, without whom, this journey would have been impossible – my brother Dan and my dear friends Betsy, Janice, Sonja, Sylvie and Tom.

ABSTRACT

To face the challenges of their profession, individuals need to learn quickly to meet new issues, to develop new knowledge in their organizations and to share the knowledge with others in their community. Increasingly, corporate trainers and educational specialists are integrating distance education instructional and information technologies to offer individuals a means by which information may be easily accessed, support may be received and given, and advice and experience may be shared. What we are witnessing in this information era is the emergence of new social communities created by the application of information technologies. Knowledge sharing and learning in communities of practice is currently receiving a great deal of attention in both academic and business circles. There is also much discussion regarding design and support strategies for co-located and virtual communities of practice. However, it is unclear how knowledge creation and communication in globally distributed communities can contribute to effective professional practice.

The purpose of the study was to examine how information technology can be used to increase the skills and knowledge of professionals and how it can support interaction in communities of practice. The study's prime focus was to develop a design framework for how information technology can be used by distance education practitioners to support learning and the sharing of knowledge in globally distributed communities of practice. The grounded theory methodology provided the basis for the findings reported in this study. The theoretical framework and interpretations presented are grounded in the quantitative and qualitative data of historical documents, 102 online surveys and 15 telephone interviews. This study describes communication practices and the use of technologies in a globally distributed community of financial sector supervisors. It discusses 10 elements which impact

knowledge sharing and learning within a community of practice and proposes a theoretical framework for the implementation and diffusion of technologies within the community. This study identifies three key considerations for distance education practitioners: (a) the context or elements of the community, (b) how technologies can be turned into virtual learning spaces that meet the needs of the community, and (c) a strategy for encouraging the adoption of technologies within the community.

ACKNOWLEDGEMENTS

I wish to acknowledge my program advisor and thesis supervisor, Dr. Mohamed Ally. Dr. Ally enthusiastically supported this study from its inception. And, whenever I was feeling overwhelmed, Dr. Ally's encouragement always seemed to set me back on my path. Thanks also to Dr. Marti Cleveland-Innes and Dr. Pat Fahy for the stimulating discussion we had during my oral presentation. I am particularly grateful to David Winfield, Executive Director Toronto Centre and Johanne Prévost, Director Toronto Centre, for providing me with the resources and the opportunity to implement my vision. Without their ongoing commitment and support and their own personal insight and involvement, this study would not have been possible. I would also like to express my gratitude to all of the financial sector supervisors who participated in this study. Without their assistance and co-operation this study would not have been possible. I would also like to acknowledge the contributions of my closest friends:

- Janice, thanks for listening to me when I got stuck and picking out just the word I was looking for;
- Sonja, thanks for your constant encouragement and sharing through good times and bad. Our persistent dialogue throughout our distance Learning experience at Athabasca proved invaluable. Your boundless efforts are appreciated and memorable;
- Betsy, thanks for being my constant weekend friend; and
- Tom, thanks for reminding me that I really don't know anything about statistics.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

INTRODUCTION

Background

During the last quarter of the 20th century, financial systems world-wide have been profoundly transformed. The speed and volatility of international capital flows, the danger of contagion from problems outside national borders, the trend toward market liberalization, and the impact of technological innovation, especially in data processing and communication, make it more challenging than ever before for countries to ensure that they have a strong, well regulated financial sector. Risks are greater, problems spread more rapidly, and decisions are far more difficult in a world of constant change and instant communication.

Today's global financial markets require co-operation and close co-ordination among financial sector supervisors both within countries and across borders. The development of international supervision standards has helped to define the goals that all supervisory institutions have to reach, but the standards have also created growing pressures on senior supervisors to show leadership in moving their agencies towards achieving these goals as quickly as possible. Andrew Crockett, General Manager of the Bank for International Settlements and Chairman of the Financial Stability Forum, in his June 2001 speech on "Issues in Global Financial Supervision," said that the upgrading of supervisory capacity is one key to ensuring greater international financial stability. He stated that financial sector supervision is becoming a more demanding profession, and that the skills required of supervisors are becoming greater and more diverse (Crockett, 2001, Implications for the authorities, para. 9).

Professionals have normally acquired their qualifications through a period of formal education followed by, or integrated with, structured training programs. Typically, they have followed this initial induction stage with formal and informal continuing professional development in order to improve and advance their practice (Guest, 2000). How a professional conceptualises and resolves workplace challenges depends on their knowledge base, types of situations previously encountered in their practice, and on the experience they have gained from solving problems, all of which help them formulate a base of practical knowledge. However, providing technical expertise and knowledge alone are not sufficient for effective professional practice. Practical knowledge, gained through the experience of solving problems in practice and by interaction with "expert" practitioners, is equally important (Brown & Duguid, 1991; Lueg, 2000; McDermott, 2000).

Communities of practice allow professionals to share practical knowledge, information, insight, experience and tools about an area of common interest. The term "communities of practice" refers to a theory that builds on learning as social participation. The community's focus may be on a "professional discipline," such as financial sector supervision; a "skill," such as data analysis; or a "topic," such as e-commerce, or contingency planning (Wenger, 1998, in McDermott, 2000). Participation in the community not only shapes what individual members do but also how they perceive themselves and how they understand what they are doing (Lueg, 2000). Brown, Collins and Duguid (1989) argue that the activity or situation in which knowledge is developed is integral to what is learned.

Knowledge sharing and learning in communities of practice is currently receiving a great deal of attention in both academic and business circles (Brown & Duguid, 1991; Herrmann, 1998; Hildreth, Kimble & Wright, 2000; McDermott, 2000; Williams, 1995).

There is also much discussion regarding design and support strategies for co-located and virtual communities of practice (de Vries, Bloeman & Roossink, 2000; Hildreth & Kimble, 1999; Kowch & Schwier, 1997; Lueg, 2000; McDermott, 2000). New technologies have changed the way organizations view and use knowledge. Information can now be collected, analyzed and distributed in ways not previously possible. Information technologies, such as the Internet, allow communities of practice to exist beyond the limits of time and place. But, it is unclear how knowledge creation and communication in globally distributed communities can contribute to effective professional practice.

Significance of the Study

To face the challenges of their profession, individuals need to learn quickly to meet new issues, to develop new knowledge in their organizations and to share the knowledge with others in their community. Increasingly, corporate trainers and educational specialists are integrating distance education instructional and information technologies to offer individuals a means by which information may be easily accessed, support may be received and given, and advice and experience may be shared. What we are witnessing in this information era is the emergence of new social communities created by the application of information technologies (Meyrowitz 1985, in Cutler, 1995, p. 12).

The literature provides evidence that interaction and social presence in the learning process is critical to promoting a sense of belonging, membership, and engagement of distance learners (Moore & Kearsley, 1996; Rovai, 2002; Saba, 2000). The literature also suggests that interaction strategies must be built into the design of programs or instructional sessions for this learning process to be effective. According to Rovai (2002), researchers have presented evidence that fostering feelings of community may:

- Encourage persistence in learning activities and courses;
- Promote the flow of information among learners;
- Increase the availability of support;
- Intensify the commitment to group goals;
- Increase co-operation among members; and
- Enhance satisfaction with group efforts (p. 3).

In his review of the professional literature, Rovai found that many factors, such as social presence, community size, facilitation and activities, influence the quality of interaction and thus the sense of community within any distance learning environment (p. 7).

Perraton (2000) stresses that unless research is grounded in theory, it is not much more than data gathering. In a review of existing research literature, Perraton found that most research fell under five headings: descriptive accounts of students, courses, management, learning methods, and institutions; audience studies; cost-effectiveness studies; methodology; and social context (pp. 4 – 5). Saba's (2000) in-depth look at previous research adds that many distance education studies were not grounded in a theoretical framework. Rather, the researchers tended to compare distance learning with traditional classroom content delivery and report the statistical results.

Furthermore, Saba (2000) notes that between 1990 and 2000, there were a few researchers that conducted rigorous studies based on the theoretical foundations of the field or theories of fields closely related to distance education (p. 3). Saba reports that several researchers (Fulford & Zhang, 1997, and Gunawardena, 1995) actually went beyond grounding their studies on theoretical foundations by using new methods of inquiry, such as

surveys and in-depth interviews, which allowed them to capture a wider and richer range of data (pp. 4 – 5).

In devising strategies to build and sustain a virtual community of practice, distance educators need a guiding theoretical model that explains how members interact, what stimulates a sense of community and what strategies will support the community. This study attempts to offer such a model.

Purpose

The purpose of this study is to examine how information technology can be used to increase the skills and knowledge of professionals and how it can support interaction in communities of practice. Further, the intent is to study the perspectives of an international community of practice that are using information technology to interact and develop skills and knowledge in their respective fields. The main aim of this study is to develop a design framework for how information technology can be used by distance education practitioners to support learning and the sharing of knowledge in globally distributed communities of practice.

Research Questions

The research questions explored in this study included:

1. What types of media do financial sector professionals use to share information within the community?
2. What learning or information types are facilitated by information technology in the virtual community?

3. What specific needs do professionals have regarding learning and sharing knowledge with other members of the community?
4. How helpful do professionals find various instructional technologies offered in the Toronto Centre Leadership and Associates programs?
5. What strategies are perceived as best supporting learning and the sharing of knowledge in the community of practice?

Definitions

Best practices. Given the explosion of distance education research that has taken place over the last decade, the identification and exchange of successful strategies, ideas and statistics is important to the evolution of the discipline. By identifying "best" practices in the discipline, distance education practitioners can identify where they stand in relation to others, provide evidence of problem areas, and set improvement goals. *Best practices* in the context of this thesis may include a process, technique, or innovative use of resources that has a proven record of success in providing significant improvement in the field of distance learning.

Communication. Garrison (1990) argues that one of the fundamental characteristics of the educational process, whether at a distance or face-to-face, is two-way communication. He suggests that in an educational experience simply accessing information is not enough, rather it is essential that information be shared, critically analyzed, and applied in order to become knowledge (Garrison, 1990, pp. 1 – 2). Mezirow (1991) expands on this by stating that communicative learning encompasses most of the learning in adulthood, including "understanding, describing, and explaining intentions; values; ideals; moral issues; social,

political, philosophical, or educational concepts; feelings and reasons" (Mezirow 1991, in Cranton, 1994, p. 47).

In the context of this study, the term *communication* and *communicative learning* refers to the process whereby professionals develop an understanding of others' perceptions and try to make themselves understood.

Communities of practice (CoP). The term *communities of practice* refers to "a set of relations among persons, activity, and world, over time and in relation to other tangential and overlapping CoPs" (Lave & Wenger, 1991, p. 98). The term also refers to a theory that builds on learning as social participation. The community's focus may be on a "professional discipline," such as financial sector supervision, a "skill," like data analysis, or a "topic," such as e-commerce, or contingency planning (Wenger, 1998, in McDermott, 2000). Because of their personal interaction, CoPs can develop knowledge and understandings that go beyond "book learning" and formal professional certification. Through informal interactions with like specialists, individuals develop new information about how to do their jobs and how to act in certain settings. Through collaboration a CoP can generate a common, shared understanding of events and an action orientation for dealing with such events the next time they arise (Hildreth, 1997; Lave & Wenger, 1991; McDermott, 2000).

Collaboration. A key premise of communities of practice is the concept of collaboration. Schrage (1991) defines *collaboration* as "the process of shared creation: two or more individuals with complementary skills interacting to create a shared understanding that none had previously possessed or could have come to on their own. Collaboration creates a shared meaning about a process, a product, or an event" (Schrage, 1991, in McLellan, 1997, p. 186). McLellan (1997) also argues that *collaboration* is a purposive

relationship based on a desire or need to solve a problem, create, or discover something within a set of constraints.

Design. Design is concerned with how things ought to be in order to function and to attain goals. Instructional Systems Design (ISD) is a widely accepted set of procedures and processes used by distance education practitioners to develop instructional events and materials. A key benefit of this approach is the ability to create detailed program or project plans based on sound knowledge of who is going to learn what, by what means, in what kind of circumstances, to what effect and with what purpose in mind (Moore & Kearsley, 1996).

In the context of this thesis, the term *design* refers to the various stages or phases of the instructional design and development process including:

- Determining learner needs, problems, or the purpose for instruction;
- Analyzing instructional goals, learners, settings and environments;
- Designing instructional plans, activities, and materials;
- Implementing the solution or strategy; and
- Evaluating the processes and outcomes.

Distance education. In the literature, the terms *distance education* and *distance learning* have been debated and applied interchangeably to a variety of programs, audiences, and media. According to Moore and Kearsley (1996) the fundamental concept of *distance education* is that the learner and the instructor are separated by distance and sometimes by time. And as a result of this, it becomes necessary to introduce an artificial communications medium that allows for the delivery of information and interaction (Moore & Kearsley, 1996, p. 1). *Distance education* is defined by Moore and Kearsley as:

> ... planned learning that normally occurs in a different place from teaching and as a result requires special techniques of course design, special instructional techniques, special methods of communication by electronic and other technology, as well as special organizational and administrative arrangements (p. 2).

Distance learning. See *Distance education*.

Educational technology. Ely (2000) states that educational technology is a term widely used in the field of education as well as in other disciplines, but he cautions that it is often used with different meanings. The word technology has been used to represent hardware – the devices that deliver information and serve as tools to accomplish a task. The word is also used in the field to refer to a systematic process of solving problems by scientific means. According to Ely, educational technology properly refers to a particular approach to achieving the ends of education while instructional technology refers to the use of such technological processes specifically for teaching and learning.

Other terms, such as instructional development or educational media, which refer to particular parts of the field, are also used by some to refer to the field as a whole. Ely clarifies that the most recent definition that should be used is "instructional technology" as published by the Association for Educational Communications and Technology (AECT). The current definition states that: "Instructional Technology is the theory and practice of design, development, utilization, management, and evaluation of processes and resources for learning" (Ely, 2000, The field of educational technology, para. 1 & 2).

In the context of this thesis, the term *instructional technology* will be used as it reflects Ely's definition in the field.

Grounded theory. Grounded theory is a qualitative methodology that derives its name from the practice of generating theory from research, which is "grounded" in data. The

rationale behind the grounded theory method is that theory should be grounded in empirical evidence, that is it should evolve from data, rather than being developed a priori and then tested. Formally introduced by the sociologists Glaser and Strauss in the late 1960s, this methodology has emerged as an alternative approach to more traditional scientific inquiry methodologies. The attraction of grounded theory is that it does not start with hypothesis or research questions like deductive inquiry methods. Instead, grounded theory starts with a phenomenon that the researcher finds to be inadequately explained in theory and with a well-defined research problem (Creswell, 1994; Fischer, 1997; Hansen, 1998).

Information technology. A broad range of new technologies can be used to support communication, collaboration, and interaction**.** Dedrick and Kraemer (2002) suggest that in business, the use of information technology, including the Internet and electronic commerce, is resulting in a wide range of consequences for the organization of activities within and among firms (p. 2).

In the context of this thesis, *information technology* means the use of hardware, software, services, and supporting infrastructure to manage and deliver information using voice, data, and video. Examples of information technology include:

- Telephone, radio equipment and switches used for voice communications;
- Computer applications that include data storage and programs to input, process, and output data;
- Software and support for office automation systems, such as word processing and spreadsheets (which includes the computer to run these);
- Users' personal computer and software;

- Data networks and all associated communications equipment such as servers, bridges, routers, hubs and wiring;
- Fax machines;
- Peripherals directly connected to computer information systems used to collect or transmit audio, video or graphic information, such as scanners and microphones;
- Video/audio conferencing equipment; and
- Computers and network systems used by teachers, trainers, and students for educational purposes.

Instructional Technology. See *Educational Technology*.

Instruction. *Instruction* refers to a purposeful interaction to increase learners' knowledge or skills in specific, pre-determined ways. As described by Ritchie and Hoffman (1997) instructional sequences typically embrace seven common elements:

- Motivating learners;
- Specifying what is to be learned;
- Encouraging learners to recall and apply previous knowledge;
- Providing new information;
- Offering guidance and feedback;
- Testing comprehension; and
- The provision of either remediation in areas where comprehension is lacking or enrichment to extend knowledge gained (pp. 135 – 138).

Interaction. In the literature, the term *interaction* has produced a plethora of definitions and viewpoints. Collins and Berge (1996) argue that there are two kinds of interaction that influence learning. One is where learners interact *individually* with content. The other is considered to be more of a *social activity* where learners interact with *others* in respect to the content. They also suggest that interaction occurs:

- Between a learner and course materials;
- Between a learner and learning activities/examinations;
- Between learner and instructor; and
- Among learners (Collins & Berge, 1996, Interaction and learning, para. 1).

Similarly, Moore and Kearsley (1996) suggest that distance educators should use *each* of the following three types of interaction:

- **Learner-content interaction.** This type of interaction involves a learner interacting with the subject matter that is presented for study. As a result of this interaction changes occur in the learner's understanding, perspective or cognitive structures.
- **Learner-instructor interaction.** This second type of interaction occurs when the learner interacts with the instructor or expert who prepared the content. The instructor's role is to present content as well as to assist the learner's interaction with content. To do this, the instructor attempts to stimulate or at least maintain learners' interest in the content and their motivation to learn.
- **Learner-learner interaction.** This third type of interaction refers to inter-learner interaction, between an individual and other learners, alone or in group settings, with or

without the real-time presence of an instructor. Moore and Kearsley suggest that learners regard interaction with their peer group as desirable and advantageous (pp. 127 – 132).

Hillman, Willis and Gunawardera (1994) contend that these three types of interaction fail to account for all of the interactions that occur. They suggest that the addition of high-technology communications systems necessitate the addition of a fourth type of interaction – learner-interface (Hillman, Willis & Gunawardera, 1994). According to Hillman et al. *learner-interface interaction* involves a form of interaction between the learner and a "technological medium in order to interact with the content, instructor or other learners" (Hillman et al., 1994, p. 33).

In this thesis, *interaction* will be broadly defined as a *social activity and social interaction or presence* that takes place when an individual in the community of practice is in contact with another person(s) in order to obtain information, reactions or responses to their request. In addition, *interaction* will also include individual thoughts and reactions to content or subject matter provided by subject experts or instructors.

Knowledge Management. The term *knowledge management* refers to the processes people use to share information and build knowledge.

Learners. For the purpose of this study, learners are operationally defined as financial sector supervisors in the banking, insurance, and securities markets who attended Toronto International Leadership Centre for Financial Sector Supervision (the Toronto Centre) sessions between May 1998 and April 2002.

Medium (plural, media). Medium typically refers to any technology that facilitates communication by carrying information between a source and a receiver. When the messages

being communicated have an instructional purpose then the mediating technology is describes as an "instructional medium" (Heinich et al., 1996, p. 8).

Bates (1995) suggests that it is useful to make a distinction between media and technology. To Bates, the term *medium* describes "a generic form of communication associated with particular ways of representing knowledge. Each medium not only has its own unique way of presenting knowledge, but also of organising it, often reflected in particular preferred formats or styles of presentation" (pp. 29 – 31). Further, he describes five categories of media:

- Direct human contact (face-to-face);
- Text (including still graphics);
- Audio;
- Television; and
- Computing (p. 31).

Bates (1995) adds that there are technologies associated with each of these five categories of media and that the distinction between media and technology will become less meaningful as they become more integrated into single machines or transmission systems. Table 1 represents the relationship Bates is describing.

Table 1. The Relationship Between Media, Technology and Distance Education Applications of Technology (Bates, 1995, p. 30).

Media	Technologies	Distance education applications
Text (including graphics)	Print	Course units; Supplementary materials; correspondence tutoring
	Computers	Databases; electronic publishing
Audio	Cassettes; radio	Programs
	Telephone	Telephone tutoring; audio conferences
Television	Broadcasting; video cassettes; video discs; cable; satellite; fibre-optics; ITFS; microwave; video conferencing	Programs; lectures; video conferences
Computing	Computers; telephone; satellite; fibre-optics; ISDN; CD-ROM; CD-I	Computer-aided learning (CAI, CBT); e-mail; computer conferences; audio-graphics; databases; multimedia

Bates (1995) points out that technologies are "generally flexible and hence interchangeable in education and training, i.e., what can be achieved educationally through one technology can usually be achieved through any other technology, given sufficient imagination, time and resources" (p. 13).

Participation. Participation is defined as having, conducting, taking a part in, or sharing with other individuals in some activity. With respect to this study *co-located* participation would include attendance at a Toronto Centre Leadership Program session and *virtual* participation would include utilization of the Toronto Centre's Associates Program components, which include an Associates-only web site, global web and video conferences, monthly e-mail communications and quarterly newsletters.

Shared Vision. Shared vision is the expression of the common values, approaches, and worldviews that link a group together. As such, shared vision is a central characteristic of *communities of practice.*

Support. Learners experience distance learning differently from more traditional forms of education. For some learners, the contrast between the conventional and distance experience can be disorienting (Moore & Kearsley, 1996). Therefore, it is critical for distance educators to consider individual differences in needs and expectations in the design, development, and delivery of distance learning solutions. In the context of this thesis, *support* strategies may include:

- The incorporation of "best practice" techniques to make learners aware of and comfortable with the communication methods or technology to be used;
- Sensitivity to the cultural backgrounds and experiences as well as the different communication styles of the learners;
- Providing learners with the means to resolve technical problems;
- Helping learners to become familiar and at ease with the technologies used;
- Encouraging learners to take an active role in the community; and
- Providing help in dealing with possible administrative issues (e.g., registration for synchronous web conferencing sessions).

The Toronto International Leadership Centre for Financial Sector Supervision (the Toronto Centre). In the fall of 1996 the Office of the Superintendent of Financial Institutions (OSFI) approached York University, Ontario, to propose that OSFI and York collaborate in the creation of a foundation to assist developing countries improve their systems of banking, insurance, and securities market supervision. In September 1997, the Canadian Government and The World Bank, with the support of OSFI and the Schulich School of Business at York University, announced that they would sponsor the creation of

what is now called *The Toronto International Leadership Centre for Financial Sector Supervision* (the Toronto Centre). The Toronto Centre is the only organization at the international level that offers programs designed to build and hone the leadership skills of senior supervisors. The mission of the Toronto Centre is to:

- Enhance the leadership skills of supervisors to enable them to strengthen financial systems and deal with troubled financial institutions in their countries; and
- Develop and disseminate the latest in leadership knowledge and expertise in financial sector supervision.

It is also important to note that the organization has a small staff of seven full-time and contract people. The Toronto Centre operates on a "virtual office" premise whereby consultants (e.g., distance education, instructional design, graphic design, technology, and case writing and editing) and subject matter experts from different disciplines are brought into projects as necessary.

Virtual Communities of Practice (Virtual CoP). *Virtual communities of practice* are formal or informal social groups that exist beyond the limits of time and place. Virtual CoPs have similar attributes as CoPs; however, communication, collaboration and interaction are mediated by the use of specific technological interventions such as the internet, e-mail, chat rooms, and web and video conferences

Context for the Study

The Toronto Centre offers one-week Leadership Programs in Toronto, specific to banking supervision, insurance and securities market regulation. Each Leadership Program provides a dynamic mix of full day interactive case studies, "vignettes" (mini case studies)

and special topic presentations in a unique approach to learning that integrates the theory and practice of leadership in ways that develop supervisors' capacity and confidence to implement change.

World-class supervisory leaders (Program Leaders) – former heads of supervisory agencies and other internationally recognized experts – lead the case studies and vignettes. These Program Leaders have been personally involved in the events described in the cases and vignettes. Their role is to guide participants through an analysis of the supervisory issues as well as the economic and political background represented in each case. Discussions are followed by leadership simulations where the participants take the part of the decision-makers and develop appropriate approaches to deal with the issues.

Situated learning is a central component of the curriculum and learning materials. Program Leaders draw on their personal experiences of specific supervisory challenges and their responses to re-enact real life financial crises and events from their perspectives, as supervisory executives. The effect is dramatic and memorable. Participants recognize themselves in the concerns and reactions shared by the Program Leaders. No two Leadership Programs are alike since Program Leaders, case studies, and vignettes are specially selected prior to each program to ensure that they represent the most pressing issues of the day – and those of greatest interest to the attending participants.

A variety of tools, techniques and resources is presented and then applied throughout each Leadership program as participants work together on the analysis, solution and implementation aspects of supervisory issues. Two critical leadership models are introduced, the "Leadership Process," which provides a practical and effective approach to leading change; and the "OUI Environment" model, which focuses attention on Outward, Upward

and Inward stakeholders and issues, highlighting the complex array of relationships that must be considered in planning and implementing supervisory interventions.

One of the most compelling features of the Leadership Program has proven to be the Action Planning component. Throughout the week, participants have the opportunity to work on their own identified supervisory challenges by developing an action plan to deal with a specific issue in their country. Program Leaders and peers lend support in this process. The action plans are presented on the final day of the one-week Leadership Program, providing participants with valuable insights and perspectives.

In mid-2000, the Toronto Centre implemented a number of enhancements in order to improve the pedagogical value of its Leadership Programs as well as to further support the participants' ability to influence change upon return to their countries. Enhancements introduced by the Toronto Centre included:

- **An increase in participant access to expert advice.** In addition to presenting their case studies, Program Leaders were asked to be present throughout the one-week face-to-face Leadership Program sessions in order to provide individualized support on topics/issues of concern to participants. This provides participants with an opportunity to gain meaningful insight into issues that are important to them.
- **The extension and enrichment of the Action Planning process.** Each of the three core banking, insurance, and securities market one-week Leadership Program sessions were revised to increase the opportunities for participants to actively apply leadership tools and techniques. This "hands on" approach helps expand participants' leadership skills in developing appropriate approaches to deal with supervisory challenges in their own countries. The increased emphasis on strategic action planning requires participants to

identify their most important supervisory challenge before attending the session. During the session participants complete their action plan by following the Toronto Centre Action Planning process. At the end of each session participants present their action plans orally and obtain feedback from Program Leaders and their peers. This further encourages the transfer of new skills into meaningful action when participants return to their countries.

- **The development of new case studies and special topic presentations reflecting the latest trends and issues in the banking, insurance, and securities markets industries.** Using the areas of interest identified by participants and the extensive experience of the sectoral Advisory Groups and Program Leaders, the Toronto Centre continues to expand its library of case studies, mini-cases and special topic papers.

- **The introduction of the Associates Program.** The Associates Program was launched in May 2000 to "link" all individuals who complete Leadership Programs to collaborating organizations, Program Leaders, and peers. The Associates Program provides opportunities for continuous learning on topical supervisory and regulatory issues through global web and video conferences. The Toronto Centre also implemented a private web-based network for Associates only (see Figure 1), enabling them to communicate on issues of interest, exchange ideas and information and resolve issues and challenges. Associates receive newsletters and regular e-mail communication on issues and topics that reinforce the Associates' ability to implement change in their supervisory regimes and to be proactive in dealing with a range of supervisory and regulatory challenges such as institutional failures, systemic crises and institutional capacity building.

The Leadership and Associates Programs developed by the Toronto Centre provided the context for this study. The Toronto Centre is a suitable context for a case study because it is representative of a virtual community of practice that uses information technology for learning and sharing knowledge as well as supporting effective professional practice.

Figure 1. Toronto Centre Associates-only Web Site

Delimitations

This study is delimited to financial sector supervisors who participated in Toronto Centre Leadership Programs between May 1998 and April 2002.

Limitations

This study may be limited in the following ways:

- The choice of research methodology and the task of learning to use it with sufficient expertise, are difficulties that face every novice researcher. In addition, the ability of the

researcher to provide theoretical and analytical sensitivity to the data could influence the results (Creswell, 1994; Hoepfl, 1997; Simon & Burstein, 1985).

- Although the cost advantages of using an online survey with an international study population is apparent, the disadvantages of using surveys is that often people will not respond or that those who do respond may not be representative of the study population. Also, the construction of the questions may introduce errors or biased responses (Simon & Burstein, 1985). An additional issue in this study was that some of the study population did not have e-mail access and the Toronto Centre had no clear means of separating/identifying these individuals from their contact management database.
- Securing accurate information is considered to be critical in many areas of research. The literature suggests that it is difficult to obtain totally unbiased and full reports from research subjects (Creswell, 1994; Simon & Burstein, 1985). When interviews have been used, the finding are limited by the experiences of the subjects interviewed and their ability to articulate their opinions. In addition, the interviewer can intentionally or unintentionally influence a subject's response (Simon & Burstein, 1985).
- Simon and Burstein state that "the researcher's efforts to study a phenomenon *always* affect the phenomenon and change it" (Simon & Burstein, 1985, p. 246). In this study, I have been involved with the instructional design and development of the Toronto Centre's Leadership Programs and have developed and produced some of the reports, course materials and documents that will be examined in this study. This involvement and familiarity with the Toronto Centre may ultimately lead to the introduction of biases, values, and judgements in this study.

In recognition of these limitations, I have made every attempt to minimize threats to the validity of the study. Strategies to ensure validity included triangulation of data. Rather than relying solely on one methodology, data was collected through multiple sources throughout the study. For each method used in the study, tactics were employed to reduce the limitations described above. They include:

- **Expert checking**. Throughout the study I maintained an ongoing dialogue regarding interpretations and meanings of the data with representatives of the Toronto Centre, my thesis supervisor, colleagues and lay people who all provided multiple perspectives and insights.
- **Detailed documentation**. In-depth descriptions of the study are reported in detail in order to provide a clear and accurate picture of the various phases of the study.
- **Description of researcher bias.** The thesis will include a section entitled "The Researcher's Role" where the researcher's biases will be stated.

Assumptions

The following assumptions are fundamental to the purpose and design of this study:

1. Members of a professional discipline or "practice" develop communications patterns that help spread common understandings about how work is done, what information is relevant and important, and other factors that evolve best practices in the profession.
2. Information technologies can help professionals sustain and deepen relationships that are initiated through more conventional face-to-face channels such as classroom courses, seminars and professional conferences.

3. Even where technology is helpful to professionals, they require conversation, experimentation, and shared experiences with other professionals who do what they do. Collaboration and participation is central to aquiring knowledge and should be encouraged in the community of practice through effective use of multiple modes of communication technology such as Internet chat, e-mail, and threaded discussions.
4. Interaction has important implications for building and sustaining co-located and virtual communities of practice.
5. Virtual CoPs consist of a number of elements that can be leveraged to support and stimulate communication between community members.
6. The financial sector supervisors who attended Toronto Centre Leadership Programs and their colleagues constitute a social system qualitatively different in approach and practices from distance educational (i.e., colleges and universities) or corporate training systems. Social systems have intensive interactions within their environment that result in changing goals and ways of doing things (Banathy, 1992, p. 6). Hence, approaches and practices that may be effective and desirable in this particular system may not be appropriate in others.
7. Participants in the research would be willing and able to share their experiences and perceptions of participating in a virtual community of practice.

CHAPTER II

LITERATURE REVIEW

Introduction

We are living in an era in which technological advances seem to overwhelm us in every aspect of our lives. One of the most expansive technological developments is the Internet. In a relatively short time the Internet has created a global communications network which has resulted in new ways for people to meet, to communicate, and to work. Researchers from around the world are conducting studies of this new phenomenon. Governments and organizations world-wide are investing in information technologies as a way to increase people's productivity and/or skills. One of the more recent areas of interest in this area of global communication are virtual communities of practice and knowledge building within these communities.

As discussed in Chapter I, this study attempts to gain insight into the perspectives of an international community of practice that are using information technology to interact and develop skills and knowledge in their respective fields. This chapter begins with an exploration of knowledge creation and knowledge management. This is followed by a discussion of communities of practice and virtual communities of practice. Literature dealing with the representation of knowledge through various media, and the adoption of technological innovations is also discussed to provide insight into what may be required to support virtual communities of practice.

Data, Information and Knowledge

As a result of technological advances there are unprecedented opportunities for providing rapid and efficient access to enormous amounts of knowledge and information. Understanding the distinction between data, information and knowledge is the first step in being able to effectively support the sharing of knowledge in communities of practice. Figure 2 illustrates a hierarchical organization that is often represented in the literature (Hildreth, 1997; Saint-Onge, 1996; Zack, 1999).

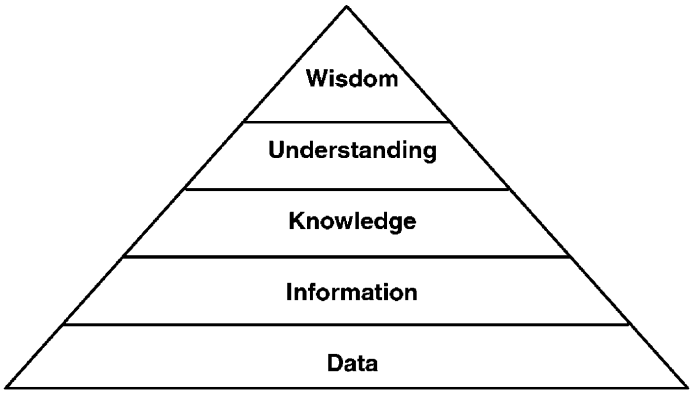


Figure 2. Conventional View of Data, Information, Knowledge

Zack (1999) describes data as representing facts or numbers out of context, and therefore being not particularly meaningful. Bellinger, Castro and Mills (n.d.) describe data as representing a fact or statement without relation to other things. They describe the next stage, which is information, as incorporating the understanding of a relationship of some sort (e.g., cause and effect). They suggest that information provides answers to "who," "what," "where," and "when" questions. Furthermore, they state that information results when data is placed within a meaningful context, often in the form of a message.

Zack (1999) describes the knowledge stage as "that which we come to believe and value based on the meaningfully organized accumulation of information (messages) through experience, communication or inference" (Zack, 1999, What is knowledge, para. 1). Walsh

(1995) contributes to the definition by explaining knowledge as being a "structure" or "a mental template" that individuals impose on an information environment to give it form and meaning (Walsh, 1995, in Hildreth, 1997, Knowledge, para. 4). Bellinger, et al. (n.d.) suggest that knowledge is the application of data and information and answers "how" questions.

Bellinger, et al. (n.d.) describe understanding as "an interpolative and probabilistic process" (Bellinger, et al., n.d., para. 8). They suggest that the difference between understanding and knowledge is comparable to the difference between "learning" and "memorizing." Further, they propose that:

> People who have understanding can undertake useful actions because they can synthesize new knowledge, or in some cases, at least new information, from what is previously known (and understood). That is, understanding can build upon currently held information, knowledge and understanding itself (Bellinger, et al., n.d., para. 8).

Wisdom has been described as representing the ultimate in human achievement. Bellinger, et al. (n.d.) state that it calls upon all of the previous levels of consciousness, and specifically upon special types of human programming (e.g., moral, ethical codes, etc.). They suggest that it is the essence of philosophical probing, in that wisdom "beckons to give us understanding about which there has previously been no understanding, and in doing so, goes far beyond understanding itself" (Bellinger, et al., n.d., para. 9). In addition, they distinguish this level from the others on the basis that it asks questions to which there is no easily achievable answer, and in some cases, to which there can be no known answer at all.

Saint-Onge (1996) argues that organizations need to understand how knowledge is formed and how people and organizations can learn to use knowledge wisely. He suggests that it is important to understand the process of how data are converted to wisdom. He describes this process as:

> Data arrive in our lives and on our desks as dispersed elements. It is only when we compile this data into a meaningful pattern that we have information. As information is converted into a valid basis for action, it becomes knowledge. Upon achieving wisdom, we implicitly know how to generate, access, and integrate knowledge as a guide for action. As individuals and organizations move through the constructs from data to wisdom, their depth of meaning increases and their interpretation shifts from being highly explicit at the data stage to entirely tacit at the point of wisdom. (Saint-Onge, 1996, From data to wisdom, para. 1 – 2).

Saint-Onge and others maintain that in order to develop and leverage knowledge, individuals and organizations need to be better at collaboration and the skilful exchange of knowledge (Bellinger, et al., n.d.; Saint-Onge, 1996; Zack, 1999).

Perspectives on Knowledge

Knowledge and the management of knowledge in organizations are topics that are receiving much attention by academics and consultants. Zack (1999) suggests that many organizations are treating knowledge as a valuable asset. He says that if organizations are to remain competitive, "they must efficiently and effectively create, locate, capture, and share their organization's knowledge and expertise, and have the ability to bring that knowledge to bear on problems and opportunities" (Zack, 1999, Introduction, para 1). Zack also relates that few organizations are capable of developing and leveraging critical knowledge to improve performance.

In considering factors that may impact the development and leveraging of knowledge by organizations the first step is to understand its characteristics. Zack (1999) suggests that knowledge can be considered as both an object to be stored and manipulated and a process of simultaneously knowing and acting (i.e., applying expertise). Furthermore, he believes that it is important to manage both object and process (Zack, 1999, What is knowledge, para. 1). Knowledge is discussed in the literature in a variety of ways including:

- Explicit and tacit;
- Declarative, procedural, and causal; and
- General to specific (Davenport, n.d.; Hildreth, 1997; Saint-Onge, 1996; Zack, 1999).

Explicit and Tacit Knowledge

It is widely acknowledged in the literature that knowledge can be either explicit or tacit. Explicit knowledge is that which an individual can express or articulate fairly precisely. Saint-Onge (1996) explains it as, "the words we speak, the books we read, the reports we write, the data we compile" (Saint-Onge, 1996, Intellectual capital defined, para. 4). Because of the ability to articulate it, explicit knowledge can be more easily codified, documented, transferred or shared (Hildreth, 1997; Zack, 1999). In Nonaka's (1991) definition he describes explicit knowledge as "formal and specific ... it can be easily communicated and shared, in product specifications or a scientific formula or a computer program" (Nonaka, 1991, in Hildreth, 1997). It is important to note that in some cases and for some people this perspective of explicit knowledge could represent information or even data.

Discussions in the literature also revolve around the idea that many organizations are spending a great deal of time and money on capturing explicit knowledge because it is somewhat easier to deal with. Information technology infrastructures and associated software applications have provided a tremendous amount of functionality and increased capabilities to process information. As a result, explicit knowledge in organizations is being formally expressed in procedures, rules, manuals, documents, etc. and transmitted from one person to another. In addition, since the adoption of new technologies like the Internet, an explosion of explicit knowledge, composed of structured and unstructured data, exists in organizations. Structured data is information that can typically be found in databases and legacy systems;

unstructured data is information found in shared text documents, e-mails, intranet HTML pages and so on (Davenport, n.d.; Hildreth, 1997; Saint-Onge, 1996; Zack, 1999).

The other type of knowledge, tacit knowledge, is considered to be more difficult to express or represent effectively. Tacit knowledge as defined by Zack (1999), is knowledge which is "subconsciously understood and applied, difficult to articulate, developed from direct experience and action, and usually shared through highly interactive conversation, story-telling and shared experience" (Zack, 1999, What is knowledge, para. 2). Nonaka (1991) describes tacit knowledge as consisting of "mental models, beliefs and perspectives so ingrained that we take them for granted, and therefore we cannot easily articulate them" (Nonaka, 1991, in Hildreth, 1997, Knowledge, para. 7).

Zack (1999) argues that tacit knowledge is a by-product of direct experience and action and therefore much easier to exchange or distribute by being made explicit. In addition, he suggests that "explicating" tacit knowledge so that it can be efficiently and meaningfully shared and reapplied is one of the least understood aspects of knowledge management (Zack, 1999, Explicating knowledge, para. 1). Wood (n.d.) reports that there is a potential difficulty in gaining an understanding of an individual's work practices, as much of their problem solving knowledge has become automatic or tacit through extensive use.

In the literature there is much debate about the accessibility of tacit knowledge. Individuals in the early stages of skill development consciously consider various items of knowledge during problem solving. On the other hand, in well-learned tasks much of the relevant knowledge is no longer consciously available during problem solving. This does not mean that the relevant knowledge has been forgotten by the individual, rather it may simply

be difficult for them to articulate it, especially when asked to do so directly (Bellinger, et al., n.d.; Zack, 1999).

Declarative, Procedural, and Causal Knowledge

Zack (1999) argues that there are other types of knowledge that may be made explicit. He says that knowledge "about" something is called "declarative knowledge." Declarative knowledge is essential as it contributes to effective communication and knowledge sharing in organizations. It involves the shared, explicit understanding of concepts, categories, and descriptors. Declarative knowledge consists of descriptions of facts and things or of methods and procedures. Zack defines "procedural knowledge" as knowledge of "how" something occurs or is performed. He suggests that shared explicit procedural knowledge is important because it lays a foundation for efficient co-ordinated action in organizations. Furthermore, Zack describes the knowledge of "why" something occurs as "causal knowledge." According to Zack, shared explicit causal knowledge, which may take the form of organizational stories, can enable organizations to co-ordinate strategies for achieving improved performance (Zack, 1999, What is knowledge, para. 4).

General and Specific Knowledge

In addition to the types of knowledge already discussed, Zack (1999) suggests that knowledge may also range from general to specific. He defines general knowledge as being "broad, often publicly available, and independent of particular events" while specific knowledge is "context-specific" (Zack, 1999, What is knowledge, para. 4). General knowledge like explicit knowledge can be more easily codified and exchanged. Codifying specific knowledge so that it is meaningful to the community of practice requires describing contextual categories and relationships along with the pertinent knowledge. While this type

of knowledge is important, it is reported as being difficult to codify (Zack, 1999, What is knowledge, para. 4).

The Importance of Distinguishing the Types of Knowledge

The importance of distinguishing between the types of knowledge for distance education practitioners is twofold. First, globalization and rapid technological change have made knowledge a critical determinant of competitiveness in the world economy. The literature suggests that effective professional performance require articulating, integrating and sharing tacit knowledge. Second, the literature suggests that many organizations use information technology to share information and build expertise but do not effectively document or leverage tacit knowledge. The challenge is to find strategies to:

- Convert tacit knowledge to a more explicit form – in documents, processes, databases, etc.; and
- Enhance tacit knowledge flow through better human interaction so that the knowledge is diffused around the community and not held in the heads of a few (Brown & Duguid, 1991; Hildreth, 1997; McDermott, 2000; Saint-Onge, 1996; Zach, 1999).

Knowledge as a Strategic Resource

Knowledge is considered the most strategically important resource and learning the most strategically important capability for organizations. Knowledge creation has been widely acknowledged as strategically critical for organizational learning, innovation and improvement. As a result of this thinking, the field of "Knowledge Management" has become a key topic for organizations world-wide. In essence, the term "Knowledge Management" means getting the right knowledge to the right people at the right time through

a combination of technologies, tools and philosophies. Rowley (2000) describes the term as follows:

> Knowledge management is concerned with the exploitation and development of the knowledge assets of an organization with a view to furthering the organization's objectives. The knowledge to be managed includes both explicit, documented knowledge, and tacit, subjective knowledge. Management entails all of those processes associated with the identification, sharing, and creation of knowledge. This requires systems for the creation and maintenance of knowledge repositories, and to cultivate and facilitate the sharing of knowledge and organizational learning. Organizations that succeed in knowledge management are likely to view knowledge as an asset and to develop organizational norms and values, which support the creation, and sharing of knowledge (p. 7).

In business contexts, many organizations are applying Knowledge Management to improve their efficiency and effectiveness, and to encourage the creation and sharing of knowledge among people in the organizations (McDermott, 2000; Saint-Onge, 1996; Zack,1999).

Based on a review of the literature, there are essentially two perspectives regarding knowledge creation and Knowledge Management. The first perspective suggests that knowledge is an entity that can be captured, manipulated and deployed. This thinking has led to the development of information technology infrastructures and software applications (e.g., database programs, intranets and the internet, and contact management and document management software), which facilitate the collection, analysis and distribution of information (Davenport, n.d., Introduction, para. 8; Zack, 1999). The second perspective suggests that knowledge is a process that is unique to each individual. In the literature, this viewpoint often leads to discussions about communities of practice, or groups of individuals who communicate because they share work practices, a profession or other interests (Hildreth, 1997; Lueg, 2000; McDermott, 2000; Santosus & Surmacz, 2001).

Communities of Practice

The concept of communities of practice has been identified in the literature as a setting for effective knowledge sharing. McDermott (1999) suggests that most professionals learn about new tools and developments in their field not by reading journals, but by consulting their colleagues. Furthermore, he suggests that colleagues are not only sources of information but sources of judgement about how valid and useful information will be. McDermott holds the view that when communities of practitioners share ideas, they naturally tend to adopt common practices (McDermott, 1999, How strong the community identity, para. 3).

The term "Communities of Practice" was proposed by Lave and Wenger in 1991. Lave and Wenger defined a community of practice (CoP) as "a set of relations among persons, activity, and world, over time and in relation to other tangential and overlapping CoPs" (Lave & Wenger, 1991, p. 98). They suggest that "newcomers" learn from "old-timers" by being allowed to participate in certain tasks that relate to the practice of the community. These newcomers do not receive instruction as such, but gradually learn the language of the community and through doing certain tasks move from the peripheral to full participation. Furthermore, Lave and Wenger (1991) identify "Legitimate Peripheral Participation" (LPP) as an important aspect of effective learning. Learning undertaken with LPP is situated, as is some of the knowledge generated during problem solving.

Lave and Wenger's (1991) notion of LPP provides a framework for induction into a community of practice. The term LPP is considered in the literature to be both complex and composite in character as all three – legitimation, periphery, and participation – depend on each other. Legitimation refers to authority and power distribution in the community. Periphery and participation are used to distinguish the degree of engagement with and

participation in the community (Hildreth, 1997; Kimble, et al., 2001; Lave & Wenger, 1991; Lueg, 2000). Lave and Wenger (1991) stress that:

> Legitimate peripheral participation is not itself an educational form, much less a pedagogical strategy or a teaching technique. It is an analytic viewpoint on learning, a way of understanding learning. We hope to make it clear that learning through legitimate peripheral participation takes place no matter which educational form provides a context for learning, or whether there is any intentional educational form at all. Indeed, this viewpoint makes a fundamental distinction between learning and intentional instruction (p. 40).

A review of the literature suggests that communities of practice are focused on a domain of knowledge and that over time accumulate expertise in this domain. They develop their shared practice by interacting around problems, solutions, and insights, and building a common store of knowledge. Hildreth (1997) describes certain characteristics that he suggests would appear to be common to all communities of practice. They are:

- Common language;
- Shared background;
- Common purpose or shared vision that aims beyond simple social interaction;
- Creation of new knowledge;
- Dynamism; and
- Evolution (Hildreth, 1997, So what is a community of practice, para.4).

The model of community of practice and LPP can be seen to provide a framework for considering the continuing professional development of financial sector supervisors. The next problem to consider is how to support communication and learning in a community of practice that are geographically dispersed.

Virtual Communities of Practice

The literature also touches on the question of whether communities of practice can be virtual (Hildreth, 1997; Hildreth et al., 2000; Lueg, 2000). Through technological advances, it is widely acknowledged that individuals can draw together into formal or informal social groupings from almost anywhere; however, in the academic community, coming to some consensus on the term "virtual community" is proving to be problematic. While the debate continues, Rheingold's (2001) research indicates that virtual communities possess some unique characteristics:

- They are organized around affinities, shared interests, bringing together people who did not necessarily know each other before meeting online.
- They expose many people to many media. Unlike few-to-many (broadcast) or one-to-one (telephone) media, virtual communities enable groups of people to communicate with many others. Every computer desktop, every wireless device, is becoming a printing press, broadcasting station, and place of assembly.
- They have evolved from text-based into text plus graphics-based communications. For decades, online communities were built with nothing more than unformatted text. Web-based media bring graphics, animations, video, sounds, formatted text, links into the conversation; and
- They are relatively uncoupled from face-to-face social life in geographic communities. People communicating world-wide about shared interests most often do not live close enough to meet regularly face-to-face (Rheingold, 2001, Technology facilitates community growth, para. 7).

Lueg (2000) suggests that virtual groupings may develop a strong sense of community. Kimble, Li and Barlow (2001) contribute to the discussion by suggesting that some aspects of a community of practice (e.g., common purpose or shared interests) should translate easily from the co-located world to the virtual. They also suggest that if members are doing a similar job then there will already be a shared domain knowledge and language. They stress that the major difficulty in virtual CoPs is participation as participation is central to the evolution of the community.

Media and Learning

The field of distance education has undergone considerable growth and rapid changes during the 1990s. Today, advances in the range and types of technologies available have accelerated the changes even further. All these factors have major implications for distance education practitioners who are required not only to maintain the systems already established but also keep pace with changing technologies (Bates, 1995). The challenges facing distance practitioners appear daunting, because they must find ways to create infrastructures that will harness technology's power to provide education, training, information, and cultural programming in developed and developing countries.

Because communication is a central concept in distance education, there are many important issues with respect to the use of technology and media. It is significant to note that communication and interaction or participation is a central concept in both communities of practice and distance education, for acquiring knowledge, assuring understanding and exploring the meaning of knowledge. Garrison (1989) suggests that it is the activities of sharing, application and critical analysis that help an individual convert information to knowledge.

Some scholars hold the view that while distance education relies on technology for the communication of content, the influence and effectiveness of that communication is unaffected by the medium. For example, in a review of literature, Bates (1995) concludes that technologies are "generally flexible and hence interchangeable in education and training" (p. 13). The implication of this is that what can be achieved through one technology can usually be achieve through another technology. This view is based on numerous comparative studies that have found no significant differences in learning results achieved through different media.

Contrary to this point of view, Koumi (1994) argues that "research on comparative efficacy of media has been flawed, giving a false impression of the equipotentiality of media" (p. 41). He argues that each medium has its distinctive attributes, symbol systems, strengths and weaknesses (i.e., medium usability characteristics) and that there are significant pedagogic reasons for selecting one medium over another. When comparing the potential of different media, Koumi suggests that, to be fair to each medium, those that provide distance education opportunities would need to employ highly creative practitioners. These practitioners would also need to be provided with the necessary resources to fully exploit the capabilities of each medium's symbol systems. Koumi makes two additional observations:

- Researchers conducting the studies have invariably ignored the fact that there is rarely any control of production quality between the media being compared; and
- Most of the studies have not examined the professional competence of the production team. (pp. 41 – 42).

Koumi also suggests that learners may simply not take some forms of distance learning as seriously as others (p. 44).

Although there is much debate in the literature about the validity of comparative studies, there is some evidence to support the argument that media do affect learning. Kozma (1991) states that:

> ... the capabilities of a particular medium, in conjunction with methods that take advantage of these capabilities, interact with and influence the ways learners represent and process information and may result in more or different learning when one medium is compared to another for certain learners and tasks (p. 179).

Kozma proposes that learning is an active, constructive process whereby the learner through the medium "strategically manages the available cognitive resources to create new knowledge by extracting information from the environment and integrating it with information already stored in memory" (p. 179).

In 1983, Clark claimed that media are "mere vehicles that deliver instruction but do not influence student achievement any more than the truck that delivers our groceries causes changes in our nutrition" (p. 445). Clark (1994) suggests that there is evidence in the literature that "instructional methods have been confounded with media and that it is methods which influence learning" (p. 22). He argues that learning is influenced more by content, instructional methods and/or strategies used, and consideration of other variables, such as task and learner aptitude than by the type of medium adopted. Clark's position is that all methods required for learning can be delivered by a variety of media and media attributes (p. 26).

Garrison (1990) contributes to the discussion by suggesting that "the effectiveness of the educational transaction is dependent upon the facilitation of communication and the active involvement of the learner" (Garrison, 1990, in Hillman et al., 1994, p. 34). Building on this concept, Hillman et al. (1994) stress that despite the proficiency level of the learner, if

they are unable to interact successfully with the technology, whatever the cause, the learner's active involvement in the educational transaction with be inhibited (p. 34). This point has significant implications for a globally distributed community where technology failures (e.g., connection with service providers, hardware), transmission failures (i.e., audio, visual) and human error in interacting with the medium are all likely to occur.

Bates (1995) and other scholars have suggested that learning is affected more by what is delivered than by the media used. They support the view that instructional strategies play a critical role in either overcoming the limitations of a particular instructional technology or capitalizing on its advantages. Koumi (1994) makes a compelling argument that:

> Instead of persisting in trying to "prove" media, let's first try to deploy different media to best effect. Let's take that as sensible and get on with the job of being as creative as possible with the distinctive capabilities of each medium .... Admittedly the criteria for optimal media deployment have been mainly in the form of unwritten intuitions (p. 44).

Bates (1995) suggests that the questions that need to be asked by distance practitioners are not which medium works best, but rather how best to incorporate media attributes into the design of effective instruction for learning. Furthermore, Bates stresses that well designed instruction (that takes into account variables such as the audience, financial/equipment availability, resources, intended instructional outcome, etc.) is more likely to bring about a desired change in learning and performance than is technology alone, regardless of the types of technology used (Bates, 1995, pp. 12 –14).

The Adoption of Technological Innovations

When considering the impact and use of technologies in a virtual community of practice it is helpful to think of these technologies as "innovations." Rogers (1995) defines an innovation as "an idea, practice, or object that is perceived as new by an individual or other

unit of adoption" (p. 11). Rogers uses the word "innovation" and "technology" as synonyms. According to Rogers' diffusion of innovations theory the characteristics of the innovations, as perceived by individuals, help to explain their different rate of adoption (p. 15). He argues that a technological innovation will be adopted more quickly if the potential adopters perceive the innovation to possess the following characteristics:

- **Relative advantage.** The degree to which an innovation is perceived as better than the idea it supersedes. The individual perceives the innovation as advantageous. It does not matter if the innovation has a great deal of objective advantage.
- **Compatibility.** The degree to which an innovation is perceived as being consistent with existing values, past experiences, and the needs of potential adopters. An innovation that is incompatible with the values and norms of the social system will not be adopted as rapidly as one that is compatible.
- **Complexity.** The degree to which an innovation is perceived as being difficult to understand and use. New ideas and innovations that are simplier to understand are adopted more rapidly than innovations that require the adopter to develop new skills and knowledge.
- **Trialability.** The degree to which an innovation may be experimented with on a limited basis. An innovation that is trialable represents less uncertainty to the individual as it is possible to learn by doing.
- **Observability.** The degree to which the results of an innovation are visible to others. The easier it is for individuals to see the results of an innovation, the more likely they are to adopt it (Rogers, 1995, pp. 15 – 17).

The Social System

Rogers (1995) states that "diffusion occurs within a social system" over time and that the social structure of the system affects the diffusion of the innovation (p. 24). Therefore, it is important to consider the structure of the social system (e.g., supervisors in an organization, all the financial sector supervisors in a country, all the financial sector supervisors in the world), as well as the communication structure between a system's members. Rogers suggests that "the structure of the social system can facilitate or impede the diffusion of innovations in a system" (p. 25).

In considering factors that may impact the adoption of technologies in social systems (e.g., virtual communities of practice), many distance scholars argue that the unique attributes or characteristics of different media are not fully understood by organizations and are not being properly exploited. They suggest that decision-makers are relying on factors such as the availability of resources (both human and financial), and in their own preconceptions and interests in the selection of media (Bates, 1995; Guy, 1991; Moore & Kearsley, 1996). Although technology appeals to organizations for practical reasons, a review of the literature suggests that some of the reasons technologies fail to have the desired impact are:

- Inability of the organization to fully appreciate and/or leverage strategies that address individual resistance to technology (Bates, 1995; Rogers, 1995);
- Non-systematic style of planning for adoption of the technology (Cavaleri & Fearon, 1996; Senge, 1990); and
- Lack of strategic management (Bates, 1995; Cavaleri & Fearon, 1996).

Communication in the Social System

Rogers (1995) diffusion theory states that "communication must take place if the innovation is to spread" (p. 17). He defines communication as "the process by which participants create and share information with one another in order to reach a mutual understanding" (p. 17). Rogers argues that the essence of the diffusion process is information exchange, whereby one individual communicates a new idea to one or several other members of the social system. He suggests that "most people depend mainly upon a subjective evaluation of an innovation that is conveyed to them from other individuals like themselves who have previously adopted the innovation" (p. 18). The implication of this is that diffusion is a social process that occurs within the social system.

While communication of the innovation between members of the system is important, Rogers (1995) also cautions that when planning for the implementation of an innovation it is useful to consider the innovativeness of members in the social system. Rogers groups the innovativeness of potential adopters into five categories:

- **Innovators.** These individuals play a gatekeeping role in the flow of new ideas into a system. They tend to be venturesome, cosmopolite, possess the ability to understand and apply complex technical knowledge, and are able to cope with uncertainty and risk.
- **Early Adopters.** This adopter category has the greatest degree of opinion leadership in most systems. They serve as role models and are looked upon for advice and information about the innovation from potential adopters.
- **Early Majority.** These individuals form the largest group of the adopter categories (making up one-third of the members of a system). They tend to deliberate for a period of time before completely adopting an innovation, but seldom lead.

- **Late Majority.** Like the early majority, this category consists of one-third of the members of a system. They approach innovations with a skeptical and cautious air, and tend not to adopt until most others in the system have done so.
- **Laggards.** This group is the last in a social system to adopt an innovation. They tend to be suspicious of both innovations and change agents (Rogers, 1995, pp. 263 – 266).

Building on Research

In the literature, community is regarded as the model for dynamic, productive knowledge creation and sharing. Brown and Duguid (1991) applied Lave and Wenger's (1991) ideas regarding communities of practice to an ethnographic study previously undertaken by Orr (1990). In Orr's research, a co-located group of photocopier repair technicians were studied from the perspective of their collective memory. His explanation of how the technicians solved technical problems was based on their ability to share tacit knowledge in a CoP by telling "war stories." The process of story-telling enabled the technicians to exchange their tacit knowledge and arrive at a solution to the problem. Over time this solution was passed around the community and became part of the community's stock of knowledge. The technicians not only solved their problem but they created new knowledge that contributed to the overall development of the community (Orr, 1990, in Brown and Duguid, 1991). The concept of sharing domain knowledge and the induction of members into the community through this knowledge sharing is regarded by Brown and Duguid as a characteristic that can be found in many CoPs.

A recurring theme in the literature is that knowledge sharing is an important consideration for distance educators who hope to create effective learning strategies for professional communities of practice. The literature suggests that communities of practice

form and share knowledge on the basis of "pull" by individual members, rather than a centralized or organizational "push" of information. It is also suggested in the literature that distance practitioners must provide support that corresponds to the real needs of the communities of practice. Techniques such as meetings, forums and discussions are used extensively to create knowledge through the process of social interaction and collaboration. In addition, tools such as e-mails and intranets are used to encourage active participation (Denning, n.d.; Kimble et al., 2000; McDermott, 2000).

Distance education practitioners will also find that much of the literature dealing with professional communities of practice is primarily related to communication and learning in co-located communities with little discussion regarding designing for these communities. A review of the literature evidences a growing recognition that communities of practice (whether co-located or virtual) need to be able to select and manage information in a way that is enabling. The literature makes reference to the potential for collective, situation-based information and learning, and continuing professional development that builds on the experiences that exist in the community. Furthermore, a review of recent literature indicates that increasingly information technology is being viewed as a potentially revolutionary tool to build communities, strengthen professional relationships, and stimulate community planning and action (Denning, n.d.; Kimble et al., 2000; McDermott, 2000).

Kowch and Schwier (1997b) suggest that the construction of virtual communities of practice is a purposeful act that requires an intimate knowledge of the needs of the participants and the capabilities of emerging technologies and design concepts (Kowch & Schwier, 1997b, p. 10). However, it appears that few studies have focused on the design and support of virtual communities of practice in organizations. Also, there is little research that

relates to virtual communities of practice where geographically dispersed members come from different organizations.

Summary

In this chapter theoretical and philosophical papers as well as research study reports were reviewed in an effort to provide the necessary background and focus for this study. The literature review began by exploring the concept of knowledge creation and management. The literature suggests that knowledge is the most strategically important resource and that learning is the most strategically important capability for organizations and communities of practice. Furthermore, communities of practice have been identified in the literature as a setting for effective knowledge sharing. The general consensus is that communities of practice develop their shared practice by interacting around problems, solutions, and insights, and building a common store of knowledge.

The literature also suggests that communities of practice can be "virtual." Little reference in the literature exists on virtual communities of practice therefore the concept of media and learning as it relates to supporting community members was then explored. This exploration indicated that learning is affected more by what is delivered than by the media used. The literature suggests that instructional strategies play a critical role in either overcoming the limitations of a particular instructional technology or capitalizing on its advantages.

The literature review concluded by examining Rogers' (1995) diffusion of innovations theory. His theory suggests that when planning for the implementation of an innovation it is useful to consider communication in the social system and the innovativeness of its members.

And finally, the literature was reviewed to identify possible community of practice design and support strategies.

CHAPTER III

METHODOLOGY

Introduction

This exploratory study examined how learners and facilitators in a virtual community can build and sustain a sense of community. The purpose of this research was to develop a design framework for how information technology can be used by distance education practitioners to support learning and the sharing of knowledge in globally distributed communities of practice. Further, the intent was to study the perspectives of an international community of practice that are using information technology to interact and develop skills and knowledge in their respective fields. The aim of this study is to develop a design framework for how information technology can be used by distance education practitioners to support learning and the sharing of knowledge in globally distributed communities of practice.

The study examined historical records and documents to collect issues and themes regarding the environment and workings of the community of practice. Historical documents investigated for possible themes included Toronto Centre Leadership and Associates Program course materials, internal reports and studies as well as participant reaction evaluation feedback reports (which are composed of Likert scale questions and free-form qualitative questions). Based on emerging themes, an online survey was developed and distributed to all Toronto Centre Associates who attended classroom-based face-to-face Leadership Programs between May 1998 and April 2002. The survey was followed by a series of semi-structured interviews that attempted to gather information on how information technology can better meet the needs of the community.

Specifically the study sought answers to the following questions:

1. What types of media do financial sector professionals use to share information within the community?
2. What learning or information types are facilitated by information technology in the virtual community?
3. What specific needs do professionals have regarding learning and sharing knowledge with other members of the community?
4. How helpful do professionals find various instructional technologies offered in the Leadership and Associates programs?
5. What strategies are perceived as best supporting learning and the sharing of knowledge in the community of practice?

The Research Design

"Research methods are not merely different ways of achieving the same end. They carry with them different questions, different ways of asking questions, and often different commitments to educational and social ideologies" (Shulman, 1988, p. 15). The responsibility of the researcher to select the appropriate method for a particular study is both important and difficult.

Qualitative research, as described by Creswell (1994), is an inquiry process based on building a complex, holistic understanding of a social or human problem. It is characterized by data collection in a natural setting where the researcher interacts with those they study. Furthermore, the research tends to be descriptive and is concerned with process as well as outcomes or products. Generally, the data are analyzed in an inductive process that leads to patterns or theories that help explain a phenomenon (pp. 2 – 11).

The literature suggests that in the planning stages of a study it is useful to consider the key characteristics of qualitative research. Qualitative research:

- Requires the researcher to engage with the persons, events and environment under investigation;
- Tends to focus on the process of generating new concepts or theories;
- Seeks to provide detailed descriptions of phenomena in all their complexity;
- Attempts to uncover the assumptions that bring about events or actions;
- Uses natural settings for primary data; and
- Tends to deal with relatively small samples and uniqueness (Creswell, 1994; Hoepfl, 1997; Maurch & Birch, 1998).

With these philosophical characteristics in mind, and considering the questions driving this study, I decided that the appropriate research method would be a case study. Although there are numerous definitions, Yin (1994) describes the scope of a case study as "an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident" (Yin, 1994, p. 13). I considered the case study method to be appropriate because it focuses on holistic description and explanation of a phenomenon or entity. In addition, a case study has been described as an appropriate strategy for answering research questions which ask how or why and which do not require control over the events (Yin, 1994; Winegardner, n.d.; Tellis, 1997). The Leadership Programs delivered by the Toronto Centre to financial sector supervisors world-wide provided the context for this single-case study. The phenomenon

examined is the perceptions of financial sector supervisors who use information technology for learning and sharing knowledge in their community of practice.

Grounded Theory as a Research Framework

Grounded theory is a qualitative methodology that derives its name from the practice of generating theory from research, which is "grounded" in empirical data. The rationale behind the grounded theory method is that theory should be grounded in empirical evidence, that is it should evolve from data, rather than be developed *a priori* and then be tested. Formally introduced by the sociologists Glaser and Strauss in the late 1960s, this methodology has emerged as an alternative approach to more traditional scientific inquiry methodologies. The attraction to grounded theory is that it does not start with hypothesis or research questions like deductive inquiry methods. Instead, grounded theory starts with a phenomenon that the researcher finds to be inadequately explained in theory and with a well-defined research problem (Creswell, 1994; Fischer, 1997; Hansen, 1998). In fact, Strauss and Corbin (1990) state that "one does not begin with a theory, then prove it. Rather, one begins with an area of study and what is relevant to that area is allowed to emerge" (p. 23).

Grounded theory research relies on several components:

- An empirical, iterative approach to the collection and analysis of data. Whereby, data are collected, analyzed, and revised cyclically as checked against empirical findings.
- A constant comparative approach to the development of theory. Similarities across disparate domains are sought in order to illuminate the dimensions present in a situation. Less emphasis is placed on the degree to which a given variable presents itself in a situation.

- An approach to sampling which is theoretical, rather than site or population driven. This means that emphasis is put on making theories as richly complex as possible, rather than on proving previous theories (Babchuk, 1996; Hansen, 1998; Pandit, 1996).

In essence, grounded theory research begins by focusing on an area of study and gathering data from a variety of sources, including interviews and field observations. Once gathered, the data are analyzed using coding and theoretical sampling procedures. When this step is completed, theories are generated, with the help of interpretative, constant comparison procedures, before being finally written up and presented.

The grounded theory method has found favour in many disciplines including educational research, especially where:

- Phenomena are expected to be studied without being manipulated to suit a predetermined research design;
- The phenomena have diverse multi-faceted settings; and
- Must build on existing thinking or offer theory where there is no prior theory to explain the phenomena (Fischer, 1997; Hansen, 1998).

The grounded theory method appeared to be an appropriate choice for this study for the reasons presented by Babchuk (1996):

> Given its focus on generation of theory from data collected in the field, it seems ideally suited for adult education, a discipline which is characterized by its lack of a well-developed theoretical foundation and a strong commitment to the world of practice. Grounded theory not only offers adult educators a time-honored qualitative research strategy as an alternative approach to more traditional methods of investigation, but provides a viable means for scholars and practitioners to generate theory grounded in the realities of their daily work (p. 7).

Grounded Theory Reconstructed

Over time, Glaser and Strauss, alone and in collaboration with others, began to re-conceptualize and adapt their theory and how it might best be applied. Babchuk (1996) in reviewing Glaser and Strauss' versions of grounded theory states that two very distinct approaches have evolved based on their original work together, each with its own epistemology and attendant properties. Glaser's adaptation of the theory is described by Babchuk as being a "qualitative paradigm." Babchuk further states that Glaser views grounded theory as "a more laissez-faire type of an operation which is inherently flexible and guided primarily by informants and their socially-constructed realities" (p. 2). To Glaser, the informant's "world" should emerge naturally from the analysis with little effort or detailed attention to process on the part of the researcher (p. 3). In contrast, Strauss, while committed to discovering insights into the realities of participants, appears to be more concerned with producing detailed descriptions of the cultural scene. Strauss is noted by Babchuk for his emphasis on retaining the "canons of good science" such as replicability, generalizability, precision, significance, and verification, which aligns him with more traditional quantitative doctrines (p. 3).

Babchuk (1996) concludes that although there is increased use of grounded theory in adult education and other forms of educational inquiry, there is yet considerable disagreement concerning the implementation of the methodology. He relates that the greatest problem with researchers who have applied grounded theory is that they have generally not outlined the specifics of their research, and have failed "to provide information concerning the process they employed or the methodologically-related decisions they surely must have made" (p. 7). Babchuk suggests that researchers specify which of the author's publications

were used to guide their research; clearly state the steps they have followed in their research; and whenever possible, engage with colleagues in an on-going dialogue at all phases of the research project, which provides a form of internal triangulation and peer review (p. 6).

Building Grounded Theory Research

It became quite clear as I prepared my proposal for this thesis that grounded theory would provide the rigor and structure that this study required. I believed that the three basic elements of the theory – concepts, categories, and hypotheses – would provide me with an iterative and highly intuitive process that would result in a better understanding of my topic. In addition, the five analytic, but not necessarily sequential, phases of grounded theory building – research design, data collection, data ordering, data analysis and literature comparison – had great appeal to my need for a framework with which I could conduct the study (Strauss & Corbin, 1990; Pandit, 1996). Furthermore, the evaluation approach described by Pandit (1996) in his application of the grounded theory method had the appeal of increasing the validity and reliability of my research. The four research quality criteria described by Pandit are:

- **Construct validity.** Construct validity is improved by creating clear and specific operational procedures;
- **Internal validity.** Internal validity relates to the credibility of the research findings. It may be enhanced by determining causal relationships whereby certain conditions are shown to lead to other conditions;
- **External validity.** External validity requires clearly establishing the domain whereby the research findings can be generalized. It requires generalizing a particular set of findings to some broader theory rather than a broader population; and

- **Reliability.** Reliability requires demonstrating that the operations of a study (i.e., data collection procedures) can be repeated with the same results (Pandit, 1996, p. 2).

Table 2 provides an overview of how the five phases of grounded theory building were applied in this study and the following sections provide a more descriptive account of the application of the methodology.

The Research Design Phase

My curiosity about virtual communities of practice began when I started consulting work with the Toronto Centre in the summer of 2000. The Toronto Centre was a relatively new (established in 1997), not for profit organization, that had a vision of taking learning beyond the classroom by providing a "forum" where Associates from the banking, insurance and securities markets sectors world-wide (i.e., individuals who had attended a classroom-based face-to-face Leadership Program session) would continue to share information, exchange ideas, work collaboratively, and locate topical information on supervisory issues. This led me to wonder if there were design strategies and/or best practices used by other organizations that would help facilitate the exchange of information in this community of practice. I also wondered what the Associates' perceptions were of the instructional technologies (i.e., discussion board, chat room, etc.) that had been implemented in the Associates Forum web site early in 2001. It is my understanding that the organizational thinking at the time these technologies were implemented was that the Toronto Centre would get all of the technologies in place and then worry about getting people to use it. Little thought had gone into understanding what the community would be able to use and/or would want to use. Little attention was being paid to whether the community was going to use these instructional technologies, and if they did, how should they be using them, and most

Table 2. The Five Phases of Grounded Theory Building

1. Research Design Phase	
Review of the literature	Investigate phenomenon of virtual communities of practice with the goal of defining the research questions.
Select cases	Identify cases, that is the principal units of data, according to the principle of theoretical sampling.
2. Data Collection Phase	
Establish data collection protocol	Employ multiple data collection methods (triangulation) that includes both qualitative and quantitative data in order to strengthen construct validity, internal validity and reliability.
Collect and analyze data simultaneously	Continually review data and make adjustments to the data collection process in light of the emerging findings. Take advantage of emergent themes and unique case features.
3. Data Ordering Phase	
Order data	Arrange events in study chronologically to facilitate the collection, recording and analysis of data.
4. Data Analysis Phase	
Use open, axial and selective coding to analyze data	Develop codes that label and categorize the phenomena as indicated by the data. Re-construct the data by making connections between a particular category and its sub-categories. Integrate the categories to form the initial theoretical framework.
Repeat until theoretical saturation	Extend and/or sharpen the emerging theory by adding categories that may need further refinement and/or development. When marginal value of new data occurs end analysis phase.
5. Literature Comparison Phase	
Compare emergent theory with existing literature	Determine what is similar, what is different, and why between the emergent theory and the literature.

important, what content would they want and what content could be made available. Pondering on these issues led me to initiate a literature review.

Strauss and Corbin (1990) suggest that two types of literature may be used in a literature review:

- Technical, which includes professional and disciplinary writing in the form of theoretical and philosophical papers as well as research study reports; and
- Non-technical, which includes letters, reports and other materials that are considered primary data to be analyzed for theory development.

Specific research questions were composed once I had completed an initial review of technical and non-technical literature. Non-technical literature examined in this study included Toronto Centre course materials, internal reports and studies as well as participant reaction evaluation feedback reports (which are composed of Likert scale questions and free-form qualitative questions).

The literature review and subsequent development of research questions provided me with an initial theoretical sensitivity to the area of study which led to the selection of "cases" that would provide the principal units of data. The first unit of data included historical records. The second included financial sector supervisors who had attended Leadership Program sessions between May 1998 and April 2002. These cases were selected according to the principle of theoretical sampling as defined by Glaser and Strauss (1967). That is:

> The process of data collection for generating theory whereby the analyst jointly collects, codes, and analyses his data and decides what data to collect next and where to find them, in order to develop his theory as it emerges (p. 45).

This decision was made with the understanding that "specific sampling decisions evolve during the research process itself" (Strauss & Corbin, 1990, p. 192). Grounded theory samples tend to include people who are experiencing the social process being investigated (Fischer, 1997). Furthermore, Davidson (2001) states that within the grounded theory framework "data collection is directed by theoretical sampling, which means that the sampling is based on theoretically relevant constructs" (Davidson, 2001, para. 4).

Historical records. The Associates Program was officially launched in October 2001. Since that time there have been a few "pilot" communication/training sessions in video and web conferencing technologies. The intent of these pilot sessions was to test the viability of these technologies. Learner reaction evaluation reports pertaining to these sessions were examined. Each of these sessions covered a supervisory topic that the Toronto Centre believed was of interest to Associates. A brief description of each session follows:

- **Contingency Planning Video Conference (September 2000).** This session represented the first attempt at bring Associates together using instructional technology. The training was delivered to 16 supervisors from five countries and focused on information dissemination and knowledge building in the area of contingency planning. The one hour broadcast included a guest panel of well-known financial sector supervisors.
- **Contingency Planning for Systemic Crisis Web Conference (February 2001).** This session represented the first attempt at bring Associates together using web conferencing technology. The purpose of the web conference was to determine the feasibility of the medium and to provide Associates with an opportunity to hear expert perspectives and commentaries on different areas of supervision. The training was delivered to 27

countries and approximately 100 people. The one hour broadcast included two expert speakers and a host.

- **Consolidated Supervision Web Conference (June 2001).** This two hour session was delivered to 170 people in 30 countries. The purpose of the web conference was to further explore the capabilities of the medium. The broadcast included three expert speakers and a host.
- **Guidance for Developing Deposit Insurance Systems Web Conference (September 2001).** The third web conference on the topic "Guidance for Developing Deposit Insurance Systems – Findings from the Financial Stability Forum Workshop Group on Deposit Insurance" was delivered to 23 countries and 151 participants. The two hour broadcast included one keynote presenter and the host.

At the time of this study there was no evaluation documentation pertaining to the remainder of the Associates Program, including the Associates Forum web site, monthly e-mail communication, and quarterly newsletters. However, an evaluation of the Leadership Program between 1998 and 2000 existed. This evaluation had been conducted by PricewaterhouseCoopers LLP in the spring of 2001 and was made public in November 2001. This document provided some insight into the learning methodologies used by the Toronto Centre and their impact on participants (PricewaterhouseCoopers LLP, 2001).

Research population. Since the first face-to-face session offered in May 1998, the Toronto Centre has delivered week-long Leadership Program sessions to senior financial supervisory executives who are responsible for supervision and regulation in their country's financial sector. These supervisors have come from all markets and all continents, although the majority of attendees have come from developing and emerging countries. In September

2000, the Toronto Centre expanded the reach of these Leadership Programs by delivering them regionally as well as to specific countries.

As of April 2002, the Toronto Centre reported a contact management database listing of 524 senior financial supervisory executives from 112 countries. From this population it was estimated that 396 could be contacted by e-mail. The Program Manager, Planning, Registration and Associates Program reported that approximately 50 individuals have limited or no contact information and 75 are not longer in supervisory positions. The database does not have the capability to sort individuals without e-mail addresses so that they could be contacted by other means. Consequently, these individuals were excluded from the study.

To encourage participation in the study, preliminary information regarding this study was communicated to Associates via the spring Associates Forum newsletter and the April 2002 monthly e-mail. Once the online survey was tested and ready to launch in May, an e-mail was then sent to 396 Associates that included a letter which described the nature and purpose of this study and requested the Associates' agreement to participate in the research (see Appendix A). This communication was followed by weekly e-mail requests from the Toronto Centre asking for participation in the study. After six weeks of monitoring the response rate to the online survey it was decided (by both the Toronto Centre and myself) that the survey would be closed. By the time the survey was concluded, 102 Associates (representing a 26% response rate) had responded to the survey and 83 of these respondents indicated that they would be willing to be interviewed.

After analyzing the survey data, a number of theoretically useful concepts emerged. Based on these apparent themes and patterns, I concentrated on identifying additional theoretically useful cases that might build on the theory that was beginning to emerge. At this

point, 20 of the 83 Associates were identified as possible interview candidates. This group was selected based on the following criteria:

- Geographic area;
- Financial sector; and
- Position in organization.

Each of the 20 individuals were sent an e-mail with details regarding the time and date of the telephone interview. 15 individuals were available to participate in the interviews. The remainder could not participate due to scheduling problems or vacations. Table 3 describes the sample group of interviewees.

Table 3. Interview Participants

Descriptor	**Sample Group**
Geographic area	North America: 1 Latin America and Caribbean: 5 Africa – Sub-Saharan: 2 Europe and Central Asia: 2 Middle East and North Africa: 2 South Asia: 0 East Asia and Pacific: 2 Australia and Oceanus: 1
Financial Sector	Banking: 7 Insurance: 2 Securities: 1 Other: 5
Position in Organization	Senior Executive/Key Decision Maker: 8 Middle Manager with reporting line to Senior Executive: 5 Supervisor/Manager reporting to Middle Manager: 1 Other: 1

The Data Collection Phase

Simon and Burstein (1985) state that "the best general approach to overcoming obstacles to knowledge is to employ two or more very different research methods" (p. 238). Typically, when researchers use grounded theory methodology, data is collected from interviews, documents, and observations of human behaviour in natural settings or from a combination of all these sources (Creswell, 1994; Fischer, 1997; Hansen, 1998). Glaser and Strauss (1967) suggest that "in theoretical sampling, no one kind of data on a category nor technique for data collection is necessarily appropriate. Different kinds of data give the analyst different views or vantage points from which to understand a category and to develop its properties" (p. 65).

In this study, data collection was conducted using multiple data sources and methods. In order to improve construct validity, internal validity and reliability, triangulation was used. The concept of "triangulation" is based on the assumption that any bias inherent in particular data sources, the investigator, or the method would be neutralized when used in conjunction with other data sources, investigators, and methods (Creswell, 1994). Grounded theory advocates are supportive of this approach (Pandit, 1996; Davidson, 2001). In fact, Glaser and Strauss (1967) believe that both quantitative and qualitative data are useful for both the generation and verification of theory. They state that:

> ... in many instances, both forms of data are necessary – not quantitative used to test qualitative, but both used as supplements, as mutual verification and, most important for us, as different forms of data on the same subject, which, when compared, will each generate theory (p. 18).

As a result of the distributed nature of the population sample, cost and time constraints, and the need to employ multiple data collection techniques the study was designed to consist of three consecutive phases that combined qualitative and quantitative methods.

Historical documents. Because of the exploratory nature of this study, I expected that the data gathered during this phase would both help me get a "feel" for the culture and workings of the community of practice and point to issues and themes which could be explored in the second phase. Quantitative and qualitative data were collected from reaction evaluation reports compiled by the Toronto Centre. These reports summarized learners' reactions to one video conference offered in 2000 and three web conferences offered in 2001. The sample size of the combined learner population included in these reaction evaluation reports was 437 individuals. This data was used to guide the development of the online survey questions. Once I had identified some emerging themes, I reviewed internal reports and studies and spoke with Toronto Centre management in order to gain a further understanding of the underlying design and support strategies that had been utilized in the creation of the Associates Program.

Online Survey. During this phase, quantitative and qualitative data were collected from the Associates Survey (see Appendix B). The purpose of the survey was to obtain more data about the attitudes and behaviours of the study population after their return home from their one-week Leadership Program session in Toronto. The survey was a self-designed instrument. During the development of the survey I understood that the construct of the questions could introduce error and/or bias into the study. Therefore, prior to distribution of the survey, a number of individuals were asked to provide feedback on the survey questions. This included two experts on evaluation, Toronto Centre management, colleagues with experience in distance education and evaluation, and three financial sector supervisors representing the target population. Based on this feedback, the survey was revised. In addition to the feedback on the construction of the actual questions, the technology was

rigorously tested to ensure that participant responses to the survey questions would be accurately captured in a data file that could be imported into a Microsoft Excel spreadsheet. Once the testing was completed, the e-mail communication requesting participation in the study was distributed to 396 Associates.

The online survey was made available to the Associates for a six-week period. Each week a reminder notification was sent from the Toronto Centre's Program Manager, Planning, Registration and Associates Program to Associates. There was a response rate of 26% – that is, 102 Associates provided their feedback to the Likert scale and open-ended questions contained in the survey. In addition, 83 individuals agreed to be interviewed.

Telephone interviews. Qualitative data was gathered at this phase through 15 telephone interviews. The interviews were conducted using a semi-structured interview approach, following 23 general questions (see Appendix C). Since this study was intended as exploratory research, I believed that participants needed to feel free to raise issues or comment, as they wanted to during the interview. This is one of the advantages of semi-structured interviews – not all questions need to be designed and phrased ahead of time. Rather, the majority of questions tend to be created during the interview, allowing both the interviewer and the person being interviewed the flexibility to probe for details or discuss issues. Although this was a key advantage, I was not fluent in the "language" of the community. I felt that this could impact the quality and quantity of the data I received, as I would not be able to respond or probe if participants mentioned specific supervisory issues or challenges. Therefore, it was decided that the Director of the Toronto Centre would co-facilitate the interviews. My role would be to probe for educational and technology related issues while the Director would probe supervisory issues. Interviews were between 40 and 60

minutes in duration, with the average interview being approximately 45 minutes. All interviews were completed within a four-week period.

After establishing rapport at the beginning of each interview, participants were informed of the purpose of the study, what the interview would entail, and the purpose of the interview for the study. Participants were also asked if they would grant permission for the interview to be tape-recorded so that we could better focus on the flow of the conversation instead of note-taking. All of the participants agreed to having their interview tape-recorded.

In addition to these tapes I had created an interview form for note-taking during the interviews. At the top of the form the participant's identifier was recorded. Directly below this on the left hand side was a notes section where key remarks could be recorded during the interview. On the right hand side was a column for coding and/or themes that emerged in the conversation. Immediately after each interview, the Director and I would have a discussion regarding our impressions of the interview. We would identify the main themes and record them in this column as well as any notes pertaining to our interpretations, analysis and observations.

Grounded theorists like other qualitative researchers strive to report what is actually going on, not what ought to go on. Therefore in this study, direct quotes and statements have been taken from the interview transcript – I did not use paraphrasing in an attempt to substantiate emerging themes or categories.

Grounded theorists also start with a set of experiences they wish to explore. In using the grounded theory approach the problem is allowed to emerge from the data. By analyzing data from the lived experience of the research participants at each phase of data collection, I could gain an understanding of how they construct their world. In this study, data gathered

during the data collection phase was refined and refocused based on emerging findings. This is in keeping with the tenets of grounded theory whereby:

> Joint collection, coding, and analysis of data is the underlying operation. The generation of the theory, coupled with the notion of theory as process, requires that all three operations be done together as much as possible. They should blur and intertwine continually, from the beginning of an investigation to its end (Glaser & Strauss, 1967, p. 43).

This process of simultaneous data coding and analysis allowed me to make adjustments as required to the various components of the data collection phase. Eisenhardt (1989), describes this flexibility as "controlled opportunism" (Eisenhardt, 1989 in Pandit, 1996, p. 7).

The Data Ordering Phase

The data gathered in this study was ordered chronologically. Yin (1989, in Pandit, 1996) suggests that:

> The arraying of events into a chronology permits the investigator to determine causal events over time, because the basic sequence of a cause and its effect cannot be temporally inverted. However, unlike the more general time-series approaches, the chronology is likely to cover many different types of variables and not be limited to a single independent or dependent variable (p. 7).

Throughout this study I endeavoured to balance the need for rigour and accuracy by adhering to the iterative, five analytic phases described earlier in this chapter with my need to have flexibility in adapting to emerging issues. By adopting this approach, I was able to re-examine the process I was following and make adjustments as necessary.

The Data Analysis Phase

Hoepfl (1997) suggests that data analysis requires some creativity on the part of researchers and that "the challenge is to place the raw data into logical, meaningful categories; to examine them in a holistic fashion; and to find a way to communicate this interpretation to others" (Hoepfl, 1997, Analysis of data, para. 1).

Grounded theorists argue that by analyzing data from the lived experience of the research participants, the researcher can, from the beginning attend to how they construct their world. The researcher begins by looking for underlying processes, which are then coded. These codes are compared to other data, and assigned to categories according to apparent fit. By reducing these categories further the researcher is essentially trying to link or fit everything together. As the linkages emerge, categories collapse and form more general categories. Theoretical sampling is the means by which these categories are developed and the process continues until the categories are exhausted.

The grounded theory method appears unique to other approaches in that data collection and analysis proceed simultaneously. Throughout the study, data are compared continuously with other data (constant comparison method) to detect emerging categories and themes and to direct the data collection process. During this comparison framework there are three types of coding that may occur:

- **Open coding.** Once initial data are collected, the researcher begins identifying patterns and tentatively sorts the data into categories or themes. This is referred to as "open coding." Codes act as devices to label, separate, compile, and organize data. During this phase it is important that the researcher develops codes that fit the data, rather than forcing data into preconceived codes (Creswell, 1994; Dick, 2001; Fischer, 1997; Hoepfl, 1997; Pandit, 1996).
- **Axial coding.** In the next phase of the analysis, the initial categories are re-examined to determine if any links or connections exist. This process is referred to as "axial coding." During this phase causal events that appear to be contributing to the phenomenon, descriptive details of the phenomenon itself, and the ramifications of the phenomenon

under study are identified and explored. The researcher is responsible during the axial coding phase for building a conceptual model and for establishing whether sufficient data exists to support that interpretation (Creswell, 1994; Dick, 2001; Fischer, 1997; Hoepfl, 1997; Pandit, 1996).

- **Selective coding.** The last phase in the coding process is referred to as "selective coding." Selective coding involves the integration of the categories that have been developed to form the initial theoretical framework. This involves the validation of the relationship between the central phenomenon and the categories, as well as further development and elaboration of these categories. The main goal during this phase is to define these categories as well as fully explain the interrelationship that exists between them (Creswell, 1994; Dick, 2001; Fischer, 1997; Hoepfl, 1997; Pandit, 1996;).

In this study, I began data analysis with the open coding process (i.e., categorizing and sorting data). In the open coding of qualitative data, I used key word analysis to extract phrases, first, from the video and web conference reaction evaluation reports, later from the qualitative section of the online survey, and finally from the interview transcripts. During the open coding process I examined the various data sources line by line with the objective of identifying emerging concepts and themes. When I examined the various reaction evaluation reports I was looking for themes to explore in the survey and follow-up interviews. Once I had this initial coding, I followed it up with axial coding. Through systematic coding of concepts and issues emerging from the data, a few key categories began to emerge with a high frequency of mention. Axial coding then helped to build and clarify these emerging categories.

In axial coding, the researcher takes a limited set of codes that were developed in the initial phase and applies them to large amounts of data. The distinction between open and axial coding being that with open coding data is broken down into concepts and categories, whereas with axial coding data are put back together in new ways by making connections between a category and its sub-categories (Pandit, 1996, p. 9). During axial coding, I wrote memo notes on post-it notes. I would record thoughts about the data I was examining and what it may be indicating. These post-it notes provided an easy way to sort and structure ideas as I began to formulate categories and later integrate categories into a defining core category. By moving and rearranging the post-it notes on the wall of my office, sorting and re-sorting them at times, possible patterns and relationships arose.

Grounded theorists strongly suggest that one of the major tasks in theory development is memo writing. They relate that through memo-writing the researcher moves directly into analysis of the data. In essence, memos are the written elaboration of ideas about the data and the coded categories. The memo actually informs what the code is about and provides the pivotal step of defining the relationship between the codes and the categories and their components (Dick, 2001; Fischer, 1997; Hoepfl, 1997; Pandit, 1996).

Throughout the process of open and axial coding a number of concepts and categories were generated and developed. During this time I also had the opportunity to analyze quantitative data, which helped provide a description of the study population and indicated trends and issues for further exploration. Primary analysis of quantitative data was done by examining the outcomes of the Likert scale questions contained in the online survey. Glaser and Strauss (1967) support the use of quantitative data. They believe that its possibilities for generating theory have been left vastly underdeveloped. Furthermore, I believe that

quantitative data are based on qualitative judgements. Thus, in gathering and analyzing quantitative data I was continually making and soliciting judgements about the relevance and ultimate saturation of a theme or category.

During selective coding the categories identified were integrated and synthesized into three core categories:

1. Communication in the community of practice;
2. Instructional technologies offered in the Toronto Centre Leadership and Associates Programs; and
3. Strategies to support learning and the sharing of knowledge in the virtual CoP.

The other main categories that had been identified were then related to these categories. At this point, I felt that all the categories had been saturated. No new information was being received that could further explain the emerging hypotheses. At this point I returned to the literature.

The Literature Comparison Phase

Dick (2001) suggests that there are two important points to be made about the literature. The first point is that in an emergent study the researcher probably won't know at the beginning what literature will turn out to be relevant. The second point is that the literature should be given the same status as other data (Dick, 2001, The place of literature, para. 1). Dick also relates Glaser's (1978) advice that researchers should not reference literature during the data collection and analysis stage since it may constrain their coding and memoing activities (Glaser, 1978, in Dick, 2001, Literature as emergent, para. 2).

During this study I endeavoured to treat the literature as another form of data. In fact, because of the timeframe set for data collection and analysis, as well as other consulting

commitments, there was little time available to revisit the literature. However, once I found that the categories had become saturated, then I followed Pandit's advice and began "to compare the emerged theory with the extant literature and examine what is similar, what is different, and why" (Pandit, 1996, p. 11). The important task at this point in the study was to maintain the constant comparison approach. I compared new and prior literature sources to my emerging theory following the same data collection procedures of note-taking, coding and memoing. This helped me to establish where this research and emerging theoretical framework fit into the current thinking in the field and led to the development of a model that attempts to illustrate the community of practice from the perspective of the members of the community.

The Researcher's Role

Creswell (1994) states that qualitative research is interpretative research and as such, the biases, values, and judgement of the researcher should be stated explicitly in the research report. This openness is considered to be useful and positive (p. 147). Creswell suggests that the researcher should:

- Include statements about past experiences that provide familiarity with the topic, the setting, or the informants as these experiences likely will shape the interpretation of the report; and
- Discuss steps taken to gain entry to the setting and to secure permission to study the informants or situation (including the ethics board's review to protect the rights and confidentiality of human subjects) (pp. 147 – 148).

Creswell and others agree that the researcher's contribution to the research setting can be useful and positive rather than detrimental (Creswell, 1996; Dick, 2001; Simon &

Burstein, 1985). In practical terms, each researcher brings with them years of professional and personal experiences. This background can actually provide a basis, or a starting point, which assists the researcher's understanding of the area they are investigating.

During the last two years I have worked closely with key decision-makers at the Toronto Centre, in various capacities, in the design, development, implementation and evaluation of the Toronto Centre's one-week Leadership and Associates Programs. I believe that this understanding of the context of the community of practice and my extensive experience with instructional technologies enhanced my sensitivity, knowledge, and awareness of the issues and challenges. My skills and knowledge combined with the relationship I have built with the Toronto Centre helped me to gain entry to the study population.

In addition, I acknowledge that as a result of my previous experiences with instructional technologies, I bring certain biases to this study. Although I have made every effort to ensure my objectivity, these biases may have shaped the way I viewed, understood, and interpreted the data I collected. I began this study with the perspective that the Toronto Centre had implemented the Associates Program, specifically the Associates-only web site, without having a design strategy that included a careful analysis of Associates' needs, the climate of the community, available resources, etc. I believed that the capabilities of the various technologies implemented were poorly understood and were implemented because of their novelty and perceived ability to enable the community. From my viewpoint, it appeared that little or no thought actually went into what it was going to take to fully exploit the various instructional technologies. I wondered if the Associates understood the capabilities of these technologies and whether they were receptive to using them. I also wondered what

resources, content and activities would be necessary to support the sharing of information in the community – in my view this seemed to be lacking. Despite these possible biases, I began this study with what Glaser (1992) views as "the abstract wonderment of what is going on that is an issue and how it is handled" (Glaser, 1992, in Babchuk, 1997, p. 4). I approached this research with an open mind and a genuine desire to understand the phenomenon of learning and knowledge sharing in globally distributed communities of practice.

Permission to enter the setting was granted by the management of the Toronto Centre, after some discussion about the intent of the study and the subsequent development of a research proposal. The research proposal submitted to Toronto Centre senior management described the status of the Toronto Centre's evaluation process, recommendations for involvement in the study (i.e., the benefits to both parties) and what steps would be taken throughout the data gathering and analysis process. It also outlined the roles and responsibilities of both parties. Once permission was granted by the Toronto Centre to initiate the study, my thesis proposal was sent to the Research Ethics Board at Athabasca University for approval in accordance with the requirements of the Master of Distance Education designation. Upon approval of the thesis proposal, the study was initiated. Then at each of the three consecutive phases of the data collection process, ethical approval was sought and granted by the distance education university's Ethics Board.

Summary

Grounded theory research begins by focusing on an area of study and gathering data from a variety of sources, including interviews and field observations. Once gathered, the data are analyzed using coding and theoretical sampling procedures. When this step is

completed, theories are generated, with the help of interpretative, constant comparison procedures, before being finally written up and presented.

This study applied the grounded theory method of inquiry to explore the perspectives of an international community of practice that are using information technology to interact and develop skills and knowledge in their respective fields. The purpose of this study was to develop a design framework for how information technology can be used by distance education practitioners to support learning and the sharing of knowledge in globally distributed communities of practice. Further, the intent was to study the perspectives of an international community of practice that are using information technology to interact and develop skills and knowledge in their respective fields. The aim of this study is to develop a design framework for how information technology can be used by distance education practitioners to support learning and the sharing of knowledge in globally distributed communities of practice.

The research design employed both quantitative and qualitative data collection methods. It included the analysis of historical records and data gathered through 102 online surveys and 15 telephone interviews. In addition, the five analytic, but not necessarily sequential, phases of grounded theory building – research design, data collection, data ordering, data analysis and literature comparison – provided the framework for the study.

CHAPTER IV

FINDINGS AND INTERPRETATIONS

Introduction

The grounded theory methodology of constant comparison, as described in the previous chapter, provided the basis for the findings reported in this chapter. The theoretical framework and interpretations presented here are grounded in the quantitative and qualitative data of historical documents, 102 online surveys and 15 telephone interviews representing over 100 pages of transcripts. Where respondents' comments have been reported from the data, they are in the form of direct quotes extracted verbatim from the transcripts. All personal identifiers have been removed to protect the privacy of respondents. In instances where distinctions needed to be made, comments are identified according to the participant's region.

This chapter begins by presenting relevant demographic data intended to provide an overview of the respondents' financial sector experience. Then data related to the five research questions that defined this study are presented.

Characteristics of Respondents

Questions related to the characteristics of the community were included at the beginning of the online survey (see Appendix B). The questions served a number of important functions: they provided information about the respondents' regional location and supervisory position; the language(s) used in the performance of their supervisory duties; and the Leadership Program attended. This type of data represents a first for the Toronto Centre. The 1998 – 2000 Leadership Program evaluation report created by PriceWaterhouseCoopers LLP (2001) did not establish a profile of respondents which could be used for comparison

purposes in this study. This data is also important because it has confirmed or challenged some assumptions that had been made about the characteristics of the community. The data reported here will be used by the Toronto Centre as a baseline in future evaluation efforts.

Regional Location

Survey participants were asked to indicate their country name. The 54 countries reported, and the number of individuals who responded from each country, were grouped into the following regions:

- North America – 3 supervisors (3%)
- Latin America and the Caribbean – 41 supervisors (40% which represents the highest response rate)
- Africa – Sub-Saharan – 6 supervisors (6%)
- Europe and Central Asia – 25 supervisors (25%)
- Middle East and North Africa – 7 supervisors (7%)
- South Asia – 1 supervisor (1%)
- East Asia and the Pacific – 15 supervisors (15%)
- Australia and Oceanus – 3 supervisors (3%)

Figure 3 illustrates the regional locations of the 102 survey respondents. Two key observations were made by Toronto Centre Senior Management regarding these figures. First, it was felt that the high response from Latin America and the Caribbean could be attributed to growing regional needs and a heightened sensitivity due to conditions of economic crisis. In addition, a highly successful country program that addressed the specific

Figure 3. Regional Location of Survey Respondents

needs of the supervisory authority had been offered in this region. These factors in combination with a cultural proclivity for sharing information could have contributed to the high response. Second, the low response from South Asia and the Middle East and North Africa regions was attributed to low levels of market penetration by the Toronto Centre in those regions compared to other regions.

Supervisory Position

Participants were asked to indicate the sector their supervisory position primarily deals with. Figure 4 illustrates these results. Fifty-five respondents (54%) indicated that they are currently in a banking supervisory position. As the majority of Leadership Programs to date have been offered to the banking sector (12 sessions) it was anticipated that this sector would provide a high response rate. Seventeen respondents (17%) indicated that they are currently in a securities sector position. Three sessions have been offered to this sector. Fourteen respondents (14%) indicated that they are currently in an insurance sector position. Four sessions have been offered to this sector. Fifteen individuals (15%) selected the "other" category. Participants who selected this category were asked to provide additional clarification. All of the 15 respondents in this category indicated either combinations of the sectors, such as banking and insurance, or all of the listed sectors. One individuals answer was not recorded.

Participants were then asked about their position within their organization. As illustrated in Figure 5, 30 respondents (29%) indicated that they were Senior Executive/Key decision makers; 45 respondents (44%) indicated that they were Middle Managers with a reporting line to the Senior Executive position; and 20 respondents (20%) indicated that they were Supervisor/Managers reporting to the Middle Manager position. The six individuals

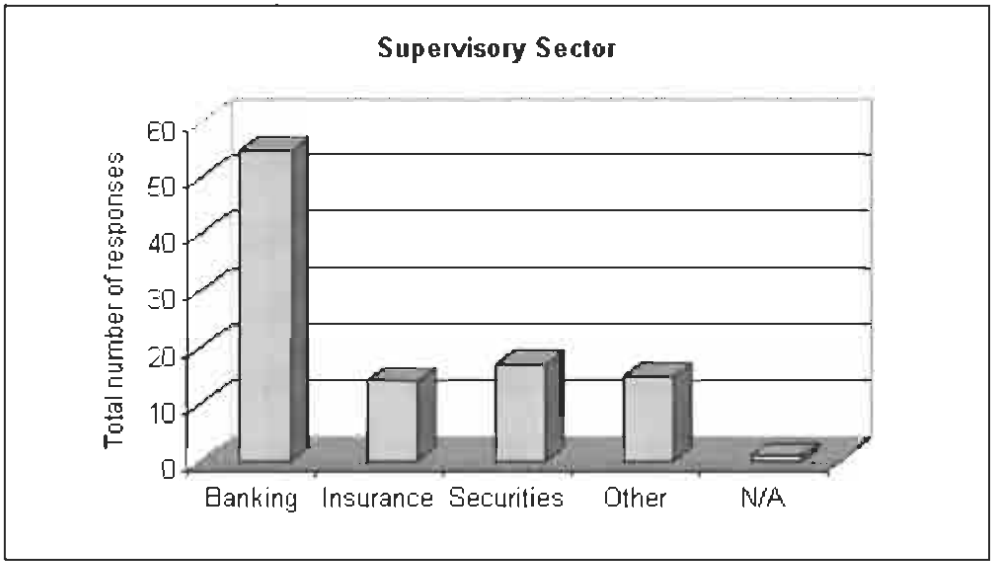


Figure 4. Supervisory Sector

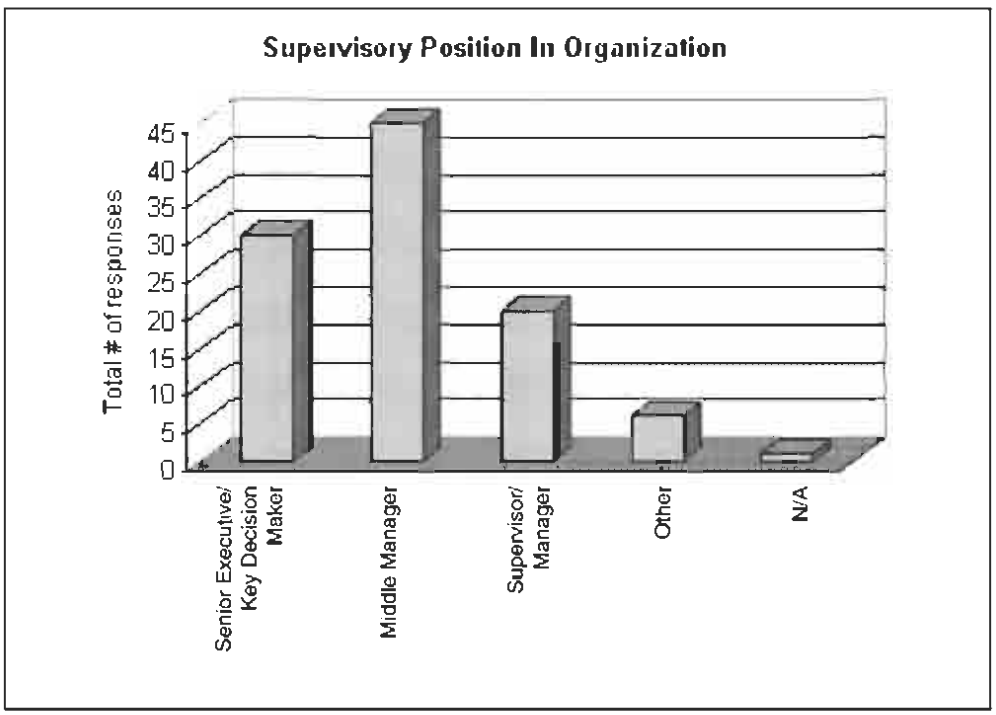


Figure 5. Supervisory Position In Organization

(6%) that selected the "other" category specified that they are in advisor, consultant or specialist roles. One individual's answer was not recorded.

Figure 6 displays data regarding the time respondents have spent in their current supervisory position. The data indicates that 66 (64%) of the respondents have been in their positions one to five years. This finding was not surprising to senior management at the Toronto Centre. The economic and political problems and challenges of performing the supervisory role in participants' countries contribute to a high turnover rate. Job mobility in supervisory positions is high. As participants gain supervisory experience they are either promoted or left the organization for other financial sector positions.

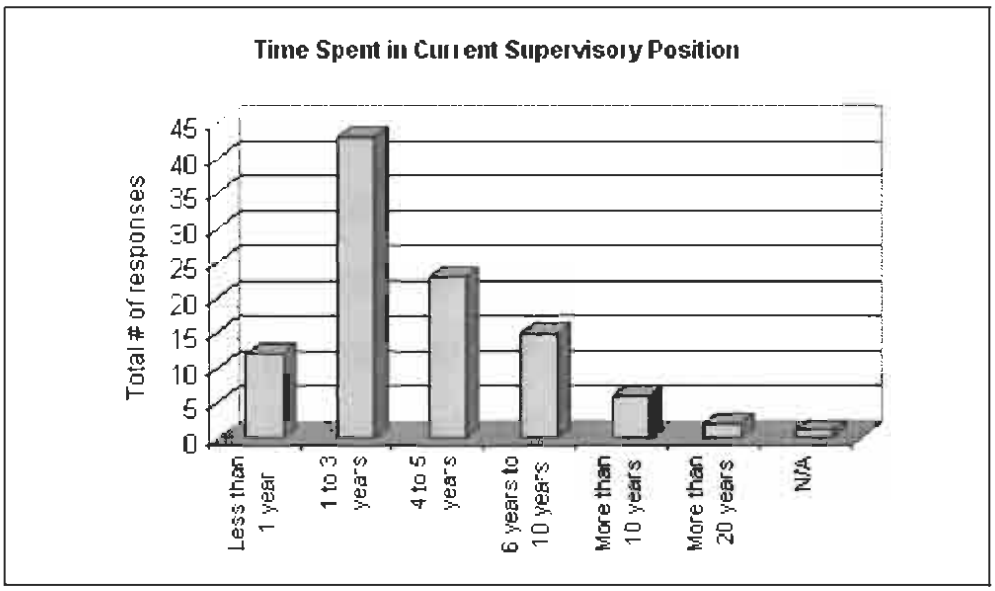


Figure 6. Time Spent In Current Supervisory Position

Language of Communication

Participants were asked to indicate the language(s) by order of priority used in the execution of their supervisory duties. Table 4 illustrates the language(s) of communication of respondents. English is the accepted language of communication between supervisors world-wide. The data in this table shows that the majority of the respondents have a working

Table 4. Language(s) Used By Order of Priority

Count	Language 1	Language 2	Language 3
3	Arabic	English	
1	Croatian	English	
2	Dutch	English	
26	English		
3	English	French	
1	English	French	Spanish
1	English	German	
1	English	German	Russian
1	English	Ghanaian	
3	English	Malay	
2	English	Mandarin	
1	English	Philipino	
1	English	Tagalog	
1	Estonian	English	German
1	Estonian	English	Russian
3	Finnish	English	Swedish
1	French	English	
1	Georgian	English	Russian
1	German	English	French
1	German	French	English
1	Greek	English	
4	Indonesian	English	
1	Korean	English	
1	Malay	English	
1	Maltese	English	
1	Norwegian	English	
1	Portuguese	English	
7	Portuguese	English	Spanish
1	Russian	English	
1	Serbian	English	
1	Slovenian	English	
1	Slovenian	English	German
1	Spanish		
17	Spanish	English	
1	Spanish	English	Portuguese
1	Spanish	English	Portuguese/French/German
1	Spanish	English	French
1	Swedish	English	
1	Turkish	English	
1	N/A	N/A	N/A

knowledge of English.

Leadership Program Attended

Table 5 illustrates the program attendance of respondents. Three respondents indicated that they did not attend any programs. Two respondents indicated that they had attended two programs. One respondent did not provide an answer to this question.

Table 5. Leadership Program Attended

Program	1998	1999	2000	2001	2002	Total
Banking Leadership Program	2	13	13	16	19	63
Insurance Leadership Program			2	6	6	16
Securities Leadership Program			8	7	5	20

Data Related to the Study Questions

In this section, survey and telephone interview results that provided analysis of the five research questions will be reported. As the data collection and analysis progressed, the study questions were assembled into three main groupings: communication in the community of practice; instructional technologies offered in the Toronto Centre Leadership and Associates Programs; and strategies to support learning and the sharing of knowledge in the virtual CoP.

Communication in the Community of Practice

The literature suggests that some aspects of a community of practice should translate easily from the co-located world to the virtual. For example, finding a common purpose or a shared interest. The literature also suggests that if members are doing a similar job then there will already be a shared domain knowledge and language. The first problem in this study was to gain an understanding of what aspects of this specific community of financial sector supervisors would translate from the co-located world to the virtual. The first three study

questions explored communication in the community in an attempt to understand these aspects. The questions focused on:

- The technologies currently used by professionals in the community;
- The types of information facilitated by information technology in the community; and
- The specific needs of professionals regarding learning and sharing knowledge with other members of the community.

An examination of the historical records did not provide any information regarding communication in the community beyond the fact that when financial sector supervisors are brought together it generally is in the form of face-to-face meetings, training, conferences, etc. There was little information about how the community uses technology in their day-to-day duties. Toronto Centre reaction evaluation reports focused on the use of video and web conferencing technologies (i.e., synchronous technologies) only. These reports indicated that video and web conferencing are rarely used and while welcomed by the community, are still considered to be in an exploratory phase. The records also indicated that supervisors want to have access to experts and ongoing opportunities to learn about relevant experiences in other countries. Building on this framework, four questions relating to communication in the CoP were included in the online survey.

The Technologies Currently Used by Professionals in the Community

The first online survey question asked participants to indicate the types of technologies used in their work. The data in Table 6 shows that 95 respondents (93%) often or always use the telephone and 89 respondents (87%) often or always use e-mail. These technologies are

the most frequently used by the respondents while other synchronous technologies (i.e., video conferencing, web conferencing, and chat rooms) were the least used.

Table 6. Technologies Used by Supervisors

Technology	Never	Rarely	Occasionally	Often	Always	N/A	Total
Telephone (i.e., in person, voice mail, teleconference calls)	0	0	7	53	42	0	102
Fax	1	19	38	32	12	0	102
Face-to-face meetings	0	2	16	58	25	1	102
Letter/Memo	0	4	18	58	22	0	102
E-mail	0	3	9	52	37	1	102
Internet	3	13	24	40	20	2	102
Video-conferencing	45	32	19	1	0	5	102
Chat rooms	62	23	7	4	0	6	102
Discussion boards	38	23	20	10	4	7	102
Web conferencing	54	25	13	2	0	8	102

The Communities Preferred Method(s) of Communication

Respondents to the survey were asked to indicate how they prefer to communicate with colleagues outside of their organization. Eighty-seven respondents (85%) indicated that they often or always use the telephone and 81 respondents (79%) indicated that they often or always use e-mail. Again these technologies were the top choice of the respondents while other synchronous technologies (i.e., video conferencing, chat rooms, and web conferencing) were the least favoured. Table 7 shows the communication preferences of the participants.

When asked during the telephone interviews to expand on why they use e-mail rather than other technologies (e.g., web conference, discussion boards, fax), the respondents indicated that it was "convenient," "comfortable," "easier," "cheaper" and "quick." One

Table 7. Preferred Type of Communication When Contacting Colleagues Outside of Organization

Technology	Never	Rarely	Occasionally	Often	Always	N/A	Total
Telephone (i.e., in person, voice mail, teleconference calls)	1	4	10	61	26	0	102
Fax	10	27	36	24	2	3	102
Face-to-face meetings	0	18	39	36	7	2	102
Letter/Memo	7	8	39	40	4	4	102
E-mail	1	3	14	60	21	3	102
Internet	16	27	18	28	6	7	102
Video-conferencing	65	26	6	1	0	4	102
Chat rooms	69	17	7	1	0	8	102
Discussion boards	57	21	15	3	1	5	102
Web conferencing	71	21	5	0	0	5	102

supervisor stated, "it is easier to make a short message and to send it through the e-mail than to call someone," while another one said, "it's the whole thing of instant gratification with e-mail – you can get results to your query in no time at all." An additional benefit of using e-mail was related by one interviewee, "e-mail gives you the speeds of communicating over and above the telephone and obviously that deals with time differences as well."

The Types of Information Facilitated by Information Technology in the Community

The next study question dealing with communication in the CoP explored the type of information that is being shared in the community. Respondents to the survey were asked to indicate the topics that they have discussed with colleagues. The data in Table 8 illustrates the discussion topics that are of interest to respondents. The table shows that the respondents are sharing both explicit and tacit knowledge. Sixty-three respondents (61%) indicated they often or always discuss procedural details (explicit knowledge) and 66 respondents (64%)

indicated that they often or always discuss technical details (explicit knowledge). The respondents also indicated that they are interested in the direct experiences and actions of other supervisors and their organizations (tacit knowledge). Fifty-three respondents (51%) indicated that they discuss tips on developing regulatory changes and fifty-one respondents (50%) indicated that they discuss implementing these changes. Forty-one respondents (40%) indicated that they discuss tips on dealing with troubled financial institutions. Forty-five respondents (44%) indicated that they discuss their dealings with supervisory infrastructure problems. The least discussed topic was tips on dealing with key stakeholders.

Table 8. Discussion Topics

Topic	Never	Rarely	Occasionally	Often	Always	N/A	Total
Procedural details or guidelines	1	3	32	56	7	3	102
Technical specifications (e.g., laws)	0	1	33	59	7	2	102
Tips on dealing with troubled financial institutions	4	11	44	34	7	2	102
Tips on dealing with supervisory infrastructure problems	4	7	43	39	6	3	102
Tips on dealing with key stakeholders	4	18	44	28	4	4	102
Tips on developing regulatory changes	1	6	40	45	8	2	102
Tips on implementing regulatory changes	1	10	39	42	9	1	102

During the telephone interviews all of the participants expressed the importance of sharing information with their colleagues. They also cited that the Leadership Program provided them with valuable networking contacts that they would use if they required

information or assistance with a challenge. Many commented that, without ongoing communication and relationships building it would be difficult to keep current on supervisory policies and practices in other institutions and countries. They also mentioned that it is important to find information that is "geared" specifically towards their work and the issues they face.

Findings describing respondents' perceptions of types of information exchanged are reported as they relate to:

- Social presence;
- The supervisory policies, practices and practical developments in other organizations or countries; and
- How supervisors and/or their organizations have dealt with issues.

The following comments are representative of the types of information the respondents mentioned as being exchanged in the community:

- **Social presence**

  "I sent a 'how are you doing' kind of e-mail."

  "I have contacted a couple of them [Associates] quite a few times. Sometimes just to exchange greetings, others to request information."

  "We exchanged some information – names, addresses and things."

  "He regularly e-mails me and lets me know what's going on."

  "I've kept in tentative contact with a couple [Associates] but more really through the social process rather than the work process."

- **The supervisory policies, practices and developments in other institutions or countries**

  "The key reason we need to contact fellow regulators is when we need to know the supervisory practices and practical developments in other countries."

  "On three or four occasions there were people who wanted information from South Africa specifically."

  " I contacted them to ask about their specific regulations within their organization."

  "In the South African region here there is a lot of sharing of information on the general policy issues and so on."

  "I have been asking about existing regulations – what type of regulations they are having, what is in them and how it works in practice. The execution of these regulations."

- **How supervors and/or their organizations have dealt with issues**

  "I'm really looking for information on dealing with issues, regulatory issues. You need perspectives that people might have. One is dealing with regulatory issues on a conceptual and systemic basis. Two is information about institutions. Which again is a very important aspect of regulation in that there are no real formal channels for that kind of information."

  "He wrote to me asking for some information on supervisory issues by e-mail."

  "Trying to understand what kinds of obstacles we face, the kind of issues we face."

"Any experiences from other jurisdictions can always be helpful. We don't have to repeat the same mistakes. They can give us a lot of insights into their experiences. We want to learn from others mistakes."

"Where we are doing a change to a law or encountering a situation we count on feedback from another jurisdiction or two on How do you guys do it? How do you approach this particular problem? How do you guys get information from the people involved?"

The Specific Needs of Professionals Regarding Learning and Sharing Knowledge With Other Members of the Community

In an attempt to address this study question, respondents were asked to explain where they go to if they have a work related challenge that they cannot easily solve. The majority of participants, 94 respondents (92%), indicated that they often or always contact colleagues within their own organization for assistance. Five respondents (4%) indicated that they have contacted colleagues from other sectors who are with other organizations in other countries for assistance. This is the least used source for assistance. Table 9 illustrates the sources of assistance that participants will refer to when faced with a work-related challenge.

The follow-up telephone interviews attempted to gain a further understanding of the situational nature of communication in the community and the learning needs of the respondents. All of the 15 financial sector supervisors interviewed agreed that they strongly depend on their networking skills and on the willingness of colleagues to share information and experiences. They expressed the importance of being able to acquire information from colleagues as there is no one existing repository or centralized place that they can source and exchange information. Many of the respondents mentioned that their most important learning was from how other supervisors handle problems because the approaches that were used

Table 9. Sources of Assistance for Work Related Challenges

Source	Never	Rarely	Occasionally	Often	Always	N/A	Total
Refer to books, magazines, articles, etc.	0	10	24	45	22	1	102
Contact colleagues within my organization	0	2	6	56	38	0	102
Contact colleagues within my sector who are with other organizations in my country	2	13	40	39	7	1	102
Contact colleagues from other sectors who are with other organizations in my country	3	28	44	20	5	2	102
Contact colleagues within my sector who are with other organizations in other countries	3	28	41	27	2	1	102
Contact colleagues from other sectors who are with other organizations in other countries	29	37	28	3	2	3	102
Search the internet for resources	2	4	35	36	22	3	102

provided them with insights on how they might deal with similar situations. Four respondents reported that they rely on guidance and feedback from their colleagues in order to perform their work related duties, because this is often this is their only source of support. A few of the respondents expressed the feeling that sharing their experiences increased their confidence in handling challenges and dealing with issues and possible outcomes.

The following comments illustrate the value and importance respondents attach to sharing:

- "It is extremely important to be able to contact other Associates – Toronto Centre and others because of the comfort that the sharing of ideas, especially on policy issues. The sharing of ideas will give one some level of comfort, some level of confidence, before one proceeds to perhaps introduce some new policy measures, some new guidelines, before actually discussing with the bank institutions here. You know that what you are discussing is from a position of confidence that what you are doing is consistent with international banking practices."
- "It was important because there are developments which we are going through and it was quite beneficial to share the experience and get some hints or the difference of how they would tackle problems and results. You always find that it's easier to get around your problems."
- "As a supervisor, I think that the most important thing that you can ever learn is how people handle problems. So some of the experiences that the Bank of England and the Central Bank of Venezuela have been through and how to handle them and some of the other issues that came up and some of the difficulties, ecetera. So it was sharing that I found the most important."
- "Trying to understand what kinds of obstacles we face, the kind of issues we face. It's very useful. We can develop our own practices and regulations having that contact."
- "We don't have to repeat the same mistakes. They can give us a lot of insights into their experiences. We want to learn from others mistakes."

- "In fact I would say it [sharing information] gives me an added comfort that what we are doing is the right thing."
- "It is quite meaningful for other people to share in our experience in this. It is because of the topics that are being dealt with, that are evolving. Yes, their experiences and what is in store for us."
- "We need all the time to test what we do against other initiatives. It's all about information exchange."

Interview participants were asked to specify reasons why they would have difficulty sharing information with their colleagues. The biggest issue for the respondents was confidentiality. Eight of the respondents mentioned that sometimes the confidentiality of information could limit what can be shared with others. Some of the participants also mentioned that time, effort and other commitments got in the way of sharing knowledge with other members of the community. Three participants mentioned that they have a language barrier to communicating with colleagues outside of their region. One participant mentioned that there could also be cultural reasons that would prevent the exchange of information.

Findings describing respondents' perceptions of the barriers to sharing information are reported as they relate to:

- Confidentiality;
- Time, effort and priorities; and
- Language and translation costs.

The following comments are representative of the perceived barriers to sharing information:

- **Confidentiality**

"There are limitations on what one can share and can't share – it is the sensitivity of some information about problem institutions."

"Obviously, when we get to talking about individual cases or institutions that is a different issue because that would infringe on confidentiality."

"What I have found with regulation there are so many different areas that are confidential so to speak. You're always at a challenge like how do I present this issue here without putting my organization in quote 'a bad light'."

"As long as the information that is shared does not cause me to breach those obligations to the secrecy provision I have no difficulty in sharing information."

"If it is confidential information about banks or things then obviously we would sort of have to delete those, but general policies or practices or what we are trained to do is no problem."

- **Time, effort, and priorities**

"I haven't really had the chance to dedicate the time and amount of energy it needs."

"I think again it has more to do with priorities. I do feel that that need is there but there are more pressing priorities."

"I think the difficulty I've always found with the network or the Toronto Centre is really your workload objectives."

- **Language and translation costs**

"Not all the people speak English … but maybe they speak and not to understand an article in English. They might find some difficulty."

"Portuguese is the language that we have here and only maybe a few people in the country speak English. So it is a kind of limitation that we have here regarding using this kind of international interaction. 20 – 30% [in the respondent's organization] is able to read in English so when something is very important to read we have it translated and make it available on the internet. But it is very costly to translate."

Instructional Technologies Offered in the Toronto Centre Leadership and Associates Programs

In today's workplace, information technologies are increasingly common. From a professional's point of view, expertise in information technologies is valuable. It not only leads to improved job performance; it can result in marketable skills. Information technology can also be viewed as an enabler for educational opportunities. The literature suggests that the challenges facing distance educators appears daunting, because they must find ways to create infrastructures that will harness technology's power to provide education, training, information, and cultural programming in developed and developing countries. The literature also suggests that the unique attributes of different media are not fully understood by institutions and are not being properly exploited.

The next problem in this study was to examine how helpful the community finds the various instructional technologies offered in the Toronto Centre Leadership and Associates Programs. To address this research question the study explored the participants' use of the instructional technologies as well as their perceptions about the impact these technologies had on their professional growth.

When reviewing the historical documents it became evident that little information existed regarding the impact of the Associates Program. However, efforts had been made to

establish the impact of the Leadership Program. In early 2001, the Toronto Centre commissioned PricewaterhouseCoopers LLP to produce a 1998 – 2000 evaluation report of the Leadership program (PricewaterhouseCoopers LLP, 2001). The report revealed that the Toronto Centre was meeting the objectives of its founders and sponsors. The report also suggested that financial sector supervisors are being provided with the capacity and confidence to implement change and to deal with financial crises and troubled financial institutions.

The PricewaterhouseCoopers LLP 1998 – 2000 report recommended that the Toronto Centre should:

- Make further improvements in the design and delivery of the Leadership Program with a focus on increasing the extent to which participants acquire knowledge about implementation planning and effecting change;
- Sustain the educational enhancements and momentum in the Action Planning process;
- Continue to provide participant access to the expert advice of Program Leaders and other experts; and
- Direct its efforts to sustaining leadership development in its Associates through ongoing post-session networking and training.

Building on the PricewaterhouseCoopers LLP recommendations, seven questions were included in the online survey.

Perceived Impact of the Leadership Program on Professional Growth

The first online survey question asked participants to indicate the degree that various elements of the Leadership Program impacted their professional growth. The data in Table 10

Table 10. Impact of the Leadership Program on Participants

Program Element	Not at All	Somewhat	Significantly	Very High	Don't Know	N/A	Total
Discussion with colleagues	0	17	33	49	1	2	102
Discussion with Program Leaders	2	22	37	38	0	3	102
Case studies	2	10	35	53	0	2	102
Mini cases and vignettes	3	28	21	41	4	5	102
Small group activities	2	24	31	43	0	2	102
Full group learning exercises	2	20	37	40	0	3	102

shows that 88 respondents (86%) indicated the impact of case studies as being "significant" or "very high" and 82 respondents (80%) indicated the impact of discussion with colleagues as being "significant" or "very high."

Ability to Apply Leadership Principles and Techniques Since Attending the Leadership Program.

Figure 7 displays data relating to the participant's ability to apply leadership principles and techniques since participating in the Leadership Program. Ninety-three respondents (91%) somewhat or strongly agree that participation in the program has increased their leadership abilities. This finding is in keeping with the PricewaterhouseCoopers 2001 report.

Participants were also asked to indicate the types of changes they had implemented since attending the Leadership Program. Seventy-two respondents (70%) indicated that they had implemented partial or full changes to strengthen supervisory authorities. Sixty-seven of the respondents (65%) made partial or full changes to laws, regulations and/or guidelines.

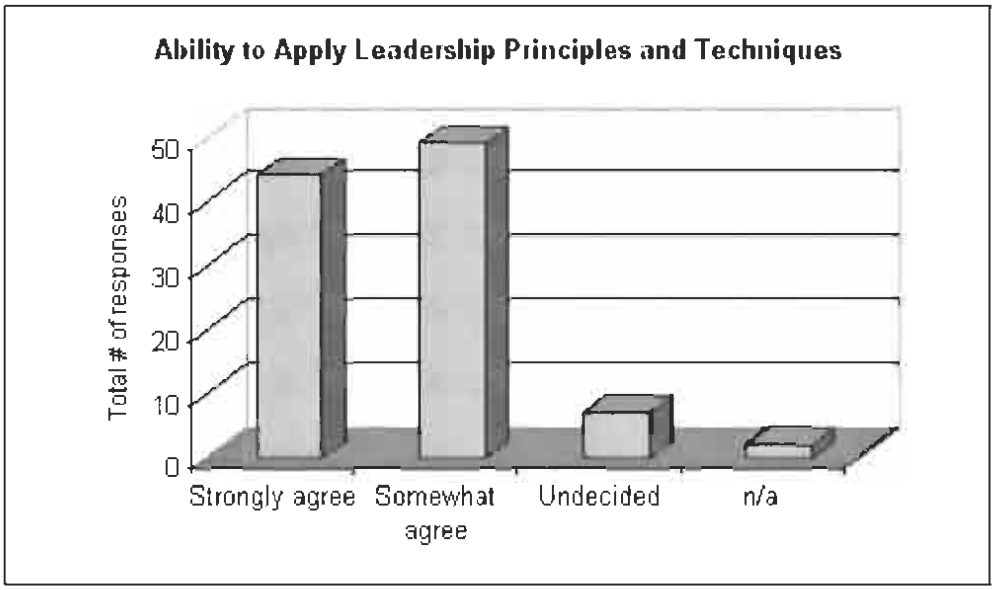


Figure 7. Ability to Apply Leadership Principles and Techniques Since Attending the Leadership Program

Table 11. Implementation of Changes Since Attending the Leadership Program

	No Implementation	Partial Implementation	Full Implementation	N/A	Total
Changes to laws, regulations and/or guidelines	25	53	14	10	102
Changes to strengthen supervisory authority	21	59	13	9	102
Changes to improve dealings with troubled financial institutions	36	48	12	6	102

Sixty respondents (58%) made partial or full changes to improve dealing with troubled financial institutions. Table 11 illustrates the degree of implementation.

An integral component of the Leadership Program is the action plan methodology. The next survey question explored how much of the respondents action plan was implemented upon their return to their country. Figure 8 illustrates that 91 respondents (89%) reported that they have implemented all or part of their action plan. Follow-up questions were asked

during the telephone interviews to further explore the action planning implementation process. The majority of respondents indicated that they had initiated steps to implement their action plans. One respondent stated, "I can't remember what my action plan was but I thought I had done it ... a lot of water has gone under the bridge." Three mentioned that while things were progressing there were hold ups due to other issues that had become priorities. Two respondents mentioned that their plans were not easy to implement as they dealt with tough issues. In one case the individual lacked full stakeholder support and in the other they felt that the initial scope of the plan was too broad. Two respondents reported that they had successfully implemented their entire plan. One of these individuals stated that "I've done what I set out to do and more."

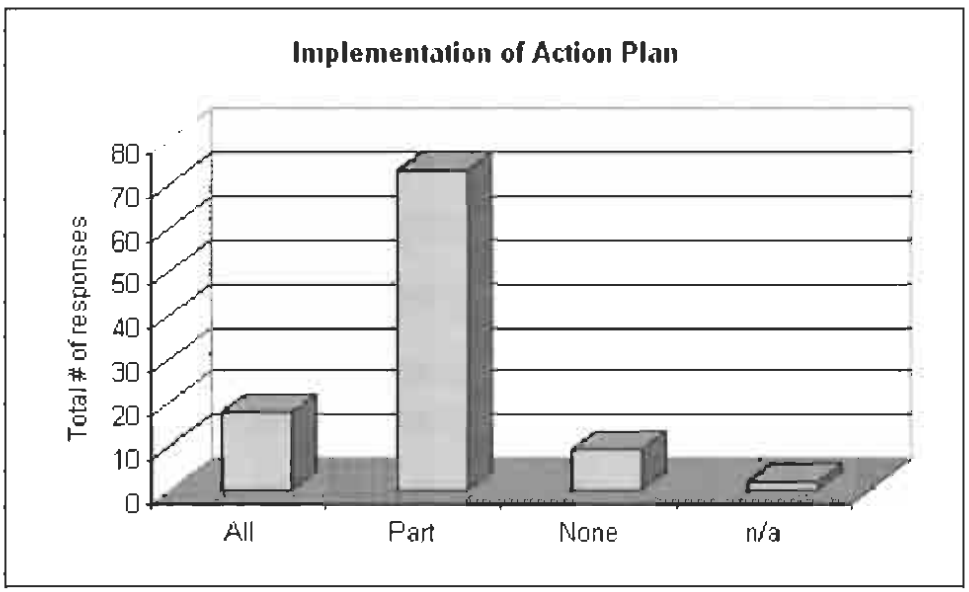


Figure 8. Implementation of the Participants Action Plan

The next survey question dealt with degree of active support the participants received from key stakeholders while implementing their action plan. Figure 9 illustrates that 65 respondents (63%) received moderate to full support from key stakeholders.

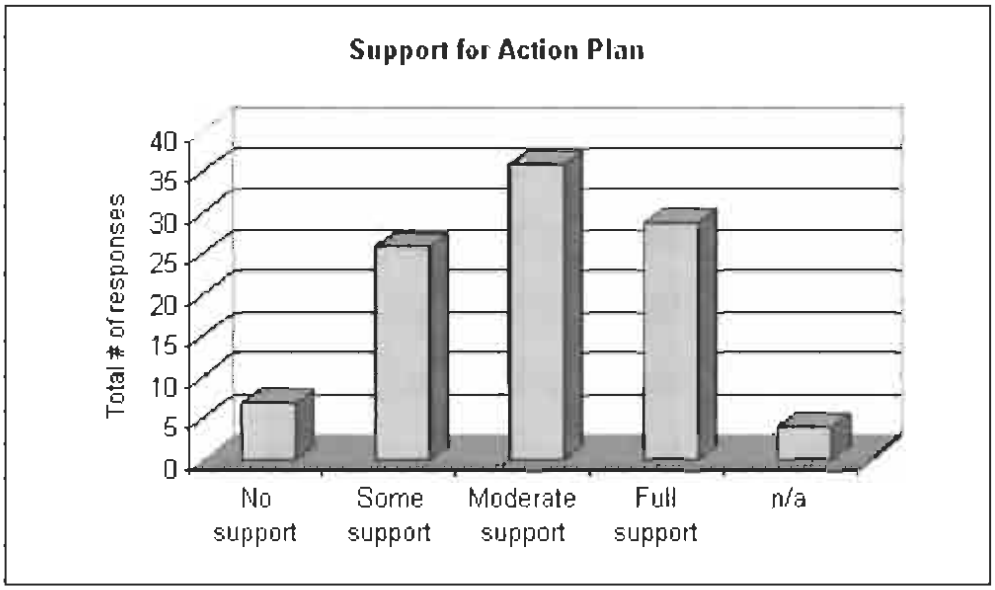


Figure 9. Amount of Active Support for Action Plan from Key Stakeholders

During the telephone interviews participants were asked to elaborate on the support that they required for the implementation of their action plans. Nine of the 15 interviewed reported that ongoing support from the Toronto Centre would be beneficial. They felt that with this added support they would have been able to continue to interact with the Program Leaders and other Associates. One participant mentioned that they possibly could have done even more than they had planned with the additional "pointers and guidance." Two other participants mentioned that due to the complexity of their action plans ongoing support would have helped them to get ideas. As one individual stated, "In all honesty, perhaps ongoing support would have been helpful because it [the plan] was hard."

Four respondents indicated that they did not require support from the Toronto Centre for the implementation of their action plan. Their perceptions are illustrated in the following comments:

- "I think that it is within the commission that we have to get the support to try to reform the law."

- "I'm not sure the action plan is something I took away from the Toronto Centre. We've learned from what has happened but I'd have to be fair and say it didn't come out of the action plan per se but fighting the crisis … I don't think I was committed to the action plan."
- "If we need some kind of support, these things would be discussed on a higher level [in our organization]."
- "I think some of the disciplines that you were giving the Associates were obviously very good ones. But unfortunately, it was one-dimensional and if I didn't have a day job to come back to it would be fine. But I did come back and there was no ongoing support from the organization here in respect to what we did in the week in Toronto."

Respondents' Perceptions of the Instructional Technologies Available in the Associates Program

The next three questions in the online survey dealt specifically with the Associates Program. The first question asked participants to rank their use of various elements of the Associates Program. Table 12 illustrates the respondents' selections. Forty-three respondents (42%) indicated that they have often or always been involved in financial sector activities where they have been able to influence stakeholders. Twenty-six respondents (25%) indicated that they often or always use the Toronto Centre 5-step Leadership and Outward, Upward, Inward stakeholder models for planning.

While this data points to skill transfer from the Leadership Program, the usage of the remaining elements of the Associates Program is low. Fifteen respondents (14%) indicated that they often or always review the articles and newsletters and eleven respondents (11%) indicated that they often or always search for resources and links to articles, news, and other

Table 12. Participant Use of Associate Program Elements

Program Element	Never	Rarely	Occasionally	Often	Always	N/A	Total
Contacted Program Leaders for information or advice	60	21	12	5	0	4	102
Used the TC 5-step leadership and Outward Upward Inward stakeholder models for planning	8	21	43	22	4	4	102
Been involved in financial sector activities where I am able to influence stakeholders	4	15	36	37	6	4	102
Used the Associates Directory to contact colleagues doing similar work or who have a similar title	44	34	13	6	0	5	102
Used the Associates web-site discussion board to communicate issues/ideas with other colleagues	79	11	6	1	0	5	102
Used the Associates meeting room to chat in real time with colleagues	86	8	2	0	0	6	102
Participated in the Associates web conference sessions	73	10	8	3	2	6	102
Created/updated my action plan in the Associates Action Plan database located on the Associates web site	85	6	5	1	0	5	102
Reviewed the action plans of fellow Associates from the Associates web site	78	13	5	1	0	5	102
Reviewed the articles and newsletters from the Associates web site	29	26	25	13	2	7	102
Searched for resources and links to articles, news, and other web resources listed on the Associates web site	38	23	23	9	2	7	102

web resources. The rest of the components of the Associates-only site received minimal usage.

The next question queried whether participants received sufficient information about how to use the Associates-only site. Figure 10 illustrates that 74 respondents (73%) perceived that they had received enough information.

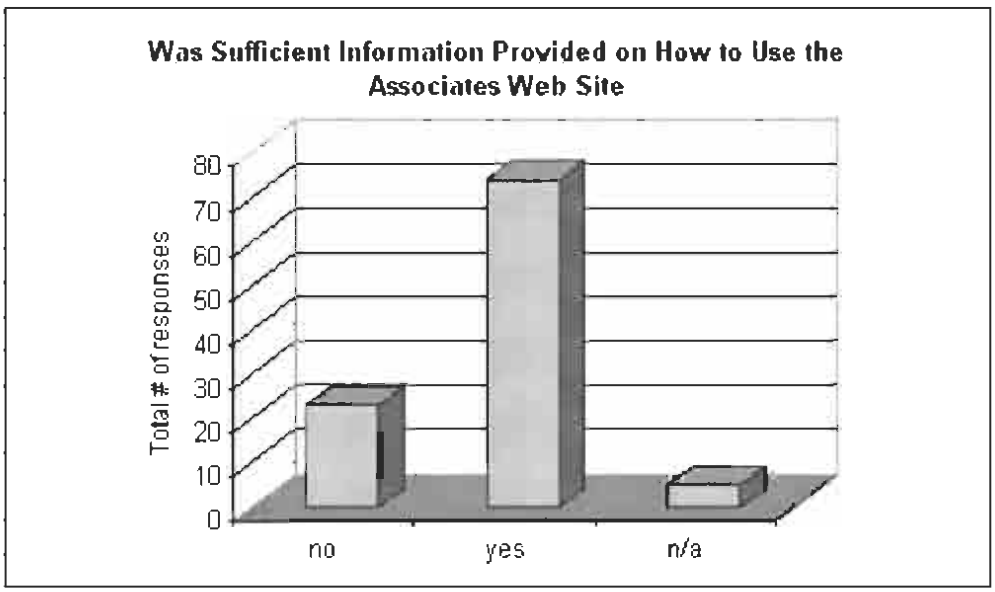


Figure 10. Instructions on Use of Associates-only Site

In the follow-up interviews all of the participants required an explanation of the difference between the Leadership Program and the Associates Program. Upon clarification of the purpose of the Associates Program 12 of the 15 respondents reported that they had little knowledge or experience with the technologies offered in the Associates Program. Many of these respondents were not only unclear as to what the technologies were they were unsure of their purpose and required further explanation. The following comments illustrate this point:

- "I don't know what happens at a web conference but I would participate."
- "No I don't know what it [discussion board] is? Is it like a chat room?"

- "I don't remember what it really means 'discussion board'? No, I have never been involved in any."
- "No, I've only got a vague understanding of what it [web conferencing] is. It's sort of like a private web site isn't it?"
- "Could you explain the difference between a chat room and a discussion board?"
- "We have them [discussion boards] in the bank but we call them chat rooms, you know, where you have your e-mail interrupted and sort of that."
- "I'm not sure it [discussion board] is the same [as web conferencing]. Is discussion like a telephone conference?"
- "I think both sides need to have equipment, right?"
- "I get confused when you say chat meeting room. I thought it was very similar to a discussion board."
- "I can't quite imagine what it is. Is it as if you were in a room and you've got a discussion leader?"

The respondents also reported that they have had minimal opportunities to participate in distance learning programs. Six respondents mentioned that they have not had any experience with distance learning. One of these respondents remarked, "As far as I know, no, I am not aware of anybody that has participated in this kind of learning." On the whole, the respondents' experience with technology was in the realm of their day-to-day supervisory duties (i.e., meetings and/or updates on specific topics or institutions). Five of the respondents mentioned that they have participated in the Toronto Centre video and/or web conferences. Seven respondents reported that they had attended some videoconferences

offered by other organizations like the World Bank, and in two instances by organizations within their own region. One respondent briefly mentioned his experience with a self-directed web based training course.

Next, the interview respondents were asked whether they had had a chance to use the Associates-only web site. Ten of the 15 respondents answered that they had visited the site. Four of the respondents mentioned that there wasn't much information available when they visited. One respondent commented, "I have been a member [Associate] since last year and at that time there wasn't all that much on the web site yet. And, I didn't make very much use of it after that." A few respondents indicated that they had visited a few times. However, they were unable to find relevant information. One respondent reported, "I think the time I went it was apparent to me that the site had not been updated for some time." Two of the five respondents who mentioned that they had not visited the web site added that they had misplaced their logon card with the password information. One of the other respondents mentioned that they were simply too pressured with meetings and other things to take the time to visit the web site.

Interview participants were also asked to share their perceptions regarding the various components of the Associates-only web site. These components include:

- The Associates directory;
- Web conferences;
- Discussion boards;
- Chat meeting rooms;
- Online action plans;

- Articles and presentations; and
- Resources and links.

The Associates directory. The majority of respondents believed that the Associates directory would be a practical resource for them. As one respondent pointed out, "It would be really useful. As well as the participants details and addresses – their contacts. I feel it is so important to have this chance because if in the future you need them, you can contact them." However, one responded cautioned, "I think you have the basic information there that one would need for easy reference and I wouldn't have much to advise now except to ensure that you encourage people [Associates] to update it."

Web conferences. All of the respondents expressed interest in web conferencing and stated that they would be willing to participate in future sessions. They were attracted to the idea that they would be exposed to the views and experiences of an international audience while remaining at their "own desk." They were also attracted to the idea that other people in their organizations could join in to web conferences. One respondent who had participated in a Toronto Centre web conference stated, "when we did this web conference I was able to attend with somebody else, with another member of the staff here. In fact, there were three or four who sat throughout the session. That would not have been possible if we had to travel somewhere." In another instance, the respondent invited colleagues from their region in addition to those from their own department. A few of the respondents cautioned that although web conferences would provide an opportunity that might not otherwise exist to exchange ideas they would have to be on a topic "that interests me or I'm working on." One respondent cautioned that "web conferences might have common subjects that people are interested in, but it is generally not as focused to specific situations." Another respondent

also suggested that the Toronto Centre keep in mind that they have a world directory and that the timing of a web conference could prevent their participation.

Those interview participants that had attended Toronto Centre web conferences were also asked to share any technical difficulties that they may have experienced. In three cases the respondents were unable to "get anything" (i.e., pictures) on their computer screens and only had the sound. Three respondents also mentioned problems with the quality of the audio. One respondent remarked, "sometimes it was very difficult to hear what was going on. It could have been our equipment because we are using conventional telephones. But I felt it was a bit poorish. It could have been better but it wasn't like we couldn't hear anything." Another respondent mentioned that sometimes the sound just disappears.

Despite these technical difficulties the respondents said that they would still want to participate in future web conferences. As one respondent emphatically remarked, "I just want to encourage you [the Toronto Centre] despite the technical difficulties to go ahead. Because remember you pioneered, not necessarily world-wide, but in terms of my experience anyway with these things. I wouldn't have had these experiences if in fact it wasn't for the Toronto Centre. So the fact that there were technical difficulties shouldn't be a reason to discontinue trying to find more and more ways to do it and so on."

Discussion boards. Some of the respondents were familiar with discussion boards but lacked clarity as to their function. None of the respondents had ever participated in a discussion board and few initially expressed an interest or intent. However, upon elaboration of how the discussion boards could be used to share information, the majority of the interview respondents agreed that they would be willing to participate in future discussion boards. This willingness to participate was best expressed by one respondent's statement,

"Absolutely. Sure as long as the topic of the conference is something we have an interest in and is pertinent to what we're doing." One respondent mentioned that it would be very useful because, "you might leave a question on a discussion board and then an expert would through that discussion board, through that medium provide you with information." Another respondent said that they "would be tempted to go and see what kinds of discussions are going on and observe them. See what kind of information is available there." From one respondent's point of view they thought that the discussion boards would work better in their country than web conferences. The respondent said, "from a technological point of view it would be easier because it is on our own time and because we can get different points of view."

Although many of the respondents expressed the willingness to participate in future discussion boards, a few expressed some concerns and provided additional comments about the technology and its possible usage:

- "They [discussion boards] don't provide you with the same level of confidentiality as e-mail. In e-mail you are talking one-to-one or one-to-many but you know exactly who you are talking to."
- "I think the Toronto Centre will have to put a lot of time and effort into it because that kind of stuff does require people and thought in its construction. It has to be more than a chat room. People need to be a little more careful about what goes on to some extent."
- "I am not in a position that I can just have an interest for some kind of subject that could be used tomorrow or not. It would depend on the subject. It would have to be of use even in the short term."

- "I wouldn't have a problem with writing in English on the discussion board. That would be just fine. I guess it depends on the topic though. If I am a bit familiar with it so I can make a decent and reasonable argument."
- "What would cause me to make use of that thing [discussion board] actively is to have some kind of prompt. If it is just there and I know I can go in there and have discussions on certain topics with Associates and colleagues you know that's not enough. Because I just won't due to other pressures and so on. But if there's an e-mail or something that says now look into your discussion board because there is a topic that you selected on key words or whatever – then it makes a different story."

Chat meeting rooms. During the interviews the respondents were asked whether they would be interested in using chat rooms to share information. The majority of the respondents were not particularly supportive of this medium. The respondents' perceptions are illustrated in the following comments:

- "Chat meeting rooms. I don't know – I don't have that kind of time."
- "Yeah I have participated occasionally. I'm not sure I'd use them a lot."
- "I'm familiar with the concept but I've never used it myself. I'm not sure that I would be able to do that. It might take too much time. Because obviously typing speed and overall time is a constraint and you've got to be quick with your questions and quick with the answers and so on."
- "I never use chat rooms. I wouldn't do that, no."
- "I guess it's just actually time zones and stuff. So we would have to set up a time when everyone could be online at that time to get the benefit of chat."

- "I'm familiar with the concept yes. But to use it no."
- "I don't normally like to chat on the internet. So the fact that it [the Associates-only web site] has a chat perhaps might have put me off because of the association with the internet chatting. I'm sure it's not the same because it is secure, it's private with the Toronto Associates. But the name, given the fact that it's something ... it doesn't attract me."

Online action plans. The majority of respondents agreed that there would be information in other Associates action plans that they could learn from. One respondent remarked, "You can learn from that because you choose only one action plan but many of us would mean more than one." Three respondents mentioned that they had made a few attempts to review other Associates action plans. Some of the respondents expressed confusion over whether their plan was posted on the web site or not. In one case the respondent mentioned that although they had not checked to see if it was on the web site, they thought that the Toronto Centre had put it there for them. Another respondent said, "To be honest now I can't remember if I did put it on or not. I know I meant to, but I'm not sure if I did or not. I know I had the intention."

Many of the respondents also agreed that they would be willing to share their action plan with other Associates. However, they had an issue regarding when their action plan should be shared. Many expressed a willingness to share but only after the plan had been implemented. They were hesitant or unwilling to share while it was still in the implementation stage. The following comments illustrate this point of view:

- "I haven't posted my plan but I would in a more sanitized form."

- "I would be willing to do so but I cannot give a date though … I couldn't give a commitment at this stage. And certainly when we do get to that point I would also be happy to share my action plan. I think when we are at the point where we can implement it and put it out there."
- "Once it is structured, I don't have a problem sharing."
- "I think the problem with that [putting the action plan on the web site] is if you put time frames in sometimes things might crop up and you might not be able to meet them."
- "I think that might perhaps put some implication on the bank's reputation if you make an action plan that you don't do or something. Sometimes you don't do it and it takes three years for example. Obviously, you don't want the whole world to know about that."
- "Some people still perceive their action plan to be a little bit personal. Some participants were a bit reluctant to lay out their problems."

Articles and presentations. In general, the respondents thought that the articles and presentations were a good resource. One respondent remarked, "Obviously the articles are quite useful to pick out information for anything that you are doing." Six respondents mentioned that the information in the articles was very good and that they have shared some of the articles with their colleagues. Two respondents mentioned that they had made search attempts but that they did not find anything directly related to what they were looking for. As one respondent said, "I was searching for an intervention guide but I'm not sure I found anything directly related to this. But I did find something else helpful."

Resources and links. Three of the 15 respondents indicated that they had visited the resources and links section of the Associates-only web site. Four of the respondents thought that this would be a helpful resource and offered a few suggestions:

- "It could be really helpful because sometimes you have to find out the web of one of the commissions and it would be great to have a link to other organizations."
- "If the links were organized by sector and maybe subjects that would definitely help. Sometimes you have to browse around the whole web site to find something specfic."

Despite the lack of experience with distance learning technologies, all of the 15 financial sector supervisors interviewed agreed that the instructional technologies presented (with the exception of the chat meeting room) by the Toronto Centre would be beneficial to both themselves and their colleagues. Many of the interviewees reported that the "people-to-people" interaction aspect of the technologies would provide increased quality, variety and level of supervisory representation. They also cited that the immediacy impact (i.e. level of engagement and timely access) of having access to topical information and perspectives of supervisors from all around the world as an important element in creating a global knowledge base. This aspect of distance learning was particularly appreciated because of the increased potential to learn from each other. Other advantages identified by the respondents were the cost and the increased number of people from their respective organizations that would be able to attend.

The following comments illustrate respondents' perceptions of the potential benefits of using Toronto Centre technologies:

- "I think the biggest advantage is that the level of participation is high, both in terms of the number of people and also the quality of the participants because you do not have logistical constraints like travel."
- "The other point I talk about the quality as well of the representation. You see you have much higher level of discussion. You know when people call in from a number of countries because you are doing it through a distance learning approach – you have a number of countries calling either to ask or suggest or share. You have within a very short space of time the benefit of learning from each other. I think this is a great benefit we seek."
- "What attracts us is that you could have a lot of people join in. Being interactive is a big advantage over paper-based materials. If you can talk about it and discuss it and if you can hear the views of other people, maybe their questions, things that you didn't consider yourself but when you hear the question you say, well that's something you should think about."
- "The biggest advantage is if you are using it for discussion on how to handle a situation type of thing. Then you can get people from all around the world and/or multiple organizations and/or multiple locations to participate. Now you can't get that in traditional classroom training. So participation, the type of people and the variety of people who can participate is much higher. So you are likely to get a much better spread of views and experiences."
- "One of them [benefits] is in connection with time. Sometimes it is too difficult to attend a classroom training and to make all the people have the same time table to attend a classroom training."

- "I think a clear benefit is saving on time and money. And you don't need to travel. I think that is the key, key benefit."
- "Of course there is an advantage that is the cost. It facilitates a lot in terms of getting more people together with a lower average cost for participants."
- "The benefits are obviously cost and the people that can participate. And that you can fit them in with your work schedule."

In addition to the above benefits, one interviewee offered the following opinion of the material quality of distance learning programs:

- "It is potentially a lot less costly. I think also the material quality. Because it is distance, you know if you get the material to study it's a better quality than you would get as a handout in a classroom situation. Well my experience is that the classroom lecturer will assume you are making notes and that you've done your background reading, ecetera. In my experience there isn't so much structure to the material, whereas in distance learning the material is usually very good because that is what allows the message to be conveyed."

Perceived Impact of the Associates Program on Professional Growth.

Participants were asked in the online survey to indicate the degree that various elements of the Associates Program impacted their professional growth. The data in Table 13 shows that 21 respondents (20%) indicated the impact of the quarterly newsletter as being significant or very high and 21 respondents (20%) indicated the impact of the monthly e-mail updates as being significant or very high.

Table 13. Impact of the Associates Program on Participants

Program Element	Not at All	Somewhat	Significantly	Very High	Don't Know	N/A	Total
Web conference sessions	48	27	3	1	15	8	102
Associates-only web site	43	31	3	6	8	11	102
Quarterly newsletter	18	49	6	15	8	6	102
Monthly e-mail updates	17	51	8	13	8	5	102

During the telephone interviews participants were also asked to share their perceptions of the quarterly newsletters. Seven of the 15 respondents mentioned that they read the newsletters. One respondent said that, "the way I have used this [the newsletter] is really to go through that carefully myself and reach my own understanding of the issues and so on." Four of the respondents also mentioned that they have circulated the newsletter in their respective organizations. One respondent said, "there have been articles in the newsletter that I have shared and they have been very very useful." Two respondents were unsure of whether they had read or even received the newsletter.

During the telephone interviews participants were also asked to share their perceptions of the monthly e-mail updates. Many respondents indicated that they were satisfied with the current level of communication. A few respondents mentioned that they have been following the e-mails and that the article links have been useful. One respondent said, "When Lesley [Program Manager, Planning, Registration and Associates Program] sends the e-mails I always read them and I always look to see if there is anything there which I am interested in." Another respondent said, "some of that stuff [the links] is definitely useful. Not very long ago Michael MacKenzie's [Program Leader] paper suddenly popped up on the web site and I passed it around to people and it was quite useful." Two respondents mentioned that the e-mail was an importance means of keeping them connected to new information on the web

site. They said, "yes I read the e-mails. It's a click away [the web site] but still ... to say it honestly the e-mail forces me to go to it. I have read some of the articles." Two respondents expressed concern about information overload and suggested that the monthly e-mail should simply "wet peoples' appetite" by saying "there's more here about this and this if you want to look at it."

Strategies to Support Learning and the Sharing of Knowledge in the Virtual CoP

A recurring theme in the literature is that knowledge sharing is an important consideration for distance educators who are hoping to create effective learning strategies for professional communities of practice. Communities of practice are said to form and share knowledge on the basis of "pull" by individual members, not a centralized or organizational "push" of information. The literature also suggests that communities need to be able to select and manage information in a way that is enabling. Furthermore, a review of recent literature indicates that increasingly, information technology is being viewed as a potentially revolutionary tool to build communities, strengthen professional relationships, and stimulate community planning and action. The literature also suggests that the construction of virtual communities of practice is a purposeful act that requires an intimate knowledge of the needs of the participants and the capabilities of emerging technologies and design concepts.

The final problem in this study was to examine respondents' perceived strategies to support learning and the sharing of knowledge in the CoP. To address this research question the study explored what participants liked and disliked about the Leadership and Associates Programs as well as their suggestions for program improvements. The observations cited here are drawn from historical documents, the participants' responses to open-ended questions contained in the online survey, and the telephone interviews. Findings describing

respondents' perceptions of strategies to support learning and the sharing of knowledge are reported as they relate to:

- Learning and sharing knowledge with other members of the community; and
- The instructional technologies available in the Leadership and Associates Programs.

Learning and Sharing Knowledge With Other Members of the Community

Even a cursory review of the data suggests that members of the community value the ability to share information and learn from their colleagues. Many of the study participants expressed the importance of "interacting" with or "contacting" their colleagues and other regulatory institutions. They suggested that information dissemination and knowledge building was critical to their job performance. Many of the participants also stressed the importance of increasing the flow of information among the members of the community. Some of the participants implied that the Toronto Centre was an important forum for supervisors to share their experiences. As one respondent wrote in the online survey, "the 'risk-free' environment created [by the Toronto Centre] for fellow regulators to share openly is unique and should be preserved jealously." Further to this, a few respondents suggested that the Toronto Centre explore collaborative opportunities with other international and regional organizations.

During the follow-up telephone interviews participants were asked to further elaborate on improvements that the Toronto Centre should make to the Leadership and Associates Programs. Overall the respondents were very satisfied with the efforts that the Toronto Centre has made to date and many respondents had difficulty in providing additional feedback. Many of the respondents suggested that they were impressed with the high levels of dialogue provided by their colleagues and the Program Leaders. Many of them said that

they were also impressed with the calibre of the experts (e.g., Program Leaders and guest speakers). Some of the respondents expressed appreciation for fact that the Toronto Centre is continually exploring new ways to facilitate communication and networking within the community. As well, a few respondents were very pleased that their feedback was welcomed.

Findings describing the respondents' perceptions of strategies that the Toronto Centre could adopt to support the sharing information in the community are reported as they relate to:

- Emerging issues;
- Exchanging stories;
- Collaboration with other organizations; and
- The information exchange between sectors.

The following comments are representative of the respondents' suggestions for supporting the community:

- **Emerging issues**

  "One of the things [the Toronto Centre can do] might be an emerging issues forum. To get some sense of what people are seeing about the issues from a regulatory perspective. I do realize that sometimes this is difficult because if you have an international community they [the issues] might not necessarily all be the same. But clearly right now, for example, the corporate governance issue. If people had some sort of an emerging issues forum that could be used as a sounding board. I think it would have to be some kind of a managed discussion board – moderated discussion board – rather than a free-for-all kind of thing. Where someone at the Toronto Centre can provide some value and

provide a buffer between the person providing the information and the rest of the world. Timeliness is very important so you don't want to be talking about certain issues six months from now."

"I believe the main concern that we are supervisory in a kind of emerging market ... it is the international volatility and the effects that are in the markets and what could effect the supervision and the stability of banks and things like that. I am aware of groups of supervisors who are under stress. They are not able to write about what is happening in their countries and things like that. I think that something very useful would be some kind of very updated information about things that could affect the supervisory self in terms of stability of the systems. You could communicate that through your web site or a session on your web site. For recent things. Things that have just happened."

"For me there is much need for contact and having to keep tabs on developments in industry issues, like in terrorism for example. Though things have died down we are faced with questions as how a lot of countries are doing it."

"I think that it [the Toronto Centre] focuses more on the supervisory aspect than the financial stability aspect in the sense that there might be more of a demand from the financial stability aspect. There are issues that might make a difference."

"If we [the Toronto Centre] can continue to bring in high-level speakers on current and topical issues that would be good. I mean that we are sharing not just on general things but very very topical matters. So I think we are now talking about the Enron issue, the Worldcorp, and that sort of thing. Because I think if we can tackle these issues or matters of that nature and how the issues are dealt with by supervisory bank leaders – so that we

deal with issues in a proactive manner – if there has been an experience somewhere else – then we have to ensure we act on it in a proactive manner to prevent that sort of thing."

- **Sharing stories**

  "For me it is very much topical. Maybe it would be good if also have actually interactive Associates Program. In a way like exchange success stories – fresh interaction – that might help. I remember when I once attended a seminar. They talked about one regulator who was facing a crisis and I think he had come up with a decision over the weekend."

  "I think it's very important for that kind of sharing to take place because there is more and more cross-border activities being carried out. I think from what I saw, the strength of the Toronto Centre was the fact that, here was I, sitting in a room discussing cases from all around the world – Poland, Brazil, Hong Kong – and in the room were persons who were some of the major protagonists [Program Leaders] in those actual live situations. And I mean there is just no substitute for having that kind of real world and real life experience facilitating you learning how to handle difficult challenges. As the Associates go through that and then have an opportuntiy to meet again over the internet and discuss challenges and such. It's very critical I think in improving the quality of leadership and improving the quality of regulation in our respective jurisdictions. It's a creation of a brotherhood really. That's what the Toronto Centre is fostering – a creation of a brotherhood amongst regulators."

- **Collaboration with other organizations**

  "Maybe there should be more frequent topical and relevant communications. For instance, if you think of a link with the Financial Stability Forum – and not a physical

link – I mean some co-operation with them so that whenever they put out something there is a follow up with the Toronto Centre. For instance, they just put out a paper on core banking and there could be a follow-up discussion on a discussion board a few weeks later or some article on it and then an e-mail message saying 'see this article' and so on."

"I know that sometimes there are activities that are run with the BIS [Bank for International Settlements]." There might be some other areas shared more with the BIS. There might be more seminars on particular issues. There are probably issues that are common to both the Toronto Centre and the BIS. Build on the synergy. So the Toronto Centre might start a common seminar between these two institutions. Perhaps it might be something that might be developed in the sense that the way the Toronto Centre presents a program is different from the normal seminar."

- **The information exchange between sectors**

"Because of the conglomerate's [institutions that include banking, insurance and securities market operations] mind and their increasing importance, perhaps there might be some web conferences or discussions whereas there's co-ordination between these three sectors [banking, insurance, and securities]. I have a feeling that they are sort of compartmentalized. There might be some aspects that might interest the three sectors. And if there is co-ordination about the presentation or common aspects between the three sectors perhaps that might give added value to the discussion. Also it's bringing the mico and the macro together."

Instructional Technologies Available in the Leadership and Associates Programs

Throughout the study respondents were encouraged to share their perceptions regarding the various components of the Leadership and Associates Programs. The strategies and opinions of the participants in the study are reported as they relate to:

- The Leadership Program;
- The Associates-only web site (including the discussion board, the Associates directory, the articles and presentations, and the resources and links); and
- Web conferences.

The Leadership Program. Thirteen of the respondents to the online survey mentioned the high quality of the Leadership Program. They related that the methodology used was very effective. As one respondent said, "I believe the seminar was the best I ever attended and that the focus of the Toronto Centre's activities is very good." Another respondent said that the program "was a great experience in my life, especially for the contact with colleagues around the world." The survey respondents also mentioned their appreciation for the interactions (during the week) they had with colleagues and the leaders (i.e., Program Leaders). One respondent mentioned that "the quality of the leaders is outstanding." Another respondent stated that "the one-week Leadership Program and supervisory contacts made are valuable. It is a very useful forum to be able to access."

Only one suggestion for improvement to the Leadership Program was offered during the telephone interviews. The respondent thought that the action plan topic they worked on was too broad. This individual suggested that increased support prior to attending the Leadership Program would be beneficial:

- "My plan was rather ambitious given the level of details that I could have gone into … if I had the opportunity again I would have done one part of the overall plan. It would have been useful if maybe I had more direction before I selected my topic … before I started to put my thoughts down on what my action plan was going to be. It might have been useful to get some feedback at that time. And maybe if I had been told at that time to maybe focus it a bit more to a specific issue rather than keeping it so broad."

The Associates-only web site. The third part of the online survey consisted of three open-response questions soliciting feedback on the strengths and weaknesses of the Associates Program. The first question dealt with what respondents liked about the Associates-only web site. Twenty-three of the 54 respondents indicated that they were unable to comment as they either had not visited it or had not used it recently. Several respondents commented that the web site was a good way to get important and new information and share experiences. Four respondents mentioned that the web site was easy to use and well organized. Two respondents said that they thought that the idea of the Associates-only web site was very interesting. The following comments illustrate the respondents' perceptions of the benefits of the Associates-only web site:

- "Highly organized and user friendly, includes important and new information about specific topics. Well structured, readable."
- "There if I need it."
- "It is full of relevant information and it is very easy to navigate."
- "I think the idea of creating a place where supervisors can meet is good."
- "Contains current relevant information on issues and networking."

- "Having access to experiences of professionals from other countries."
- "The website gives me some tips on how to become a better leader or supervisor of the organization that I am with. I was able to apply whatever I learned from the program and the articles from the website."

Next, participants were asked to comment on what they disliked about the Associates-only web site. Twenty-nine of the 35 respondents were unable to comment, the majority again indicating that they had not used it. Several respondents commented on the difficulty of getting information that is relevant to their needs. The following comments illustrate these perceptions:

- "I never find what I am looking for."
- "I think you need to put more information about the supervisors institutions around the world and specially more technical documents and information about money laundering."
- "Not central to my work."
- "Because at this time so little actual use is made of the site, it seems to me that it will take a while, if ever, before someone will answer a posted question. It is quicker to just phone someone."
- "It is sometimes difficult to access the website and can take numerous attempts before being able to use the site."
- "Perhaps it would be useful to have the exact scope of work of each Associate so that we can link to the right person. And updated status."

Participants were next asked to provide suggestions that the Toronto Centre could use to improve the Associates-only web site. Twenty-two of the 35 respondents were unable to provide comments. Five respondents indicated that they would like to have access to more information. Five respondents mentioned that they would like to see the active participation of their colleagues. Two respondents suggested that the Associates would benefit from a reminder on how to use the web site. One respondent suggested that methodological support upon their return home would be beneficial. These perceptions are reflected in the following comments:

- "Placing more content in the site."
- "More articles and papers on major issues and how various issues are dealt with in various countries."
- "I suggest that you continually gather relevant facts and ideas that will help your Associates in the conduct of their business."
- "Remind people on how to use it [the web site]."
- "Encourage people and their organisations to use it."
- "Invite ex-Toronto Centre [Associates] to be active in the discussion."
- "In my opinion, the problem is not as much the website itself. It's getting the supervisors to make use of it. The times that I visited the website there was little input from other supervisors. I guess people have to get used to it. Maybe the website could be integrated into the program, so participants could familiarize with the site, which may stimulate them to use it when they are back home."

- "More friendly links to Associates (there have been cases where Associates are reluctant to communicate and share)."
- "The various projects/work done by Associates in their field of expertise (that we can share with each other in times of need)."
- "I thought the case study/workshop approach was extremely useful. Perhaps if the course information can be made available on the website there would be greater participation by new persons as well as current Associates."
- "Add new things for example Job Centre, etc."

In addition to the comments provided in the online survey, the participants of the telephone interviews were asked to provide additional suggestions for improvements to the various components of the web site. Many of the respondents were unable to provide any suggestions. One respondent indicated that they thought that they may have encountered problems with the web site in the past, but they were unable to provide any specifics. A few of the respondents however were able to provide suggestions for improvement. One set of suggestions dealt with the Associates directory. As mentioned earlier in this report, the majority of respondents believed that the Associates directory would be a useful resource for them. Many of the respondents felt that the contact information and search capabilities were sufficient. However, two respondents suggested increasing the search capabilities of the directory. They thought that their search efforts would benefit from the inclusion of:

- The area of specialty and/or experience of each Associate;
- A listing of the various supervisory and regulatory organizations and the Associates who are from the respective organizations.

Their suggestions are illustrated in the following comments:

- **Specialty and/or experience of Associates**

  "When I came to the first seminar [Leadership Program] I listed what my experience was and so on and perhaps updates of achievements. The experiences of the individual participants. Other people might be able to request information if they need an area of speciality. Because if people have had exposure to this or that … you can be able to discuss that aspect perhaps directly with that person or on the discussion board."

- **Listing of supervisory and regulatory organizations**

  "If there was a legend for various regulatory organizations and the people from there who were Associate members. That would be helpful."

A few of the interview respondents also made suggestions regarding the resources and links provided by the Toronto Centre. One respondent thought that links to other supervisory and regulatory organizations and commissions would be helpful because it would potentially provide access to other supervisory information. Another respondent suggested that the Toronto Centre act as "the central point" and provide links to "where particular bits of information are or what somebody somewhere might have done with a banking regulation." Another suggestion made by a respondent involved encouraging Associates to provide articles about the usefulness of the contacts that they have made. One final suggestion from a respondent regarding the web site involved sharing communication in the community. The respondent said, "I got an e-mail from the lady in Africa that was great because she was telling us what she had encountered. Once I got a similar response back to her I didn't hear anything else. I guess after my response she forgot about it. It would have been good I guess

if the programs [communication] were posted. So everybody had access to it and you get everybody's input on it."

Web conferences. A review of the historical documents revealed that participants of the web conferences wanted more frequent sessions that delved deeper in the topics being presented. They felt that there should not only be more topics, but topics specific to their immediate challenges. A few of the participants also indicated that they wanted to have input on the selection of the topics. This sentiment was best summarized by one participant's remark "Can we choose the subjects to be discussed?" Notwithstanding the need to have input into the topics being presented, participants expressed appreciation at the ability to get an international perspective from Program Leaders and hear the questions and answers relating to relevant experiences of other countries. Participants of the sessions perceived these technologies to be a practical, useful, and cost effective means of accessing to up-to-date information. In addition, they found the pre-session information and updates received by e-mail to be useful.

The respondents' were particularly critical of two aspects of the web conferences – the degree of interaction and the sound quality. These participant perceptions are reflected in the following comments:

- **Degree of Interaction**

  "Effective tool [web conference] as long as it is not the only method of interaction among Associates."

  "Not enough interaction between speakers and listeners."

"More opportunity to ask questions – insufficient opportunity to have additional questions aired and discussed."

"Web conferencing has been quite effective in bringing live contact among supervisors at the same time. Pertinent and current issues affecting most of us have been raised in such a fora. I would suggest the frequency be increased."

- **Sound quality**

"Audio quality was not good for the first speaker – accent and sound clarity made it difficult to understand. The speaker was barely audible – voice was muddy. Volume should be a bit louder. The volume knobs were at the maximum but it was still a bit faint."

"Clearer audio – there should be a sound check on the website to set things up before hand (i.e., change settings and setup to make the benchmark sound piece clear). The people speaking should then check to ensure they will be clear under those settings."

"As to the spoke language, it must be kept in mind that many participants do not have English as their native tongue. Therefore, the lecturers should be instructed not to speak too fast and to speak distinctly. This is particularly relevant if the technical quality (loudspeakers) is not perfect."

During the telephone interviews a few of the respondents offered some additional suggestions. All of the 15 respondents stated that they would be willing to participate in future sessions as long as the topics were relevant and something they could relate to. One respondent suggested that the Toronto Centres efforts in regards to web conferences would be well received by the community. The respondent said, "if you arrange a distance learning

program, like a web conference, I think you would find that there would be an immediate, positive response from just I'd like to believe about everyone who has had something to do with the Toronto Centre." The respondent also mentioned that it is important to maintain this type of contact with Associates as it keeps the Associates "thinking actively about the issues." One respondent suggested that they would like to have a web conference or discussion board on the proposed Basel Capital Accord [an international banking supervision proposal prepared by the Basel Committee on Banking Supervision that will provide technical guidelines for banks and supervisors to evaluate properly the various risks that banks face]. The respondent said that, "this is something that is not made available to them [Associates] except for the one-week training session."

Summary

The grounded theory methodology provided the basis for the findings reported in this chapter. The theoretical framework and interpretations presented here are grounded in the quantitative and qualitative data of historical documents, 102 online surveys and 15 telephone interviews. Demographic data was provided to orient colleagues and distance practitioners to the respondents' financial sector experience. Then data that related to the five research questions that defined this study was presented as follows:

- The technologies that are currently used by professionals in the community;
- The types of information facilitated by information technology in the community;
- The specific needs of professionals regarding learning and sharing knowledge with other members of the community;

- The instructional technologies offered in the Toronto Centre Leadership and Associates Programs; and
- Strategies to support learning and the sharing of knowledge in the virtual CoP.

The challenge in this chapter was to illustrate the community of practice from the perspective of the members of the community. Every attempt was made to report the findings as they emerged from the data so that readers could visualize their environment and the learning needs of the community. The data was also presented in a manner that the reader would be able to experience the personal perceptions of the study participants.

CHAPTER V

DISCUSSION AND RECOMMENDATIONS

Introduction

In devising strategies to build and sustain a virtual community of practice, distance educators need a guiding theoretical model that explains how members interact, what stimulates a sense of community and what strategies will support the community. The purpose of this study was to examine how information technology can be used to increase the skills and knowledge of professionals and how it can support interaction in communities of practice. Further, the intent was to study the perspectives of an international community of practice that are using information technology to interact and develop skills and knowledge in their respective fields. The aim of this study is to develop a design framework for how information technology can be used by distance education practitioners to support learning and the sharing of knowledge in globally distributed communities of practice.

In this chapter, the emergent theories of this study will be compared to the literature in order to determine what is similar, what is different and why. As appropriate, this chapter will also offer recommendations to guide distance education practitioners in the planning, design and implementation of technologies that support virtual communities of practice.

Discussion of the Findings

Enhanced Understanding of Communication in Communities of Practice

The elements of a community of practice (see Figure 11), described in this section, emerged from the empirical findings of this study. In developing this model to explain what elements are necessary to support communication in the CoP, I compared the research findings reported in Chapter IV to theoretical models and concepts found in the literature.

The resultant illustration builds on earlier theoretical models and concepts put forth by Hildreth (1997), Kimble et al. (2001), Kowch and Schwier (1997b), Lave and Wenger (1991), and McDermott (2000). Each of the elements in the model is discussed in the following section.

Figure 11. Elements of a Community of Practice

Shared vision. In organizational leadership "shared vision" is a familiar concept. Senge (1990) has given the shared vision concept its full weight and importance in any learning organization. He argues that the shared vision must be well articulated, thoroughly understood and those called upon to share it, have to be involved somehow in the process of defining it. The literature suggests that inspiring a shared vision and a sense of purpose in the community of practice can lead to improved professional practice (Hildreth, 1997; McDermott, 2000). Without a shared vision, design and support measures introduced to facilitate communication within the community may be co-opted, or only partially realized.

The results of this study indicated that respondents had difficulty identifying the vision of the Toronto Centre's Leadership and Associates Programs. While a few participants were able to articulate that the Toronto Centre's focus is on the development of financial sector supervisors' leadership competencies, in general, they did not know the difference between the Leadership and Associates Programs. When participants were asked to provide feedback on the instructional technologies used in the Associates Program they required an explanation of the difference between the Leadership and Associates Programs. The respondents did not realize that the vision of the Associates Program is to:

- Provide a forum where all Associates may continue to share information, exchange ideas, work collaboratively and locate topical information on supervisory issues; and
- Provide relevant support to Associates as they work through their Action Plans or when faced with supervisory challenges.

Shared past. Hildreth (1997), Kowch and Schwier (1997b), and McDermott (2000) suggest that a shared past or history, also referred to as "community memory," is an important characteristic of communities of practice. McDermott (2000) argues that a common history gives the CoP a sense of "chronology, time, and the possibility of progress" (p. 8). As the findings show, there is little evidence of a shared history beyond the respondents' recollections of the one-week Leadership Program. In fact, the respondents' memory of the various Associates-only events and other offerings such as the quarterly newsletters and monthly e-mail updates required a great deal of probing and/or explanation during the interviews.

Common language. The lack of a common language can cause possible communication problems in a CoP where people come from countries that use different languages. In this

study, it became evident that although the respondents' may have similar supervisory challenges, their experiences, languages and cultures are diverse. Although English is the agreed language of communication in the community, there is evidence that this is causing some communication problems. For example, one respondent indicated that since few people in their country speak English, language is a barrier to international interaction and exchange of information. In another example the respondent said that sometimes a supervisor may speak English but not fully understand an article written in English.

Cultural factors, such as frames of reference, motivation, behaviours, may also inhibit knowledge creation and sharing. These factors may make it difficult for the individual to understand what other people are trying to explain. There was evidence presented from one respondent in this study to support this barrier to communication. The respondent shared that they were unwilling to contact and share information with certain supervisory organizations because of their cultural differences.

There is another important perspective to common language that is presented in the literature (Davenport, n.d.; Hildreth, 1997; Lave & Wenger, 1991). According to Lave & Wenger (1991), for effective knowledge sharing, individuals need to have the same meaning in their communication process. Furthermore, they suggest that research confirms that a shared understanding and a common language among people in a community is essential for collaboration and productive knowledge transfer (Lave & Wenger, 1991). Davenport (n.d.) adds that without a common language, individuals will neither understand nor trust one another.

The results of this study indicate that the community has a "language" of its own that a newcomer would need to learn. Study participants frequently used both technical words and

process related words (i.e., words that have a specific meaning in the community) that relate to the financial sector. For example, "disclosure and transparency," "corporate governance," "systemic," "non-performing loans," "market risk," "enforcement power," "financial stability," "risk model," "on-site," "termination policy," "early warning systems," and "compliance." This study also found that community members need to not only know the important international organizations that relate to the financial sector but the acronyms for many of these organizations. This community also uses acronyms to expedite communication and also express their belonging to the community which differentiates itself from other communities. Study participants frequently spoke of their connections to various international organizations such as, the Basel Committee, the World Bank, the BIS (Bank for International Settlements), the FSI (Financial Stability Institute), COSRA (Council of Securities Regulators of America), and IOSCO (the International Organization of Securities Commissions).

Commitment. Kowch and Schwier (1997b) suggests that participation in the community depends on individual and shared commitment. Expanding upon this concept, Nohria and Berkley (1994) state that "commitment depends on shared values in the community and 'earned respect' for particular skills and knowledge, where participation represents an ethical choice and influence among those who share goals or needs" (Nohria & Berkely, 1994, in Kowch & Schwier, 1997b, p. 7). Kowch and Schwier also argue that maintaining participation in the community is just one level of commitment. The goal is to foster stronger commitment to the community as this can lead to a stronger, more flexible community.

This commitment model proposed by Kowch and Schwier (1997b) can be seen to have two elements. The first element represents the choice to participate based on shared values and respect for the expertise of community members. The next element represents the degree of participation in the community. There was evidence in this study to support this view of commitment. When considering their present or future participation in the Toronto Centre programs many of the participants acknowledged the skills and knowledge of the Program Leaders as well as their peers. Throughout the study participants also indicated that they want to have access to experts and ongoing opportunities to learn about experiences in other institutions, countries and sectors. They also expressed the importance of being able to acquire and share information with colleagues. They mentioned that their most important learning was from how other supervisors handle problems as the approaches that were used provided them with insights on how they might approach situations.

In relation to the degree of participation in the Associates Program the study found that it was tentative at best. There was little knowledge of, and/or experience with the technologies offered in the Associates Program. Participants who had visited the web site indicated that they had not made much use of it. Some of the reasons included lack of relevant information, technical difficulties and work related commitments. In addition, many of the participants indicated that they had read or used some of the articles, newsletters, and monthly e-mails, however, few had participated in the web conferences.

Relationship building – identity, confidence, and trust. Strong personal relationships are considered to be an essential condition in communities of practice. Through well-established relationships, individuals develop the sense of identity, confidence, and trust that allows them to create new knowledge and share that knowledge with other members of the

community (Kimble et al., 2000; McDermott, 2000). In a recent study of a globally distributed CoP, Kimble et al. (2000) found that personal relationships (built primarily through face-to-face contact) helped with issues of identity as the group members felt they then knew who they were communicating with even if it was via e-mail. Kimble et al. reported that this led to increased confidence in the information and knowledge they received from their colleagues.

Both Kimble et al. (2000) and McDermott (2000) stress that trust is a necessary condition for people to share knowledge and experience. McDermott (2000) states that "it is human nature to form communities of like-minded people with common interests. However, connecting people who need to know with those who do know requires an element of trust" (p. 4). He suggests that created communities can experience a harder time fostering trust and active participation than emergent ones where a shared passion has brought members together. Denning (n.d.) also contends that asking for advice within an organization can be difficult but even more difficult is the sharing of knowledge across organizational boundaries (p. 4).

In this study the findings agree with the idea that strong personal relationships are essential. The respondents all expressed the importance of personal contacts. Many commented that without ongoing communication and relationship building it would be difficult to keep current on supervisory policies and practices in other institutions and countries. Many of the participants cited that the Leadership program provided them with valuable networking contacts that they would use if they required information or assistance with a challenge. In addition to the relationships developed by attending the Leadership Program, many respondents indicated that they had already fostered many professional

relationships from their participation in face-to-face meetings, conferences, seminars, or training events.

In regards to identity, confidence and trust, the majority of respondents in the study indicated that they rely on their personal contacts and that they use these contacts as a starting point when they require information or feedback on their ideas. Many felt that by contacting someone they know they would be more likely to get a response and assistance with their query. They also felt that if the individual they contacted could not provide them with assistance then this individual would be able to refer them to someone who could help.

Interaction. Sharing knowledge requires interaction. There is general consensus in the distance education literature that communication is central in learning, not only for the attainment of knowledge but for ensuring understanding and exploring the meaning of knowledge. However, in the literature different terms are used to refer to communication in this context. For example, Senge (1990) and McDermott (2000) use the term "collaboration," Kowch and Schwier (1997a; 1997b) use the term "engagement," Garrison (1990), Kimble et al. (2000) and Moore and Kearsley (1996) use the term "interaction."

Kimble et al. (2000) argue that it is in the human interaction that members of the community build "enough common context to understand each other, enough trust to be willing to share ideas, and enough spark to draw out the tacit knowledge others have, the lessons they forgot they learned" (p. 5). The literature also argues that interaction is key and that it can be facilitated by different modes of face-to-face and instructional technologies.

Many of the study participants expressed the importance of "interacting" with or "contacting" their colleagues and other regulatory institutions. In this study interaction in the CoP was found to occur primarily in the face-to-face opportunities presented by the Toronto

Centre Leadership Programs. The participants stressed that they particularly valued this mode of interaction. They identified an affective need to connect to other supervisors and indicated that face-to-face opportunities for professional networking were an important part of their experience. In addition, the participants reported that they have had minimal experience with or exposure to other instructional technologies such as video and web conferencing. Those that had the opportunity to interact via other instructional technologies reported that it was within the realm of their day-to-day supervisory duties (i.e., meetings and/or updates on specific topics or institutions). Despite this lack of experience with technologies as a mode of interaction, study participants *consistently* placed a high value on the importance of interacting with colleagues and experts and perceived that technologies within the Associates Program would enable them to interact in new and exciting ways.

Knowledge creation and management. Nonaka (1991) suggests that what CoPs require is a continuous conversion of tacit knowledge into explicit knowledge that can be captured, shared with others, diffused within the community, and turned back into new tacit knowledge gained from learning by doing. He calls this process the "knowledge spiral." According to Nonaka (1991), explicit knowledge and tacit knowledge are not totally separate but mutually complementary entities (Nonaka, 1991, in Hildreth, 1997; Nonaka, 1991, in Kimble et al., 2000).

The results of this study support the collective view in the literature that knowledge creation and sharing are essential elements in supporting CoPs (Brown & Duguid, 1991; Hildreth, 1997; McDermott, 2000; Saint-Onge, 1996; Zach, 1999). As the findings show, participants are *seeking* not only explicit knowledge but also tacit knowledge. The participants continually expressed the importance of obtaining information "geared"

specifically towards their work and the issues they face. There was also evidence that respondents are *sharing* explicit and tacit knowledge with their colleagues. The respondents indicated that this sharing of information occurred primarily through face-to-face interactions, the telephone, and e-mail. When asked about their extensive use of e-mail the participants responded that it provided them with a greater sense of immediacy and that it was convenient and easy to use. In addition, some participants suggested that the Toronto Centre was an important forum for supervisors to share their experiences and obtain information that is pertinent to their work.

Negotiation. It is suggested in the literature that communities are built on what the members perceive as strategically important topics. Often, this will require negotiation on the part of community members. Denning (n.d.) warns that if knowledge is being collected so that it can be shared though the web or other technologies, the members are the only ones who know what knowledge needs to be shared. He cautions that:

> Efforts to build knowledge collections in the hope that users will come almost always encounter a disappointing response since the builders find it difficult to anticipate what knowledge users will want. Even if they succeed in theory, the users will regard the collection as something external and foreign unless they had a hand in designing and construction it (Denning, n.d., para. 5).

There was some evidence in this study to support the idea of negotiation in the community. Many of the participants stressed the importance of increasing the flow of information among the members of the community. A few participants related that they would like to have input to the topics that are being presented. One respondent commented, "can we choose the subjects to be discussed?"

Relevance. Relevance is considered to be one of the prime motivators in adult learning. Knowles (1975) theory of Andragogy emphasizes that adults are self-directed and expect to take responsibility for decisions. His theory emphasizes that:

- Adults want to be involved in the planning and evaluation of their instruction;
- Personal experiences (including mistakes) form the starting point for learning activities;
- Adults are most interested in subjects that have immediate relevance to their job or personal life; and
- Adult learning is problem-centered rather than content-oriented (Knowles, 1975).

With respect to communities of practice, relevance is also regarded as a motivating factor that encourages members to engage in interactive activities. Kowch and Schwier (1997a) argue that "central themes, ideas or purposes should not be imposed on the community. Rather, purposes, intentions and protocol for interaction should be constructed by the members of the community" (p. 7).

In this study relevance was of paramount importance to participants. Throughout the data gathering process participant expressed the need to have information that they are interested in and that is related to what they are doing. Often participants used the word "relevant" to describe the types of information they are seeking. The supervisors in the study wanted to see a clear relationship between the knowledge that is being shared and their job responsibilities or personal situations. Relevance was also a key factor in their willingness to participate in future Toronto Centre programs. Many of the participants suggested that the instructional technologies utilized by the Toronto Centre had the potential to provide

community members with access to topical information and perspectives of supervisors from all around the world.

Evolution and continuous improvement. As tasks and skills are constantly replaced with new ones at an ever-increasing rate, expertise becomes a matter of regularly renewing one's knowledge base and extending it into new areas. This is specifically relevant to members of a community of practice (Denning, n.d.; Kowch & Schwier, 1997b; McDermott, 2000). When considering the evolution and continuous improvement of individual participants it would appear that the majority attempt to integrate learning activities into their busy schedules. Many of the participants indicated that they struggle to keep current on emerging issues. Many of the participants mentioned that in addition to their informal communication with colleagues, they attend sector specific conferences and seminars. A few participants mentioned that their organizations host training sessions and/or conferences for supervisors in their regions.

Evolution and continuous improvement is also of concern for organizations that support created communities of practice. Banathy's (1992) systems theory addresses self-reflective assessment of self and the modelled system. His "systems-environment" model argues that "human activity systems" (HAS) are purposeful creations that manifest in sets of activities to attain a purpose. According to Banathy's model, a community of practice would be a "purposive" type of social system that has an intensive interaction with its environment (p. 12). He also suggests that a key feature of human activity systems is that they are self-regulating.

The Toronto Centre is a self-regulating system that has adopted an evaluation strategy. In fact, this study was considered to be an integral part of the Toronto Centre's 2002 program

evaluation strategy. The results of the study were communicated to the Toronto Centre's Board of Directors, its sponsors, and the Associates in November, 2002.

Enhancing the Use of Technologies in Virtual Communities of Practices

The results of this study found that in the culture of the financial sector supervisors the face-to-face encounter is believed to be the ideal paradigm for the meeting of minds. Many of the participants expressed the sentiment that communication seems most complete and successful when the person is physically present. However, the globally distributed aspect (i.e., space) and time constraints of the members of this community make face-to-face interactions difficult if not impossible. The respondents indicated that to overcome this barrier they frequently use the telephone or e-mail when they are *seeking* or *sharing* explicit and tacit knowledge with colleagues.

One of the unique benefits of instructional technology is that it is able to provide access to information and learning opportunities that in many cases would not otherwise be available (Bates, 1995; Keegan, 1996; Moore & Kearsley, 1996). In order to solve the problem of co-located interaction and to increase the flow of information to financial sector supervisors the Toronto Centre created a "purposeful" community of practice that is called the Associates Program. The intent of the Associates Program was to extend the face-to-face relationship initiated by the Leadership Program into a virtual community where financial sector supervisors can continue to share information, exchange ideas, work collaboratively and locate topical information on supervisory issues. Although other international organizations (e.g the Financial Stability Institute (FSI), the International Organization of Securities Commissions (IOSCO)) offer face-to-face conferences, newsletters and periodic communiqués, the Associates Program is a unique concept because it is attempting to provide

a sense of cohesion and self-awareness within a broader community of practice that is otherwise disjointed.

An integral part of the vision of the Associates Program was the creation of a "virtual space" via technologies such as web conferencing and discussion boards. In this study the participants reported that they had little knowledge or experience with the technologies offered in the Associates program. In addition, many of the participants were unable to provide specifics about their media preferences because they had limited exposure to the various media. Many of the respondents were not only unclear as to what the technologies were, they were unsure of their purpose and required further explanation.

Rogers (1992) suggests that "the characteristics of an innovation, as perceived by the members of a social system, determine its rate of adoption" (p. 36). In Rogers' research he has found that individuals may adopt an innovation, but the innovation diffuses through the social system (pp. 17 –18). One of Rogers' insights is that supportive social environment can be created if there are effective change agents advocating for them (p. 27). According to Rogers' diffusion theory there are four main elements that are critical to the diffusion of an innovation within a social system:

- The characteristics of the innovation(s);
- The communication channel whereby the message of the innovation is passed from one individual to another within the social system;
- The time involved in the diffusion where individuals can discuss, test out, and then implement or reject the innovation; and
- The social structure of the system (Rogers, 1995, pp 15 – 30).

Each of these elements, as they relate to the findings of this study, will be briefly discussed in the next section.

Characteristics of the innovations. Rogers (1995) suggests that "the characteristics of innovations as perceived by individuals help to explain their different rate of adoption" (p. 15). He argues that innovations that are perceived as having "greater relative advantage, compatibility, trialability, observability, and less complexity will be adopted more rapidly than other innovations" (p.16). Although many of the participants in this study had little or no experience with technologies offered in the Associates Program they expressed their willingness to participate in the future.

In regards to "relative advantage," many of the participants' thought that these technologies would provide them with opportunities that might not otherwise exist. Many of the respondents perception was that the "people-to-people" interaction aspect of the technologies would provide increased quality, variety and level of supervisory representation. They also cited the immediacy impact of having access to topical information and perspectives of supervisors from all around the world.

Rogers (1995) argues that the compatibility of the various media needs to be consistent with the existing values, past experiences, and needs of potential adopters. In this study certain technologies were perceived by participants to have greater compatibility with the communities needs than others. Although few of the participants had participated in web conferences and/or discussion boards they regarded these technologies positively and suggested that they would meet their needs. Other components of the Associates-only web site were received positively including the Associates directory, the articles and presentations, and the resources and links. One technology that did not meet the general

approval of the participants was the chat meeting room. Many of the interview respondents were not particularly supportive of this medium. They thought that it would inhibit their ability to communicate. One respondent mentioned that they were "put off because of the association with internet chatting."

Rogers (1995) suggests that complexity is the degree to which an innovation is perceived as difficult to understand and use (p. 16). In this study the complexity of the innovations was not fully explored, as many of the participants in the study were unable to articulate what the technologies were.

Despite the relative technological inexperience of the study participants, virtually all of the respondents in this study suggested that they would be willing to try the various Associates Program technologies. Rogers (1995) agues that if an innovation is made available on a trial basis it will reassure individuals who are considering it for adoption, as it is possible for them to learn by doing (p. 16). Those respondents in the study who had experienced Associates Program technologies such as web conferencing, suggested that there were technical difficulties but that these did not pose an insurmountable barrier to future participation.

Finally, there is observability. Rogers (1995) defines observability as "the degree to which the results of an innovation are visible to others" (p. 16). The findings suggest that there is some minor observability of the impact of the Associates Program as a number of participants related that they shared ideas from the newsletters and articles with colleagues.

Communication channels. How the innovation is introduced, described and communicated is considered important for its adoption. Rogers' (1995) diffusion theory suggests that mass media channels are the most rapid and efficient means to inform potential

adopters while interpersonal channels are more effective in persuading an individual to accept a new idea (p. 18.). He cautions that in deciding whether or not to adopt an innovation, individuals primarily depend on the communicated experience of others much like themselves who have already adopted (p. 300). Rogers' theory is supported by the findings of this study.

When participants were asked how they learned about the Toronto Centre, all respondents indicated that the heard about the Leadership Program from either their Director/Manager or other colleagues. In this study participants were also asked if they received enough information regarding how to use the Associates-only web site. The majority of participants indicated that they received enough information. Despite this perception, in the follow up telephone interviews the majority of respondents were unclear as to the capabilities of the technologies offered in the Associates-only web site. This suggests that there has not been enough communication of the Associates Program technologies to the members of the community.

Time. Rogers (1995) suggests that there five main steps that every potential adopter of an innovation must have time and opportunity to complete. The steps are:

- **Knowledge**. This occurs when an individual learns of the existence of the innovation and gains some understanding of how it functions;
- **Persuasion**. This occurs when an individual or other decision-making unit forms a favourable or unfavourable attitude toward the innovation;
- **Decision**. This occurs when an individual or other decision-making unit engages in activities that lead to a choice to adopt or reject the innovation;

- **Implementation**. This occurs when an individual or other decision-making unit puts the innovation to regular use; and
- **Confirmation**. This occurs when an individual or other decision-making unit seeks reinforcement of the decision to use or reject the innovation (p. 20).

The findings of this study suggest that generally speaking the participants are at the knowledge step as many of the participants had little or no knowledge of the technologies offered in the Associates Program.

The social system. Rogers (1995) cautions that the social and communication structure of a system can either facilitate or impede the diffusion of innovations in the system (p. 37). His description of individuals in terms of their response to innovations is useful in determining and planning for meeting individuals' needs. The five adopter categories are:

- **Innovators.** These individuals play a gatekeeping role in the flow of new ideas into a social system. They tend to be venturesome, cosmopolite, possess the ability to understand and apply complex technical knowledge, and are able to cope with uncertainty and risk.
- **Early adopters.** This adopter category has the greatest degree of opinion leadership in most social systems. They serve as role models and are looked to for advice and information about the innovation from potential adopters.
- **Early majority.** These individuals are the most numerous of the adopter categories (making up one-third of the members of a social system). They tend to deliberate for a period of time before completely adopting an innovation, but seldom lead.

- **Late majority.** Like the early majority, this category consists of one-third of the members of a social system. They approach innovations with a skeptical and cautious air, and tend not to adopt until most others in the system have done so.
- **Laggards**. This group is the last in a social system to adopt an innovation. They tend to be suspicious of both innovations and change agents (pp. 263 – 266).

Due to the lack of use of the technologies offered in the Associates Program it would be very difficult to make a judgement as to which category the participants fall into. There was some anecdotal evidence of innovators and early adopters in the telephone interviews but nothing specific emerged from the data.

Implications and Recommendations

The question remains, how does one design and support a virtual community of practice? At the beginning of this chapter, the *Elements of a Community of Practice* model (see Figure 11), emerged from the empirical findings of this study. The theoretical framework that is presented in this model could guide distance education practitioners in designing and supporting virtual communities of practice. The results of this study also suggest that the diffusion of the innovations is a key consideration in the design and support of a virtual CoP.

Supporting Communication in Virtual CoPs

Distance education practitioners need to understand the nature of the various elements that exert influence on the community so that they can provide communication venues for participants. The recommendations in this section are based on the *Elements of a Community of Practice* model.

Shared vision. Senge (1990) argues that shared vision has the force to connect and commit individuals one to another and to the new future they are bound to create (p. 206). Therefore, in relation to a "purposeful" community of practice it appears vital that a "community-wide" vision is created. In virtual CoPs the technology should be a part of the vision and form a unifying basis for the sharing of knowledge. For the CoP in this study it is very important that the Toronto Centre articulates a compelling vision of knowledge sharing that makes sense to the members. It is recommended that this vision be communicated in the marketing efforts of the organization as well as in the Leadership and Associates Programs.

Shared past. McDermott (2000) suggests that scheduling regular events will not only create a sense of relationship but have the added benefit of creating a sense of history within the community. Although this recommendation was made for co-located CoPs it could be applicable in a virtual community. Regular events dealing with emerging issues and relevant supervisory topics could be scheduled by the Toronto Centre. The web conferencing and discussion board technologies would provide a venue for creating a bond and collective memory between community members. In addition, if the Toronto Centre developed and/or strengthened its collaborative partnerships with other international organizations (e.g., the Financial Stability Institute (FSI)) and regional supervisory agencies there would be increased opportunities to share knowledge, build relationships, and create a shared past that includes the broader CoP.

Common language. Anyone who has tried to translate ideas from one language to another knows that conveying the same meaning is not always easy. One approach to dealing with language barriers in the CoP would be the facilitation of peer mentoring. In McDermott's (2000) research he found that members of the community will emerge and

support other members. He gives an example of a global community where a group member became "a conduit for people who are less comfortable in English, the community's common language" (p. 9). McDermott (2000) also suggests that a member of the community (who is functioning in a co-ordinator role) can "link" people with others who share similar concerns. He reports that these groups can then ask for and offer help (both within the group and external to the group) in solving their problems.

Translation is only one part in the differences in communication between members of different cultures. Differences in the way language is used (i.e., the meaning) in the community can be challenging. Even when sharing simple information, like a procedure, people often need to build a shared context to understand how to use it. One way to reduce misunderstanding would be to explain words and acronyms (e.g., technical and process related) more precisely so that the community has a clearer understanding of the knowledge being shared with them. One recommendation would be to have someone who is familiar with the financial sector assess materials (e.g., documents, case studies), decide what is important and enrich the documents by building enough of a background context for community members to understand each other.

Commitment. The Toronto Centre expresses its educational values and philosophy through its mission statement (see Chapter I). The organization then translates the statement into programs and services, through which financial sector supervisors are to develop knowledge, abilities, habits of mind, behaviours, ways of thinking and knowing. The organization also sets expectations for the learning and sharing of knowledge. In a purposeful CoP the commitment to the vision and the development of these expectations is a collective responsibility shared by the members of the community.

In this study the participants indicated that they value and respect the skills and knowledge of the Program Leaders and their peers. However, participation in the Associates Program was low. One strategy would be for the Toronto Centre to examine the degree of commitment and relationship building of community members in future evaluation efforts.

Relationship building – identity, confidence and trust. In their research of virtual communities of practice, Kimble et al. (2000) found that it is important to create a climate "that fosters trust, care, and personal networks among members as this is one of the most important conditions for high levels of collaboration, knowledge creation and sharing" (p. 5). In the literature there are three recommendations for fostering collaboration, knowledge creation and sharing in created communities:

- Incorporate as much member involvement in the design and development of the CoP as possible in order to build a sense of ownership and commitment to the community. One approach that could be taken is to involve members who may have important specialized knowledge. Another approach would be to seek out well-connected and influencial members of the community who can draw others in.
- Create opportunities for the community as a group to share ideas and challenges. For example, the Toronto Centre could solicit volunteers to come forward and lead discussions regarding the issues that the community cares about the most.
- Build on the trust that was fostered in the face-to-face communication in the Leadership Program. In this study the face-to-face element seemed to overcome many of the cultural and distance barriers to sharing knowledge. The literature suggests that if a strong relationship is developed in the physical environment the community members will be more likely to "go the extra half-mile" for each other. One recommendation would be to

encourage Associates to share stories of their contact with other Associates through the quarterly newsletters and/or the Associates-only web site (Kimble et al., 2000; McDermott, 2000).

McDermott (2000) also suggests that participation in CoPs varies. He recommends that it is better to build an active core group of individuals because they "not only contribute but often feel responsible to help develop the community by inviting or easing participation of people they know" (p. 9). This core group can be an important means of relationship building. McDermott gives an example of a member who contacted people they thought would benefit from items posted on the organizations web site (p. 10).

Interaction. Interaction is a key element in building a community of practice. Interaction can be facilitated by different modes of face-to-face and instructional technologies. In this study the participants have been interacting with their colleagues in the broader community of practice via telephone and e-mail. One recommendation would be to build on their knowledge of and familiarity with these technologies. For example, the Toronto Centre could build on their conceptual model of e-mail as a communication tool when planning and implementing discussion board topics.

Knowledge creation and management. The literature recommends that a key strategy is to promote both explicit and tacit knowledge creation and sharing at all levels of the community. Hildreth (1997) argues that Nonaka's (1991) "knowledge spiral" must be created in the CoP with the tacit knowledge being converted into explicit, documented, usable information that benefits others. Capturing and translating this practice-based knowledge is especially important in complex fields, such as financial sector supervision, which is diverse

and fluid by nature. It should also be mentioned that an additional benefit of documenting this knowledge would be that it could help the community from "reinventing the wheel."

The approach that is suggested by McDermott (2000) is to adopt a learner-centred model which helps individuals "pull" insights from each other rather than "pushing" it out to them. He suggests that whether using face-to-face forums or technology, the knowledge sharing should be designed to respond to pull rather than push information out to people.

Negotiation. If the Toronto Centre is to meet the needs of the community there will need to be some prioritization and negotiation of the topics to be discussed. Because of limited resources, it is recommended that the Toronto Centre keep discussions focused on cutting-edge topics. One approach to establishing the topics would be to keep senior community leaders engaged in the negotiation of topics with community members. Another approach would be to create a list of topics from the Leadership Program participant reaction evaluations. The Associates could then be asked to select the top three topics that they would like to discuss via a survey or opinion poll.

Relevance. The literature recommends that communities should be built on strategically important topics. McDermott (2000) argues that this requires some intelligence of the knowledge that is strategically important to the community. Evidence in this study suggests that members of the CoP are focused on practical aspects of their profession. For example, they expressed the need to obtain information regarding everyday supervisory issues, developments in the field, tactics that work and do not work. They also argued that relevance was of paramount importance to them and that they would only participate if they perceived the topic to be of value to them. One recommendation would be to have some sort of ongoing assessment in terms of a member survey to determine the relevance of topics.

Toronto Centre Associates should be asked what issues they care about, worry about, and would like to find out more about. Associates could be consulted via informal focus groups or through structured opinion polls placed on the Associates-only web site.

Evolution and continuous improvement. Banathy (1995) argues that human activity systems "have to be sensitive to changes in their environment that are relevant to the system" (p. 32). He suggests that the system needs to modify or redefine themselves both in relationship to and in interactions with their environment as well as their internal operations. Banathy argues that if this happens, then the system will produce the kind of output that is expected of themselves and their environment (p. 32).

Social systems, like that of a purposeful CoP, have intensive interactions with their environment that result in changing goals and ways of doing things (Banathy, 1992, p. 6). The Toronto Centre has taken a systematic approach to the assessment of the design, development, and delivery of its programs. This approach includes:

- Ongoing refinement of a framework for effective program evaluation;
- Designing evaluation for new programs and processes;
- Using a systematic process to measure the impact of all programs; and
- Implementing and communicating the evaluation process and related developments (PricewaterhouseCoopers LLP, 2001, p. 9).

As a systematic evaluation strategy is already in place it is recommended that the Toronto Centre periodically revisit the strategy to ensure that their approach matches the expectations and needs of the community.

Diffusion of Innovations in Virtual CoPs

Increasingly, instructional and information technologies are being integrated to offer individuals a means where information may be easily accessed, where support may be received and given, and where advice and experience may be shared. Distance education practitioners need to understand the nature of the contribution technology can make to building virtual communities of practice. They need to consider how technologies can be turned into virtual learning spaces as well as how to diffuse the innovations within the community.

Figure 12 illustrates a model for designing and supporting "purposeful" communities of practice. This model has been built from theoretical models and concepts found in the literature and the perceptions of participants in this study. It also incorporates recommendations made in the literature and by participants of this study. The results of this study indicate that the adoption of this process model would be beneficial to organizations such as the Toronto Centre.

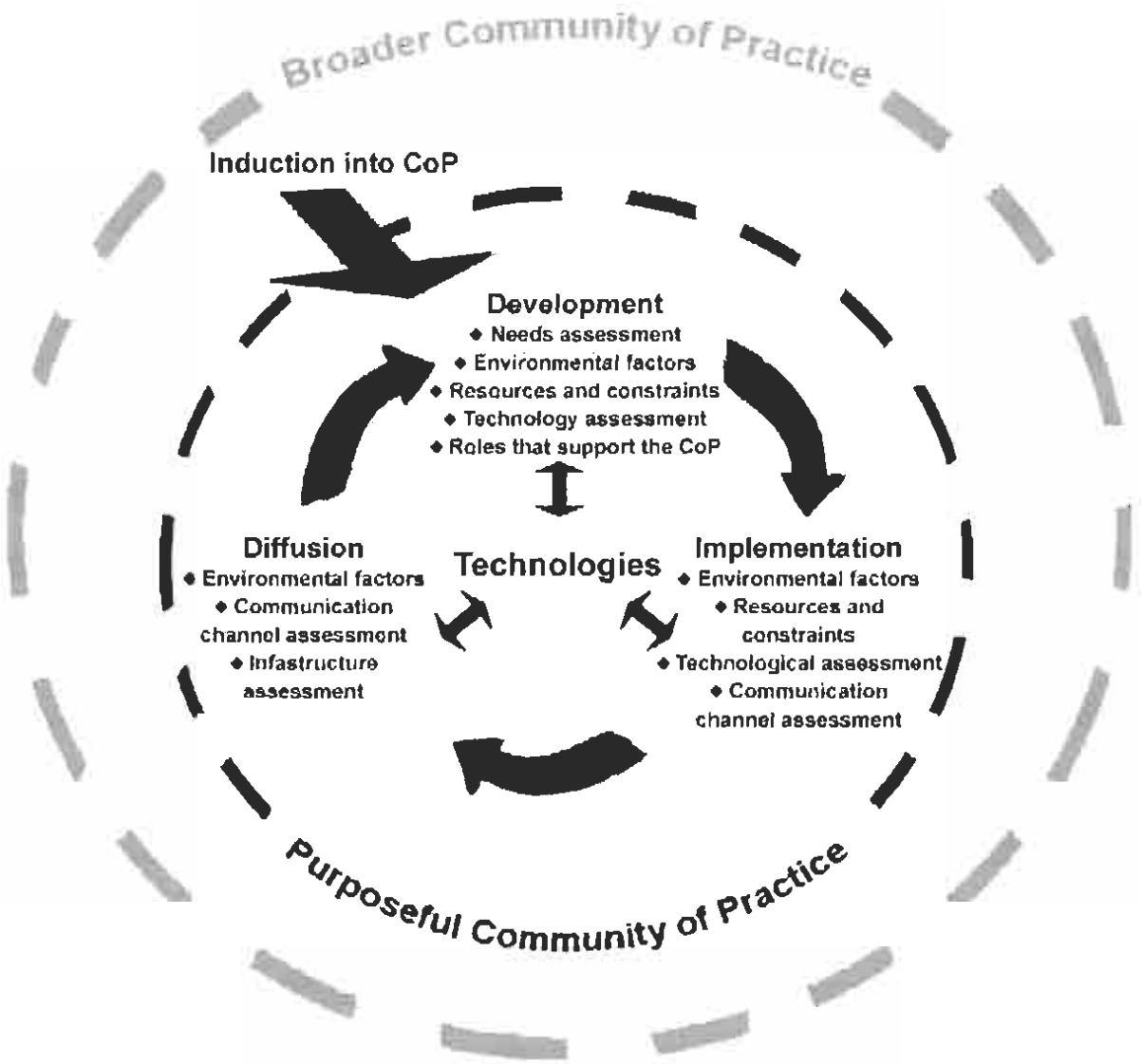


Figure 12. Design and Support Structure for Purposeful Communities of Practice

The model has three broad categories surrounding the enabling technologies: development; implementation; and diffusion. An important characteristic of this model is that the process is cyclical rather than linear and that the developers of the innovation continually seek feedback from its systemic and larger environment (e.g., community members, sponsors, governing bodies). Because of this approach, the developer can get a more accurate picture of the current situation and adopt appropriate strategies for implementation and diffusion of the innovation. Another characteristic of this model is that there is a reciprocal

cause and effect relationship between each of the three categories and the technologies. This is illustrated by the use of double-sided arrows (Banathy, 1992; Bates, 1995; Rogers, 1995).

Induction into the Community of Practice

Rogers (1995) argues that there are three possible levels of technology transfer: knowledge of the innovation; use of the innovation by individuals in their organizations; and commercialization of the innovation in the marketplace (p. 142). He warns that technology transfer is very difficult and that this process often fails because people tend to underestimate the amount of effort that is required for it to occur (p. 142).

In this study the "purposeful" CoP can be seen as initiating through participation in the Leadership Program. In a recent study (Kimble et al., 2000) of a globally distributed community the researchers found that the face-to-face relationship building element enabled the community to transition into using e-communication tools. This finding suggests that the Toronto Centre can leverage the face-to-face aspect of the Leadership Program to both build a cohesive virtual CoP and diffuse the technologies that will support the community.

Diffusion theory research suggests that to achieve this transition from face-to-face to technological innovations, it is important to plan for how the innovation is introduced, described and communicated to the social system. Diffusion theorists argue that communication of the innovation is an important dimension of innovation diffusion (Rogers, 1995). The findings of this study indicate that Associates have little knowledge or experience with the technologies offered in the Associates Program. Therefore it is recommended that the Toronto Centre re-examine the Associates Program communication strategy to improve the participants knowledge of both the vision and the technologies available. Their exposure to the innovations should be initiated during the Leadership Program and re-communicated

on an ongoing basis (e.g., newsletters, Associates web site documents). This communication strategy should not only present the capabilities of the technologies and how to use them but also align the benefits of each technology with the communities perceived needs as detailed in this study.

Development

Rogers (1995) defines development as "the process of putting a new idea into a form that is expected to meet the needs of an audience of potential adopters" (p. 150). He argues that technologies designed and developed with proper consideration of the end users' needs and wants have a greater likelihood of being adopted because many of the barriers will have been identified and addressed. In the literature, it is recommended that the integration process follow a systematic process that begins with a careful analysis of needs, environmental factors (including attitudes of individuals, the culture, politics, etc.), and available resources and constraints (Banathy, 1992; Bates, 1995; Moore & Kearsley, 1996; Rogers, 1995). The findings of this study suggest that there are other important considerations in the development stage including a technological assessment and the identification of roles that will support the CoP.

Needs assessment. The first step in the development process is to determine the needs and requirements of the CoP in which an innovation is to be introduced. A needs assessment is a systematic examination of conditions in the environment for the purpose of identifying strengths and barriers of a technology in relation to the intended users.

Environmental factors. The literature recommends that it is important to consider the role of environmental factors when in the process of developing and implementing innovations. In many cases (as reported in the literature), disappointing results have occurred

because the driving force behind the development and implementation of the technology has been something (e.g., novelty of the innovation, economic factors, political agenda) other than the end user (Bates, 1995; Moore & Kearsley, 1996; Rogers, 1995).

Resources and constraints. Bates (1995) cautions that decision-making about technology is a complex process requiring consideration of a great number of factors. He suggests that successful technological applications require more than just the purchase and installation of equipment. Bates recommends that the factors such as financial resources and cost, human resources, timing and the technological infrastructure (both of the developer and the user's country) need to be considered in the development stage (pp. 57 – 59).

Technological assessment. Innovations possess characteristics that affect how potential adopters will respond to them. Rogers (1995) identified five characteristics of innovations, which affect the adoption process: relative advantage, compatibility, complexity, trialability, and observability. He recommends that these characteristics be considered in the development stage because past research has found that "these five qualities are the most important characteristics of innovations in explaining the rate of adoption" (p. 16). A technological assessment at this stage in the process will help determine the degree that these characteristics are exhibiting themselves in the community. At this stage it is also important that the community members' knowledge of the innovation is assessed.

Roles that support the CoP. When communities are deliberately created, roles are frequently established and allocated human resources (i.e., staff, consultants) in the early stages. Fontaine (2001) suggests that created communities may have a harder time fostering trust and active participation. His recommendation is that created communities "should be designed and developed with as much member involvement as possible to build a sense of

ownership early on" (Fontaine, 2001, Communities and roles that are created, para. 2). Further to this, he reports that researchers at the Institute for Knowledge Management have identified 11 formal and informal community roles that support a community of practice. Fontaine describes these roles as sometimes emerging naturally and at other times they are deliberately created. These roles include:

- **Subject Matter Experts (SMEs)**. These individuals are the keepers of the communities knowledge domain and practice. Their function is to serve as centres of specialized tacit knowledge for members of the community.
- **Core team members**. These individuals usually emerge from SMEs. Often these individuals are looked upon for guidance and leadership before or after a leader emerges or is selected.
- **Community members**. These individuals take active ownership in the community by participating in its events and activities.
- **Leaders**. These individuals provide the overall guidance and management needed to build and maintain the community, its relevance and strategic importance in the organization, and its level of visibility. These individuals often seek out senior-level sponsorship, secure resources or budgets, and network with internal and external stakeholders.
- **Sponsors**. Sponsors are generally not part of the community; however, they recognize the strategic importance of the community's practice. They help secure needed resources, nurture and protect the community, and insure its exposure within the broader community.

- **Facilitators**. These individuals are responsible for brokering, networking and connecting community members who need to share or obtain tacit knowledge. Their function is to encourage and energize participation by interacting with the community, by endorsing ideas, and by directing knowledge to the appropriate experts.
- **Content co-ordinators**. These individuals are considered to be the ultimate sources of explicit knowledge. Their function is to search, retrieve, transfer and respond to direct requests for the communities explicit knowledge and content.
- **Journalists**. These individuals interview or observe community members to identify and capture relevant knowledge, best practices, new approaches, and lessons learned that should be shared with the community or with other internal or external groups.
- **Mentors**. These individuals are community members who help new members navigate the community and adopt its norms and practices.
- **Administrative/Events co-ordinators**. These individuals co-ordinate and plan technological or face-to-face community events or activities.
- **Technologists**. These individuals ensure the smooth operation of the community's collaborative technologies and help members navigate its terrain (Fontaine, 2001, Community roles defined, para. 1).

Implementation

Rogers (1995) argues that "implementation occurs when an individual (or other decision-making unit) puts an innovation into use" (p. 20). He suggests that until this stage the process has been primarily a mental exercise although the technology may have been put in place. Rogers suggests that at this stage there is still a degree of uncertainty that the end

users will have about the expected consequences of the innovation even though they may have made the decision to use the technology. In fact, he argues that at this stage individuals are still actively seeking information about how the innovation works and what problems they may encounter (p. 173).

In essence, at this stage the developers need to be analyzing the use of the innovation. In the literature, it is recommended that the implementation stage put into practice the elements described in the development stage. The developer needs to:

- Examine and monitor the environmental factors for barriers that may be inhibiting the adoption of the technology;
- Monitor human and financial resources and identified constraints to ensure that plans, timelines and costs are in line with projected plans, etc.; and
- Examine whether identified needs are being met and monitor the degree that the five characteristics of the implement innovation are exhibiting themselves in the community (Banathy, 1992; Bates, 1995; Moore & Kearsley, 1996; Rogers, 1995).

The findings of this study suggest that there is another important consideration in the implementation stage, that is, an assessment of the communication channel.

Communication channel assessment. As described earlier in this chapter, how the innovation is introduced, described and communicated is considered important for its adoption (Rogers, 1995). If a communication strategy is created in the development stage then feedback regarding it should be solicited at this stage and the diffusion stage. Banathy (1992) suggests that negative feedback "introduces information about the adequacy, e.g., the state, the characteristics, the quality of the output. Adjustments can, then, be made based on

this information" (p. 47). In addition, Banathy suggests that if the feedback is positive, this gives the developer the opportunity to rethink or redefine what is in place and "coevolve" and "transform" it with the environment. The system in fact becomes self-reflective (Banathy, 1992, pp. 46 – 50).

Diffusion

The diffusion process is the final stage in this model. Rogers (1995) argues that it is at this stage that individuals or groups of people decide whether or not to adopt and use the new technology. The literature recommends that at this stage the developer needs to:

- Examine and monitor the environmental factors for barriers that may be inhibiting the adoption of the technology;
- Assess the communication channels to identify barriers that may be inhibiting the adoption of the technology and/or identify best practices for the next communication strategy (Banathy, 1992; Bates, 1995; Moore & Kearsley, 1996; Rogers, 1995).

The findings of this study also suggest that there is another important consideration at the diffusion stage, that is, an assessment of the CoP's infrastructure.

Infrastructure assessment. Social systems have intensive interactions with their environment that result in changing goals and ways of doing things (Banathy, 1992, p. 6). In systems thinking it is suggested that the system benchmark or otherwise quantify its present performance in order to be able to establish whether future changes result in improvements (Banathy, 1992; Bates, 1995; Garrison, 1990). Banathy (1992) recommends that the system examine and assess the "change itself (the design of the change)," the organizational capacities and staff capabilities, and the resources required to support and sustain the change.

He also recommends that the system detail specification of processes, methods, arrangements, and the utilization of resources that were used in implementing the change (pp. 180 – 181).

Additional Technological Recommendations

In addition to the recommendations and approaches detailed in the previous section, the following are proposed:

- Develop conscious strategies to connect globally distributed members. Plan for the communication of the Associates Program technologies so that the "whole" is visible to all members of the community.
- Consciously move from a "push" of information to creating a mechanism whereby Associates can reach out to other Associates to exchange information and to solve problems together. For example, create a space in the Associates-only web site for the "swapping of stories."
- Expand expert (i.e., Program Leader, SMEs) contact with the Associates using technologies.
- Design and develop events and activities with as much member involvement as possible. Ensure that these activities engage Associates with the technologies. For example, delegate responsibility to a small group to facilitate a discussion board topic or ask members to organize elements of the web site.
- Find ways to identify individuals or parts of the community where something interesting is happening and share this with the community.

- Use multiple forums for sharing knowledge since data, information, and tacit knowledge are best shared using different media.

Suggestions for Further Study

This study explored the experiences and perspectives of financial sector supervisors who are members of a "purposeful" virtual community of practice. The intent was to gain an understanding of how members of this international community are using information technology to interact and develop skills and knowledge in their respective fields. This study began with my interest in a phenomenon that I found to be inadequately explained in theory and finished with a theoretical framework for how information technology can be used by distance education practitioners to support learning and the sharing of knowledge in globally distributed communities of practice.

The theoretical propositions regarding this virtual CoP may form the basis for future inquiry into the social phenomenon of "purposeful" virtual CoPs. There are many areas of virtual communities of practice that future research should explore. For example:

- How do "purposeful" communities develop? Can they exist and thrive over time and still remain communities of practice?
- How do virtual CoPs develop and sustain themselves if their membership spans multiple organizations and groups?
- What factors influence the stages of development or evolution of the virtual CoP?
- What forces (i.e., people, processes, technologies) advance or arrest the evolution of the virtual CoP?

- How do the formal and informal community roles contribute to the development of a virtual CoP?
- What does it take to attract and retain capable, skilled community members? Is there some kind of creative, technologically based social environment and knowledge base that will attract individuals to the virtual CoP and appeal to thought leaders and sponsors?
- Does the socialization of new members need to change as the community evolves? What support do these new members need?
- What narrative techniques (e.g., storytelling) contribute to community formation? Can narrative techniques provide a thread of continuity during the development of the virtual CoP?
- How can distance education practitioners and organizations better learn to accommodate virtual CoPs and contribute to their development?

Conclusion

Building and supporting a "purposeful" virtual community of practice provides one way to think about finding answers to the growing pressures and challenges faced by financial sector supervisors. Some of the barriers to the development and adoption of technologically-based distance learning initiatives are that they are costly, difficult to manage, and that they often fail to provide the type of interaction and communication among community members that is necessary to promote knowledge sharing and learning (Bates, 1995; Garrison, 1989; Keegan, 1996; Koumi, 1994). From the perspective of knowledge creation and management in a globally distributed community of practice there are additional

challenges in the way that the community interacts as they not only have to deal with geographic distance but also time, culture and language differences (Kimble, et al, 2000).

At the same time the benefits of adopting technological innovations into virtual CoPs are clear. The literature makes reference to the potential for collective, situation-based information and learning, and continuing professional development that builds on the experiences that exist in the community. Furthermore, a recent review of the literature indicates that increasingly information technology is being viewed as a potentially revolutionary tool to build virtual communities of practice, strengthen professional relationships, and stimulate community planning and action (Denning, n.d.; Kimble et al., 2000; McDermott, 2000).

Kowch and Schwier (1997b) suggest that the construction of virtual communities of practice is a purposeful act that requires an intimate knowledge of the needs of the participants and the capabilities of emerging technologies and design concepts (p. 10). As this study shows, distance education practitioners need to consider robust, innovative approaches to using instructional technology that fit the learning needs of the community. To understand what design and support strategies will contribute to learning in a virtual CoP, practitioners need to consider: (a) the context or elements of the community, (b) how technologies can be turned into virtual learning spaces that meet the needs of the community, and (C) a strategy for encouraging the adoption of innovations within the community.

REFERENCES

Babchuk, W.A. (1996). Glaser or Strauss?: Grounded theory and adult education. Retrieved November 22, 2001, from http://www.anrecs.msu.edu/research/gradpr96.htm

Banathy, B.H. (1992). *A Systems View of Education – Concepts and Principles for Effective Practice.* New Jersey: Educational Technology Publications.

Bates, A.W. (1995). *Technology, Open Learning and Distance Education.* London: Routledge.

Bates, A.W. (1997). *Technology, distance education and national development.* Retrieved September 28, 2001, from http://bates.cstudies.ubc.ca/icde/icde.html

Bellinger, G., Castro, D. & Mills, A. (n.d.). *Data, information, knowledge and wisdom.* Retrieved November 24, 2001, from http://www.outsights.com/systems/dikw/dikw.htm

Bennett, N. L., & Fox, R. D. (1993). Challenges for continuing professional education. In L. Curry, J. F. Wergin & Associates (Eds.), *Educating professionals* (pp. 262-278). San Francisco: Jossey-Bass.

Brown, J. S., Collins, A., & Duguid, P. (1989). Situated cognition and the culture of learning. *Educational Researcher, 18,* pp. 32-42.

Brown, J.S. & Duguid, P. (1991). *Organizational learning and communities-of-practice: toward a unified view of working, learning, and innovation.* Retrieved September 30, 2001, from http://www2.parc.com/ops/members/brown/papers/orglearning.html

Cavaleri, S. & Fearon, D. (1996). *Managing in Organizations that Learn.* Cambridge, Massachusetts: Blackwell Publishers.

Clark, R.E. (1983). Reconsidering research on learning from media. *Review of Educational Research, 53,* 4, pp. 445-459.

Clark, R.E. (1994). Media will never influence learning. *Educational Technology Research and Development, 42,* 3, pp.7-10.

Cranton, P. (1994). *Understanding and Promoting Transformative Learning: A Guide for Educators of Adults.* San Francisco, California: Jossey-Bass Publishers.

Collins, M. & Berge, Z. (1996). *Facilitating interaction in computer mediated online courses.* Retrieved November 20, 2001, from http://www.emoderators.com/moderators/flcc.html

Creswell, J.W. (1994). *Research Design: Qualitative and Quantitative Approaches.* Thousand Oaks, California: SAGE Publications.

Crockett, C. (2001). *Issues in global financial supervision*. Remarks by Andrew Crockett, General Manager of the Bank for International Settlements and Chairman of the Financial Stability Forum, at the 36th SEACEN Governors' Conference held in Singapore, 1 June 2001. Retrieved September 11, 2001, from http://www.bis.org/speeches/sp010601.html.

Cutler, R. H. (1995). Distributed presence and community in cyberspace. *Interpersonal Communication and Technology: A Journal for the 21st Century, 1*, 2. Retreived May 2, 2002, from http://jan.ucc.nau.edu/~ipct-j/1995/n2/cutler.txt.

Davidson, A. (2001). *Grounded Theory*. Retrieved November, 7, 2001, from http://az.essortment.com/groundedtheory_rmnf.htm.

Davenport, T. (n.d.) Some principles of knowledge management. Retrieved November 20, 2001, from http://www.itmweb.com/essay538.htm

Dede, C.J. (1991). Emerging technologies: impacts on distance learning. *ANNALS, AAPSS, 514,* March, pp. 146-158.

Dedrick, J. & Kraemer, K. (2002). The impact of information technology, the internet, and electronic commerce in firm and industry structure: The personal computer industry. Retreived November 6, 2002, from http://www.crito.uci.edu/GIT/publications/pdf/ImpactofITonPC.pdf

Denning, S. (n.d.). Communities for knowledge management. Retrieved August 10, 2001, from http://www.stevedenning.com/communities_knowledge_management.html

de Vries, S., Bloeman, P. & Roossink, L. (2000). *Online knowledge communities*. In WebNet 2000 World Conference on the WWW and Internet Proceedings. San Antonio, Texas, October 30-November 4th, 2000.

Dick, B. (2001). Grounded theory: a thumbnail sketch. Retrieved November 7, 2001, from http://www.scu.edu.au/schools/gcm/ar/arp/grounded.html

Ely, D.P. (2000). *The Field of Educational Technology: Update 2000 A Dozen Frequently Asked Questions.* Retreived May 16, 2002, from http://www.ericit.org/digests/EDO-IR-2000-01.shtml

Fischer, D. (1997). *A theory of presentation and its implications for the design of online technical documentation*. Retrieved November, 7, 2001, from http://www.groundedtheory.com/links.html

Fontaine, M. (2001). Keeping the community in tune: Roles that support communities of practice. Retrieved September 5, 2002, from http://linus.socs.uts.edu.au/~lueg/pospapers.html

Garrison, D.R. (1987). The role of technology in distance education. *New Directions for Continuing Education, 36*, pp. 41-53.

Garrison, D.R. (1989). *Understanding distance education: a framework for the future.* New York: Routledge.

Garrison, D.R. (1990). An analysis and evaluation of audio teleconferencing to facilitate education at a distance. *American Journal of Distance Education, 4*, 3, pp.13-24.

Glaser, B.G. & Strauss, A.L. (1967). *The discovery of grounded theory: strategies for qualitative research.* New York: Aldine De Gruyter.

Guest, G. (2000). *Lifelong learning for the global networked society.* In Cross-Roads of the New Millenium. Proceedings of the Technological Education and National Development (TEND) Conference. (2nd, April 8-10, 2000, Abu Dhabi, United Arab Emirates).

Guy, R. (1991). Distance education and the developing world: Colonisation, collaboration and control. In T. Evans & B. King (Eds.*), Beyond the text: Contemporary writing on distance education*, pp. 152-175, Geelong: Deakin University Press.

Hansen, C. (1998). *HRD theory building through qualitative research.* In Advances in Qualitative Research. Proceeding of the Academy of Human Resource Development Conference. (March 4-8th, 1998, Oak Brook, Illinois).

Heinich, R., Molenda, M., Russell J.D. & Smaldino, S.E (1996). *Instructional Media and Technologies for Learning.* (5th ed.) New Jersey: Prentice-Hall.

Herrmann, F. (1998). Building on-line communities of practice: an example and implications. *Educational Technology, 38*, 1, pp. 16-23.

Hildreth, P. (1997). Moving towards using CMCs to support the sharing of knowledge in distributed international communities of practice. 1st year qualifying dissertation. Department of Computer Science, University of York, U.K. Retrieved October 6, 2001, from http:// www-users.cs.york.ac.uk/~pmh/publics.html.

Hildreth P. & Kimble C. (1999). *Communities of Practice in the International Environment.* Paper presented at the Second Workshop on Understanding Work and Designing Artefacts: Design for Collaboration. Communities Constructing Technology. King's Manor, University of York. Retrieved September 30, 2001, from http://www-users.cs.york.ac.uk/~pmh/publics.html.

Hildreth P., Kimble C. and Wright P. (2000). Communities of Practice in the Distributed International Environment. *Journal of Knowledge Management, 4*,1, pp 27-38. Retrieved September 30, 2001, from http://www-users.cs.york.ac.uk/~pmh/publics.html.

Hillman, D. A., Willis, D. J., & Gunawardena, C. N. (1994). Learner-interface interaction in distance education: An extension of contemporary models and strategies for practitioners. *The American Journal of Distance Education, 8*, 2, pp. 30-42.

Hoepfl, M. (1997). Choosing Qualitative Research: A Primer for Technology Education Researchers. Journal of Technology Education, 9, 1 Fall 1997. Retrieved November 8, 2001, from http://borg.lib.vt.edu/ejournals/JTE/jte-v9n1/hoepfl.html

Kimble, C. Li, F. & Barlow, A. (2001). *Effective virtual teams through communities of practice*. Retrieved October, 16, 2001, from ftp://ftp.mentor.strath.ac.uk/mansci/papers/wp0009.pdf

Kimble, C., Hildreth, P. & Wright, P. (2001). *Communities of practice: going virtual.* Retrieved October 16, 2001, from http://www-users.cs.york.ac.uk/~kimble/research/13kimble.pdf

Keegan, D. (1996). *Foundations of Distance Education*. London: Routledge.

Knowles, M. (1975). *Self-Directed Learning*. Chicago: Follet.

Koumi, J. (1994). Media comparisons and deployment: A practitioner's view. *British journal of Educational Technology, 25,* 1, pp. 41-57.

Kowch, E. & Schwier, R. (1997a). *Building learning communities with tech*nology. Paper presented at the Second National Congress on Rural Education, Saskatoon, Saskatchewan.

Kowch, E. & Schwier, R. (1997b). Considerations in the construction of technology - based virtual learning communities. *Canadian Journal of Educational Communication, 26,* 1, pp. 1-12.

Kozma, R.B. (1991). Learning with media. *Review of Educational Research, 61,* 2, pp. 179-211.

Lave, J. & Wenger, E. (1991). *Situated learning. Legitimate peripheral participation.* Cambridge: Cambridge University Press.

Lichtman, M. (1999). *An Interview Protocol*: *Qualitative Research Methods*. Retrieved Nov. 7, 2001, from http://www.nvgc.vt.edu/mlichtman/qual2001/Session4.html

Lueg, C. (2000). *Where is the Action in Virtual Communities of Practice?* Proceedings of the Workshop Communication and Cooperation in Knowledge Communities at the D-CSCW 2000 German Computer-Supported Cooperative Work Conference "Verteiltes Arbeiten - Arbeit der Zukunft," September 12, 2000, Munich, Germany. Retrieved September 28, 2001, from http://www-staff.it.uts.edu.au/~lueg/abstracts/comm_dcscw00.html.

Mauch, J. & Birch, J. (1998). *Guide to the Successful Thesis and Dissertatio*n. New York, New York: Marcel Dekker, Inc.

McDermott, R. (2000). *Knowing in community: 10 critical success factors in building communities of practice*. Retrieved October 3, 2001, from http://www.knowledge-nurture.com.

McDermott, R. (1999). *Nurturing three dimensional communities of practice: how to get the most out of human networks*. Retrieved October 22, 2001, from http:// co-i-l.com/coil/knowledge-garden/cop/dimensional.shtml

McLellan, H. (1997). Creating virtual communities via the web. . In B. Khan (Ed.), *Web-Based Instruction*, pp. 185-190. Educational Technology Publications, Inc.: Englewood Cliffs, New Jersey

Moore, M.G. & Kearsley, G. (1996). *Distance Education: A Systems View*. California: Wadsworth Publishing Company.

Pandit, N. (1996). *The creation of theory: A recent application of the Grounded Theory method*. The Qualitative Report, 2, 4, December, 1996. Retrieved November, 6, 2001, from http://www.nova.edu/ssss/QR/QR2-4/pandit.html.

Perraton, H. (2000). Rethinking the research agenda. *International Review of Research in Open and Distance Learning. 1*, 1. Retreived October 16, 2001, from http://www.irrodl.org

PricewaterhouseCoopers LLP. (2001). Evaluation of Toronto Centre International Leadership Programs:1998 – 2000 Summary Report. Retreived July 15, 2002, from http://www.torontocentre.org/flash/pdf/Program%20Evaluation%202000%20web%20-%20Sept%2019.pdf

Rheingold, H. (2001). Mobile virtual communities. Retrieved October 22, 2001, from http://www.rheingold.com

Ritchie, D. & Hoffman, B. (1997). Incorporating instructional design principles with the world wide web. In B. Khan (Ed.), *Web-Based Instruction*, pp. 135-138. Educational Technology Publications, Inc.: Englewood Cliffs, New Jersey

Rogers, E.M. (1995). *Diffusion of Innovations.* (4th ed.) New York, NY: The Free Press.

Rovai, A. (2002). Building Sense of Community at a Distance. *International Review of Research in Open and Distance Learning*. 3, 1. Retreived May 2, 2002, from http://www.irrodl.org

Rowley, J. (2000). From learning organisation to knowledge entrepreneur. *Journal of Knowledge Management*, *4*, 1, pp. 7-14.

Saba, F. (2000). Research in distance education: A status report. *International Review of Research in Open and Distance Learning, 1*, 1. Retreived April 30, 2002, from http://www.irrodl.org

Saint-Onge, H. (1996). *Tacit knowledge: the key to the strategic alignment of intellectual capital*. Retrieved October 18, 2001, from http://www.knowinc.com/saint-onge/tacitknow.htm

Santosus, M. & Surmacz, J. (May 21, 2001). *The ABCs of Knowledge Management*. Retrieved November 24, 2001, from http://www.cio.com/research/knowledge/edit/kmabcs.html

Senge, P.M. (1990). *The Fifth Discipline*. New York, NY: Currency Doubleday.

Shale, D. (1987). Innovation in international higher education: The open universities. *Journal of Distance Education*, *2*, 1, pp. 7-24.

Shale, D. (1988). Toward a reconceptualization of distance education. *The American Journal of Distance Education*, *2*, 3, pp. 25-35.

Shulman, L.S. (1988). Disciplines of inquiry in education: a new overview. In R.M. Jaeger (Ed.), *Complementary Methods for Research in Education*, 2nd edition (pp. 3 – 30). Washington DC: American Educational Research Association.

Simon, J. & Burstein, P. (1985). *Basic Research Methods in Social Science*. (3rd Ed.) McGraw Hill.

Strauss, A. & Corbin, J. (1990). *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*. London: Sage.

Surry, D.W. & Farquihar, J.D. (1997). Diffusion theory and instructional technology. *Journal of Instructional Science and Technology* (electronic), *2*, 1.

Tellis, W. (1997, September). Application of a Case Study Methodology. *The Qualitative Report*, 3, 3. Retreived July 22, 2002, from http://www.nova.edu/ssss/QR/QR3-3/tellis2.html

Walsh, J.P. (1995). Managerial and organizational cognition: notes from a trip down memory lane. *Organizational Science*, *6*, 3. May-June 1995.

Williams, M. (1995). Communities of practice: a distance education strategy for professional development of computer studies teachers in Queensland. In F. Nouwens (Ed.), *Distance Education: Crossing Frontiers*, pp. 395-399. Central Queensland University: Rockhampton, Australia

Winegardner, K.E. (n.d.). The Case Study Method of Scholarly Research. Retrieved July 22, 2002, from http://www.tgsa.edu/online/cybrary/case1.html

Wood, L.E. (n.d.). Semi-Structured Interviewing for User-Centred Design. Retrieved July, 220 2002, from http://www.byu.edu/ipt/inpsyt/inpsyt4.html

Yin, R. K. (1994). *Case Study Research, Design and Methods*. (2nd Ed.) Newbury Park: Sage Publications.

Zack, M. (1999). Managing codified knowledge. *Sloan Management Review*, *40*, 4, pp. 45-58. Retrieved October 16, 2001, from http://web.cba.neu.edu/~mzack/articles/kmarch/kmarch.htm

APPENDIX A

LETTER TO TORONTO CENTRE ASSOCIATES

Dear Toronto Centre Associate,

I am a graduate student in the Master of Distance Education program at Athabasca University conducting a research study on how information technology can support collaboration, interaction and learning in a virtual community of practice. The Toronto Centre in its ongoing efforts to improve existing programs and develop new programs that meet your needs is supporting the collection of data for this study.

Knowledge sharing and learning in communities of practice is currently receiving a great deal of attention in both academic and business circles. There is also much discussion regarding the question of whether communities of practice can be virtual and whether information technologies like the internet can support members of the community. But, it is unclear how knowledge creation and communication in virtual communities can result in effective professional practice.

A major part of the study involves a survey of Toronto Centre Associates. The survey will collect information about how you and your colleagues regard various information technologies and how you prefer to share information. Data from the questionnaire will form the basis for my master's thesis and provide the Toronto Centre with information about your experiences and your viewpoints on Toronto Centre programs. If you agree to participate in this study, the online survey (located in the Associates-only web site) will likely take you approximately 15 minutes to complete.

You may also be one of approximately 10 Associates invited to participate in a telephone interview after the survey data has been analyzed. The telephone interview will be about 30 minutes long. The telephone interview will be taped and then transcribed. Your name will not be attached to the transcript of the tape but a code name will be used in its place. The tapes and transcripts will be safely stored in a secure, locked location and will be destroyed (shredded or erased) sometime prior to April 30, 2007.

I assure you that your anonymity and privacy will be protected. Access to all data will be restricted to Toronto Centre management, my thesis supervisor, and myself. There are no foreseeable risks in participating in this study.

Participation in this study is voluntary. You are free to participate or not participate as you wish and you may withdraw from the study at any time. If you withdraw from the study your data will not be analyzed. However, I am confident that increased knowledge about building professional knowledge and effective practice is also important to you and it is in this context that I ask for your assistance. I certainly appreciate your assistance – thank you for your attention to this request.

Yours truly,

Janie Hunter

If you have any questions, or need more information, please feel free to contact me by e-mail at jhunter01@sympatico.ca.

Consent

Please mark an "X" next to one of the three statements and send to jhunter01@sympatico.ca:

_____ I have read this form and received a copy of it. I have had all my questions answered to my satisfaction. I agree to take part in the study and you may contact me for an interview.

_____ I have read this form and received a copy of it. I have had all my questions answered to my satisfaction. I agree to take part in the study but do not contact me for an interview.

_____ I do not agree to take part in this study and do not contact me for an interview.

APPENDIX B

ONLINE SURVEY

Instructions

This survey should take you approximately 15 minutes to complete. Please note that all responses are confidential. Only cumulative summaries will be prepared, and this will be done in a fashion that protects the identity of respondents. Thank you for taking the time to complete this survey.

General Information

This section will provide the Toronto Centre with demographic information to help assess regional needs.

Country Name _____

My supervisory position deals primarily with:

- ❑ Banking
- ❑ Securities
- ❑ Insurance
- ❑ Other (please specify) _____

My position within my organization is:

- ❑ Senior Executive/Key decision maker
- ❑ Middle Manager with reporting line to Senior Executive
- ❑ Supervisor/Manager reporting to Middle Manager
- ❑ Other (please specify) _____

I have been in my current supervisory position:

- ❑ Less than 1 year
- ❑ 1 to 3 years
- ❑ 4 to 5 years
- ❑ 6 years to 10 years
- ❑ More than 10 years
- ❑ More than 20 years

My supervisory duties require me to use the following language(s) by order of priority:

1. _____
2. _____
3. _____

I attended the:

	1998	1999	2000	2001	2002	Did Not Attend
Banking Leadership Program	❑	❑	❑	❑	❑	❑
Insurance Leadership Program	❑	❑	❑	❑	❑	❑
Securities Leadership Program	❑	❑	❑	❑	❑	❑

Types of Communication

This section will help identify what types of communication supervisors use in their work and how they prefer to communicate with colleagues.

1. I use the following types of communication in my work:

	Never	Rarely	Occasionally	Often	Always
Telephone (i.e., in person, voice mail, teleconference calls)	❑	❑	❑	❑	❑
Fax	❑	❑	❑	❑	❑
Face-to-face meetings	❑	❑	❑	❑	❑
Letter/Memo	❑	❑	❑	❑	❑
E-mail	❑	❑	❑	❑	❑
Internet	❑	❑	❑	❑	❑
Video-conferencing	❑	❑	❑	❑	❑
Chat rooms	❑	❑	❑	❑	❑
Discussion boards	❑	❑	❑	❑	❑
Web conferencing	❑	❑	❑	❑	❑
Other (please describe):	❑	❑	❑	❑	❑

2. If I have a work related challenge that I can not easily solve, I:

	Never	Rarely	Occasionally	Often	Always
Refer to books, magazines, articles, etc.	❑	❑	❑	❑	❑
Contact colleagues within my organization	❑	❑	❑	❑	❑
Contact colleagues within my sector who are with other organizations in my country	❑	❑	❑	❑	❑
Contact colleagues from other sectors who are with other organizations in my country	❑	❑	❑	❑	❑
Contact colleagues within my sector who are with other organizations in other countries	❑	❑	❑	❑	❑
Contact colleagues from other sectors who are with other organizations in other countries	❑	❑	❑	❑	❑
Search the internet for resources	❑	❑	❑	❑	❑
Other (please describe):	❑	❑	❑	❑	❑

3. If I am going to contact colleague(s) outside my organization to collaborate on a work problem, I ***prefer*** to communicate by:

Type of Communication	Never	Rarely	Occasionally	Often	Always
Telephone (i.e., in person, voice mail, conference calls)	❑	❑	❑	❑	❑
Fax	❑	❑	❑	❑	❑
Face-to-face meetings	❑	❑	❑	❑	❑
Letter/Memo	❑	❑	❑	❑	❑
E-mail	❑	❑	❑	❑	❑
Internet	❑	❑	❑	❑	❑
Video-conferencing	❑	❑	❑	❑	❑
Chat rooms	❑	❑	❑	❑	❑
Discussion boards	❑	❑	❑	❑	❑
Web conferencing	❑	❑	❑	❑	❑
Other (please describe):	❑	❑	❑	❑	❑

4. From my discussions with colleagues I have learned:

Discussion Topics	Never	Rarely	Occasionally	Often	Always
Procedural details or guidelines	❑	❑	❑	❑	❑
Technical specifications (e.g., laws)	❑	❑	❑	❑	❑
Tips on dealing with troubled financial institutions	❑	❑	❑	❑	❑
Tips on dealing with supervisory infrastructure problems	❑	❑	❑	❑	❑
Tips on dealing with key stakeholders (other than troubled financial institutions)	❑	❑	❑	❑	❑
Tips on developing regulatory changes	❑	❑	❑	❑	❑
Tips on implementing regulatory changes	❑	❑	❑	❑	❑
Other (please describe):	❑	❑	❑	❑	❑

One-Week Leadership Program

This section asks for your feedback on the One-Week Leadership Program offered by the Toronto Centre.

5. To what degree have the following elements of the One-Week Leadership Program impacted your professional growth:

	Not at All	Somewhat	Very High	Significantly	Don't Know
Discussion with colleagues	❑	❑	❑	❑	❑
Discussion with Program Leaders	❑	❑	❑	❑	❑
Case studies	❑	❑	❑	❑	❑
Mini cases and vignettes	❑	❑	❑	❑	❑
Small group activities	❑	❑	❑	❑	❑
Full group learning exercises	❑	❑	❑	❑	❑

6. I found my ability to apply leadership principles and techniques easier since participating in the One-Week Leadership Program.

- ❑ Strongly agree
- ❑ Somewhat agree
- ❑ Undecided
- ❑ Disagree
- ❑ Strongly disagree

7. Following the one-week Leadership Program, which part of your Action Plan did you implement upon returning home?

- ❑ Implemented **all** of my Action Plan.
- ❑ Implemented **part** of my Action Plan.
- ❑ Did not implement **any** of my Action Plan.

8. To what extent did your Action Plan receive active support from your key stakeholders?

- ❑ No support
- ❑ Some support
- ❑ Moderate support
- ❑ Full support

9. Since attending the Leadership Program, I have implemented:

	No Implementation	Partial Implementation	Full Implementation
Changes to laws, regulations and/or guidelines	❑	❑	❑
Changes to strengthen supervisory authority	❑	❑	❑
Changes to improve dealings with troubled financial institutions	❑	❑	❑
Other (please describe):	❑	❑	❑

Associates Program

This section provides the Toronto Centre with information on your appraisal of the Associates Program and where you believe improvements can be made.

10. Since attending the Leadership Program, I have ...

	Never	Rarely	Occasionally	Often	Always
Contacted TC Program Leaders for information or advice	❑	❑	❑	❑	❑
Used the TC 5-step leadership and Outward Upward Inward stakeholder models for planning	❑	❑	❑	❑	❑
Been involved in financial sector activities where I am able to influence stakeholders	❑	❑	❑	❑	❑
Used the Associates Directory to contact colleagues doing similar work or who have a similar title	❑	❑	❑	❑	❑
Used the Associates web-site discussion board to communicate issues/ideas with other colleagues	❑	❑	❑	❑	❑
Used the Associates meeting room to chat in real time with colleagues	❑	❑	❑	❑	❑
Participated in the Associates Web conference sessions	❑	❑	❑	❑	❑
Created/updated my action plan in the Associates Action Plan database located on the Associates website	❑	❑	❑	❑	❑
Reviewed the action plans of fellow Associates from the Associates website.	❑	❑	❑	❑	❑
Reviewed articles and newsletters from the Associates website.	❑	❑	❑	❑	❑
Searched for resources and links to articles, news, and other web resources listed on the Associates website.	❑	❑	❑	❑	❑

11. To what degree have the following elements of the Associates Program impacted your professional growth.

	Not at All	Somewhat	Very High	Significantly	Don't Know
Web-conference sessions	❑	❑	❑	❑	❑
Associates-only web site	❑	❑	❑	❑	❑
Quarterly newsletter	❑	❑	❑	❑	❑
Monthly e-mail updates	❑	❑	❑	❑	❑
Other (please describe):	❑	❑	❑	❑	❑

12. Did you receive sufficient information about how to use the Associates Website?

❑ Yes ❑ No

13. What do you like about the Associates website?

14. What do you dislike about the Associates website?

15. How can we improve the Associates website?

16. Are there any other comments about the Toronto Centre programs that you would like to share?

We would appreciate the opportunity to further talk to some Associates about their feedback. If you agreed to be contacted, please provide the Toronto Centre with the following information:

Name:	
Telephone #:	
Best Time to Contact You (Please indicate your time zone)	
E-mail	

All survey responses and telephone interviews are confidential. No information will be released without the written consent of the participant.

If you would like to receive a copy of the survey results please provide the following information:

Name:	
E-mail	

Thank you for participating in this survey. Your feedback is extremely important to us.

APPENDIX C

TELEPHONE INTERVIEW PROTOCOL AND QUESTIONS

Pre-call

- Verify availability of participant for telephone conference call via e-mail. Attach survey questions for participant to review prior to interview.

Introduction

- **Greet the participant and introduce yourself.**

  "I'm a graduate student at Athabasca University working on a study that explores the perspectives of an international community of practice that are using information technology to interact and develop skills and knowledge in their respective fields. Thank you for agreeing to participate in this interview."

- **Briefly mention the goal of the study.**

  "The goal of this study is to develop a design framework for how information technology can be used by distance education practitioners to support learning and the sharing of knowledge in globally distributed communities of practice. The results of the study will help the Toronto Centre in its ongoing efforts to improve existing programs and develop new programs that meet your needs."

- **Describe guidelines for interview including confidentiality of information, timing, what will be done with the information, and taping.**

  "Before we start, I'd like to explain what we'll be doing in the interview, which will take about 30 minutes, as well as answer any questions you may have. Basically, I'll ask you questions about your perceptions of how you share information with your colleagues and

what your experiences have been with distance learning and the Toronto Centre Associates Program. If you would like to skip a question or terminate this interview you may do so at anytime without penalty. This study has been approved by Athabasca University, and therefore I am following strict guidelines to use appropriate methods that will protect your privacy. This interview will be kept strictly confidential and your identity will remain anonymous when I write up the aggregated results of the study. Upon completion of the study all records that contain personal identifiers will be shredded. With your permission, I'd like to audio record our interview as it will help me better focus on our conversation [pause for response; if participant says no then do not record interview. If yes, begin recording.] Are there any questions before I begin?"

Connecting the Virtual Community of Practice

Question #1	How did you hear about the Toronto Centre?
Question #2	How well did you get to know the other participants at your Leadership session? Have you contacted any of them since attending the one-week session? How did you contact them?
Question #3	How important is it for you to be able to contact and/or communicate with other Toronto Centre Associates?
Question #4	What factors may have prevented or encouraged you to do so?
Question #5	What type of information are you looking for when you contact colleagues?
Question #6	Do you contact colleagues who are in other organizations from within your sector or in other sectors? If no, why not? What would make it easier to help you contact colleagues?
Question #7	Why do you use e-mail rather than other technologies (e.g., web conference, discussion boards, fax) to communicate with your colleagues?
Question #8	How do you know who to contact when you need information/support regarding a supervisory issue or challenge?

Effecting Change – Implementing Action Plans

Question #9 Regarding your Action Plan. What was your action plan in a sentence or two? How much of your action plan have you been able to implement?

Question #10 During the one-week leadership session your colleagues and the Program Leaders were available to provide you with feedback while you developed your action plan. Do you feel you could have done more if you had ongoing support? What kind of support would be relevant to you?

Question #11 Do you have any problems with sharing information regarding your experiences with your colleagues as you implement your plan? Do you feel the same way about sharing information regarding your organization's projects/practices/policies?

Distance Learning

Question #12 Do you have a training/learning department in your organization?

Question #13 What past experience have you had with instructional technologies (e.g., web conferences, discussion boards, video conferences)? Approximately how many programs have you participated in as a learner?

Question #14 What do you believe are the benefits, if any, of participating in a distance learning program versus:

a) attending conventional classroom training?

b) receiving a paper-based presentation or a self-study guide?

Question #15 When participating in a distance learning program, did you or anyone participating with you experience any technical difficulties? If yes, please describe what happened.

Associates Program

The objective of the Associates Program are twofold. First, the Associates Program is to provide a "Forum" where all Associates may continue to share information, exchange ideas, work collaboratively and locate topical information on supervisory issues. And the second objective is to support our Associates as they work through their Action Plans or when faced with supervisory challenges.

Question #16 On the Associates-only web site we have implemented a number of communication tools to "link" Associates. How do you think we should be using these communication tools :

Associates Directory

Discussion board

"Chat" meeting room

Web conference sessions

Action Plans

Articles and Presentations

Additional resources and links

Question #17	Have you shared any knowledge that you've gained through the Associates Program's e-mails, articles or newsletters to others in your organization? In other organizations?
Question #18	How comfortable would you be if you were to participate in a written discussion, in English, on the Associates Forum discussion board?
Question #19	Would you like to see more or less group communication and/or activities in future Associate Program offerings?
Question #20	What, in your opinion, might improve the quality of the Associates Program?
Question #21	How would you feel about participating in future distance learning programs such as web conferences, discussion boards, etc.?
Question #22	What do you think the Toronto Centre could do to encourage learning and the sharing of knowledge between Associates?
Question #23	Any other thoughts you'd like to share with us?

- **Thank participants**

"Thank you for taking the time to share your experiences and your opinions. The results of this study will be posted on the Toronto Centre web site by the beginning of December."