Online Communities of Practice: A Case Study of The CI Network from A Communicative Perspective

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This dissertation titled

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ABSTRACT

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This study embarks on the theory of structuration as a meta-theoretical framework to position communication at the center of the stage in understanding online communities of practice on three aspects: 1) digital communication, enabled and constrained by digital technologies, is both the medium and outcome of daily, interactive activities engaged in by participants of online communities of practice; 2) communities of practice, as an organizing structure with unique structural elements, defines and, at the same time, is defined by digital communication practices; and, 3) learning is social and knowledge is co-constructed through ongoing and situated dialogues. This research project is an exploratory case study using multiple methods to learn the communicative processes and evaluate the strength of the research site—The Communication Initiative. An electronic survey, follow-up interviews with survey respondents, in-depth interviews with core team members, and narrative analysis of web site comments are the instruments used. The results and findings of this research add insights in understanding the duality of structure and enabling and constraining capacities of digital communication in the context of online communities of practice.

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CHAPTER ONE: INTRODUCTION

The Communication Initiative (The CI) network is an online space for sharing the experiences of, and building bridges between, the people and organisations engaged in or supporting communication as a fundamental strategy for economic and social development and change. It does this through a process of initiating dialogue and debate and giving the network a stronger, more representative and informed voice with which to advance the use and improve the impact of communication for development. This process is supported by a web-based resource of summarised information and several electronic publications, as well as online research, review and discussion platforms providing insight into communication for development experiences. (The Communication Initiative, 2009)

The Communication Initiative (The CI) network is an online community of practice for practitioners, policy makers, investors, and researchers in non-profit and non-governmental organizations who design, implement, and study communication strategies in the field of social and economic development and change, especially in developing countries. Enabled and facilitated by digital technologies, e.g., the Internet, The CI network promotes knowledge sharing, learning, and, eventually, social change around the world. In this study, the researcher explored and assessed elements and attributes, functionalities and processes, design and development of The CI network from a communicative perspective to identify strengths and weaknesses for its continuous and sustainable growth.
Background of the Study

Communities of Practice

Communities of practice are an innovative organizational form in modern societies, especially for professional and work-oriented groups. Wenger, McDermott, and Snyder (2002) defined communities of practice as “groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis” (p. 4). Communities of practice are acknowledged as a form of social structure particularly amenable to knowledge management because they provide spaces for interactive engagement to their participants; such interactive engagement practices match and support the living, dynamic, and continuing nature of learning (Wenger et al., 2002).

Communities of practice are not only an overt mechanism appropriate for knowledge management, but also a new way of organizing, incorporating “both informational and interactive aspects of knowledge into the model of practice” (Iverson & McPhee, 2002, p. 260). Iverson and McPhee (2002) argued that communities of practice are a theoretical construct through which the interactive roles of information systems (technical aspects of knowledge management) and people who engage knowledge (the social side of knowledge management) can be understood. Also, they proposed, communities of practice are a model to understand “how knowledge management is negotiated communicatively between people” (p. 260). Further, they stated, “communities of practice theory offers a structure that illuminates connections and
processes of knowledge based on a model that centers communication in knowledge management” (p. 264).

When globalization is no longer a trend but an accepted fact for competitive organizations, most existing communities of practice established in such context inevitably involve membership from distributed locations. Distanced interactions among participants, electronic routines, and featured online discussions are accomplished with the assistance of computers, the Internet, and wireless technologies. The digital communication is both the medium and outcome of the interactive practices engaged in by distanced participants. The learning process in such contexts is facilitated, yet limited, by digital technologies with features similar to, or different from, traditional face-to-face communication. The enabling and constraining capacities carried by digital technologies are vital in understanding the processes, in further evaluating the sustainability, and in accomplishing continuous development of communities of practice.

**Digital Technologies**

The (re)invention of the computer and the Internet in the late 20\textsuperscript{th} century has dramatically changed social practices in communication. Computers were re-designed for commercial and public use in the 1950s and 1960s (Rheingold, 1993). Individuals could communicate with computers much easier. Subsequently, the Internet was created and quickly gained popularity among those elite researchers who were dedicated to advancing digital technologies in the 1970s and 1980s. At that time, individuals could communicate with others in a brand new way: computer-mediated communication. The populations of computer and the Internet users increased significantly in the 1990s with the assistance of
the World Wide Web and web browsers. These two innovations highlighted the
development of digital technologies and technically allowed the general public to be able
to use the computers and connect with others (Friedman, 2007; Rheingold, 1993).
Wireless technology turbo-charged the development of the digital world and profoundly
influenced the way people communicate. Now, people can use mobile devices, equipped
with wireless technology, such as laptops, PDAs (personal digital assistants), and cellular
phones, to connect with others anywhere, any time: basements of homes, coffeehouses,
on the street, hotel lobbies, on the airplane, etc.

As of today, digital technologies have completely infiltrated into people’s daily
lives, business events, social development, government operations, international
relations, and other aspects of the human society. Scholars are intrigued with how digital
 technologies have enabled and constrained the social systems and structure. Some are
positive about the potential the Internet has brought to us; while some others are daunted
by the possible negative effects it generates (Walther & Parks, 2002). Despite the mixed
responses, the Internet and derived new technologies have irreversibly produced a
digitized flat world (Friedman, 2007).

Nowadays, having offices in the North America, but sizable plants in Indonesia,
India, and/or China is not unbelievable. Having no central locations as headquarters, but
only loosely connected offices scattered around the globe is also realistic. Having a
central server in its concrete machine shape located in a small mid-west city, but
thousands of users from every corner of the world connect to this server every day is
more than realistic. Such social, economic, technological, and historical contextual
factors have made organizations more prone to, and at ease with, the idea of professionals communicating most of the time not face-to-face, but through digital technologies. The proliferation of online communities in social use, such as gaming communities, virtual social support groups, and social network sites, has also urged organizations to embrace the initiative of online communities of practice.

Friedman (2007) proclaims that the world is more individualistic, yet at the same time, more collaborative. By individualistic, Friedman refers to the fact that digital technologies have allowed people to convert analog content, such as text, photos, audio and video clips, to digital and upload it to the Internet to be viewed by others. People are, empowered, more than at any other time, to present their opinions and communicate with others at high speeds and with total ease. Also, wireless technology grants mobility to the entire process, i.e., the digital communication can take place almost anywhere. At the same time, the world is more collaborative. Friedman (2007) points out that digital technologies—computers, the Internet, satellites, and fiber-optic cables—have made outsourcing, offshoring, supply-chaining, and insourcing all common and essential organizational practices. Thus, successful business and government organizations are (and have to be) more collaboration-oriented, innovation-driven, and interdependent in the flatter and flatter world. In such a globalizing context, economies run on collaboration, innovation, and, ultimately, knowledge (Wenger & Snyder, 2000). Learning how to maintain a knowledge workforce and sustain continuous learning is vital to an organization’s competitiveness when downsizing and outsourcing are inevitable.
Organizational Learning and Knowledge Management

More and more organizations have realized that knowledge is an integral asset to organizational performance, effectiveness, development, and collective well-being. Organizational learning and knowledge management have, thus, attracted a great deal of attention from business executives, management teams, and academic scholars in related disciplines. Undoubtedly, organizations want to cultivate the learning process and utilize the embedded potentials to achieve organizational goals, such as improving performance, facilitating change, nurturing an organizational culture, and the like. Communities of practice offer a feasible means to realize such objectives. The attention on communities of practice is the latest trend to both practitioners and scholars, especially those in the fields of management, economic development, and organizational studies (Zorn & May, 2002).

Organizational Learning

Organizational learning, as an academic concept, has been established for decades; yet, not until the early 1990s did this concept received wide recognition on the organization theory research agenda (Easterby-Smith & Araujo, 1999). Initially housed in management studies, the concept of organizational learning has attracted the attention of scholars from disparate disciplines, such as business strategists, economists, sociologists (Easterby-Smith & Araujo, 1999).

A current debate among organizational learning scholars is whether a single integrated framework is essential or a plurality of perspectives from distinctive disciplines is strength. In such context, writings about organizational learning are, by and
large, divided into two groups of worldview: technical and social (Esterby-Smith & Araujo, 1999). The technical perspective asserted that “organizational learning is about the effective processing, interpretation of, and response to, information both inside and outside the organization” (Esterby-Smith & Araujo, 1999, p. 3). This point of view considered knowledge as mainly explicit, structured, and expressed directly by knowledge representations such as documents, handbooks, and databases (Jennex, 2006; Nonaka, 1994).

The social view of organizational learning focused on “the way people make sense of their experiences at work” (Esterby-Smith & Araujo, 1999, p. 4). The learning process is usually realized through social interactions at natural organizational settings. From this point of view, knowledge is not explicit but tacit or unstructured and cannot be expressed directly. Tacit knowledge is context-specific, often embedded in “organizational routines, processes, practices, and norms” (Jennex, 2006, p. 2). Such knowledge involves situated practices, must be observed and interpreted, and thus, is dependent on the experiences and values of the observers and interpreters (Davenport & Prusak, 1998; Jennex, 2006).

This school of thought emphasizes that organizational learning is socially constructed (Esterby-Smith & Araujo, 1999). A central idea of the social construction perspective is that essential knowledge does not exist on paper or in people’s minds; rather, knowledge is alive and exists in the social practices of a community (Easterby-Smith & Araujo, 1999). This central idea speaks to the importance of communities of practice in their capacities of managing knowledge and promoting organizational
learning. Communities of practice are a new organizational form promoting social participatory learning (Wenger, 1999). Knowledge creation, transfer, and storage are enacted and achieved through member participation and social interactions in the context of communities of practice.

Taking on the social perspective, the researcher believed organizational learning was a social process that relied on communication activities, such as dialogue, storytelling, and information exchange to carry out its practice. The learning takes place in daily practices at organizational settings, and during this process, people make sense of what they are doing, interpret others’ behaviors, and communicate what they have learned, i.e., knowledge. Knowledge is dynamic and alive when it is communicated, regardless of content, formats, or media.

**Knowledge Management**

Current theories of knowledge management mostly focus on how knowledge is codified, transferred, and stored from a technical point of view. Yet, taking a social perspective to explore how knowledge is created, communicated, transformed, and regenerated in the context of communities of practice, in forms of human communication activities, such as storytelling, dialogue, and interactive participation is significant (Heaton & Taylor, 2002). The key to understanding how knowledge is generated and shared, as Heaton and Taylor (2002) argued, “is the role of text as both knowledge representation (product) and the means by which communities sustain organization (process)” (p. 211).
Heaton and Taylor (2002) questioned two basic and prevailing assumptions of the knowledge management literature set by Nonaka and Takeuchi (1995). First, knowledge is a symbolic collection of individual cognitive understandings, experiences, and practical skills. Second, once the knowledge is textualized, the communication of knowledge is no longer problematic. Heaton and Taylor (2002) argued for an alternative set of assumptions. They considered knowledge as created in the interactive context of communities of practice; knowledge is collective. They also argued that dissemination or communication of knowledge is problematic because knowledge is situated and embedded in specific professional context; a transfer of the same text to a different context leads to malfunction and misappropriation.

Heaton and Taylor (2002) recognized the two contrasting theories of knowledge proposed by Maturana (1990, 1997): objectivity without parentheses and objectivity in parentheses. The assumption of “objectivity without parentheses” is in line with the belief that knowledge originates in the individual cognition. Heaton and Taylor (2002) were in favor of the view of “objectivity in parentheses” that knowledge is necessarily context-based because “given the limitations of our physiological constitution as living beings, the only kind of reality we can consciously know is constituted by the kind of distinctions we make in language” (p. 212). The distinctions are grounded in practices.

In essence, Heaton and Taylor (2002) argued that knowledge is not just a product of individual cognition. Also, consequent interpretation and dissemination of knowledge is still problematic once knowledge is textualized because text-as-process is situational and context-sensitive. The knowledge produced in communities of practice is “an artifact
of their practices of textualization and both reflects characteristics of the community’s practices and renders interpretation of its texts problematical in other contexts” (p. 232).

Examining the interactive communication practices to gain a comprehensive and legitimate understanding of knowledge sharing activities and learning processes is thus significant.

Statement of the Problem

Current literature on communities of practice is mostly generated in the fields of business management, economics, and organization studies. The functionalist perspective dominates the research agenda; thus, communication is treated as a variable that influences or is influenced by other involved variables. For example, communication in online communities of practice is likely interrupted when access to technology is not always granted (Wenger et al., 2002). Also, culture can cause communication difficulties when misinterpretation of messages is due to the different cultural backgrounds of the participants of online communities of practice (Wenger et al., 2002). Such a research perspective is legitimate and constructive but not adequate to explain and reflect the essence of the interactive learning process taking place in online communities of practice. The learning process involves ongoing social interactions; communication is central to such interactions. Social activities are represented and enacted in dialogues, no matter if the dialogues are in forms of verbal and face-to-face discussions, or text-based exchanges. In the context of online communities of practice, digital communication is both the medium and product of social interactions (Giddens, 1979). A communication perspective that centers communication as a socially constructed practice is needed to
understand the depth and complications of knowledge and learning processes taking place in communities of practice.

As more and more online communities of practice emerge, scholars have expanded their research boundaries. It is a challenge to initiate, cultivate, and sustain online communities of practice because co-location used to be a key factor for the formation of communities of practice (Wenger et al., 2002). Like some early communities of practice that emerged over the coffee table, a physical site provided the environment for group interactions. Digital technologies have enabled a new meaning for central location. Such a critical site, in which major interactions among participants take place, no longer has to be a concrete room; a technology-created virtual space works the magic. Participants could be scattered in different local offices or sub-units geographically located far from each other, but still maintain a sense of belonging to an active community that meets online regularly. A common space online often resembles the location of a distributed community of practice. Connection and interactions among participants primarily take place through technology-mediated means, such as emails, online discussion boards, and web sites, supplemented by periodic face-to-face conferences. Unique characteristics of online communities of practice need to be studied as they influence the communication processes through which organizational learning takes place.

In terms of research topics, literature on communities of practice is devoted to describing, analyzing, and predicting characteristics and traits, functionalities and processes, and cultivation and development of communities of practice. There are two
major categories: descriptive studies or theoretical prediction. Descriptive studies are
grounded in observed practices and often depict what communities of practice are, how
they have been developed, and what purposes they serve (Lesser & Fontaine, 2004;
Manville, 2004; Stein, 2006; Vestal & Lopez, 2004). Such studies provide general
understandings of communities of practice. Theoretically-driven literature focuses on
how to initiate, plan, put into operation, maintain, and develop communities of practice
(Storck & Storck, 2004; Wenger, 1998; Wenger et al. 2002). There is, regrettably, little
focus on the assessment of communities of practice. To improve and further develop
communities of practice, it is necessary to conduct evaluative research to assess the
present practices, validate principles and patterns concluded from descriptive and
theoretical studies, identify potential problems, and then provide feasible solutions.

In addition, current literature on communities of practice depicts an overall
positive and promising image, especially in terms of their capacities in cultivating,
facilitating, and promoting learning and knowledge management. Most practitioners and
scholars advocate communities of practice as the most appropriate, if not perfect,
organizing mechanism for organizations to survive and thrive in the present knowledge-
based economy. They believe intellectual capital is better handled and managed in
communities of practice; therefore, organizations obtain competitive advantages (Zorn &
May, 2002). Yet, communities of practice are not non-problematic. Wenger et al. (2002)
pointed out that disorders exist in communities of practices. Often times, disorders are
“extensions of the qualities that make communities successful” (p. 150). In other words,
the same qualities have double edges—enabling and constraining. For example, the very
element that makes communities of practice successful, such as close social relationships among participants, can be barriers to newcomers. When an active core group is necessary for leadership, there are chances that active participants would form cliques that dominate the whole community.

Finding a balance point, where enabling capacities can be used to the extent that constraining aspects are recognized and negotiated, is critical to maintaining an effective and continuously growing community of practice. Wenger et al. (2002) also proposed “living with the downside” of communities of practice which, as they further explained “entails recognizing a problem, learning to manage it, and showing leadership when action is required” (p. 150). As potential downsides are often indiscernible or disguised at first glance, seemingly functional and successful communities of practice can be problematic. Conducting timely assessments of communities of practice to identify potential downsides and then managing to live with them is thus vital.

The Purpose of the Study

This study explored and evaluated an online community of practice from a communication perspective, focusing on the daily interactive practices in which learning takes place. As these practices were facilitated by digital technologies, such as computers, the Internet, and wireless technology, emphasis was placed on understanding how digital communication produced the processes and was (re)produced in the processes through which these practices were enacted.

The first step was to discover the key structural elements of online communities of practice and determine how they served organizational purposes. Then, digital
technologies employed in online communities of practice were examined and their effects on daily interactive practices were learned. Furthermore, the learning process enacted in the daily social activities was highlighted and analyzed. Finally, the digital communication and learning practices were assessed to establish standards for continuous and sustainable development of online communities of practice.

The CI network, with permission from its executive director and management team, was the research site. A case study was conducted, using multiple methods that included an electronic survey, follow-up interviews with survey respondents, and in-depth interviews with the core team of The CI network. In addition to the quantitative and qualitative data collected through these multiple methods, comments retrieved from The CI web site were also analyzed.

Significance of the Study

This research studied online communities of practice from a communication perspective and added valuable observations and analyses to the current literature on communities of practice, considering most of them were from managerial and sociological perspectives. Also, the focus on online communities of practice was valuable to modern practitioners and scholars in relevant fields because digital communication has irreversibly transformed how professionals interact and collaborate in this digitized flat world. Since current literature is focused on the initiation, development, and maintenance of communities of practice, rarely discussing how to evaluate communities of practice, this study has conducted a communicative assessment of an online community of practice. It was the author’s ambition to make a contribution in this aspect.
The learning practices taking place in the context of communities of practice are a social process. Knowledge is produced and re-produced as a result of dynamic social interactions among participants. A communicative assessment can capture both qualitative (systematic anecdotal evidence) and quantitative data (Downs & Adrian, 2004). This study offers an appropriate and comprehensive evaluation of the learning process so that accurate understanding of the advantages of communities of practice is obtained and potential downsides are identified. In addition, a communicative assessment process is itself empowering. Downs and Adrian (2004) stated that “communication assessments can be effective communication channels that yield pragmatic results just because they focus on communication” (p. 17). The assessment procedures serve as a mechanism to give voice to general participants of communities of practice (Mumby & Stohl, 1996). The mere fact that an assessment is being carried out communicates to participants that the management team is committed to recognition and development (Downs & Adrian, 2004).

Moreover, organizational learning is an innovative concept for communication scholars. There has been little research conducted on this subject matter in the field of communication studies (Iverson & McPhee, 2002; Iverson & McPee, 2008); yet, the researcher believed organizational learning was a communicative process. In a nutshell, trained as an organizational communication scholar, the researcher wished to situate and add insights to the overarching framework of the field of organizational communication.
Organization of the Study

In this first chapter, the background of the study and the direction of the study, i.e., problem statements and research purposes were depicted. Significance of this study was discussed briefly. In the next chapter, extensive literature on subjects of communities of practice, digital technologies, computer-mediated communication, organizational learning, knowledge management, communication assessment, and meta-theory social constructionism are reviewed. Research questions are then raised. In chapter three, the research site—The CI network—is first introduced and then the research design, instruments used, processes of data collection, and data analysis methods are described.

Results of this research are recorded in detail in chapter four. Discussions of the results, implications, limitations, and suggestions for future online research are presented in the last chapter.
CHAPTER TWO: REVIEW OF LITERATURE

Introduction

To study online communities of practice from a communication perspective, it is imperative to keep the focus on the daily interactive practices engaged in by participants of communities of practice. The digital technologies facilitate, and yet complicate these social practices. Digital communication is both the medium and outcome of social activities in the context of communities of practice. Moreover, learning is a lively, ongoing, and changing process that is enacted in communicative practices. A good understanding of digital communication and the learning process is essential to the continuous and sustainable development of online communities of practice.

This chapter is divided into four sections. In the first section, literature on communities of practice is reviewed. Key elements, development stages, and cultivation principles of communities of practice are identified. In the second section, the focus is on digital communication and online communities. Structural elements that determine the success of online communities are examined. In the third section, literature on organizational learning and knowledge management are reviewed. In the last section, communication as a construct is examined and a meta-theoretical framework, the theory of structuration, is explored. Research questions are raised last.

Communities of Practice

Defining Communities of Practice

The concept, communities of practice, was first brought to academic attention in Lave and Wenger’s book, Situated Learning: Legitimate Peripheral Participation. Lave
and Wenger (1990) believed that learning is not an individual act but takes place in the process of social interaction. Learning is an evolving, continuous, and contextual process that involves participation, social relations, and other elements in the framework of communities of practice (Lave & Wenger, 1990). Communities of practices are defined as “a set of relations among persons, activity, and world, over time and in relation with other tangential and overlapping communities of practice” (Lave & Wenger, 1990, p. 98). They argued that a community of practice is an essential prerequisite and context for active learning as it supports understanding, interpreting, and making sense of knowledge.

This concept, communities of practice, had received a great deal of attention by the time Wenger published his own book, *Communities of Practice: Learning, Meaning and Identity*. Wenger (1998) elaborated the concept, based on a social participatory conceptual framework of learning. He argued that learning is fundamental and central to human interactions and is an ongoing process that people actively participate in social communities to make sense of and (re)construct the living world. Knowledge is created, transferred, and maintained through active social participation. Communities of practice, in this sense, are an ideal context for motivated participants to improve their knowledge and skills; consequently, organizational performance and effectiveness are enhanced. Wenger (1998, 1999) proposed an initial inventory of four interconnected and mutually defining components for a social theory of learning: learning as experience–meaning, learning as doing–practice, learning as belonging–community, and learning as becoming–
identity. This inventory is the foundation of the concept “community of practice” and Wenger (1998) used it as a thinking tool to re-consider learning.

Although communities of practice is a relatively new concept, the phenomenon has, in fact, existed for a long time and varies in names and styles (Wenger, 2000; Wenger et al., 2002). As “our first knowledge-based social structures” (Wenger et al., 2002, p. 5), communities of practice originated in the cave era and were developed in ancient Rome in the form of metalworkers, tailors, and other craftsmen workshops. They continued to proliferate in the Middle Ages, during the Industrial Revolution, and in all aspects of the contemporary human society. Communities of practice take a variety of forms: they are small or large, long-lived or short-term, recognized or invisible, at work or at school, spontaneous or intentional, co-located or distributed, interest-driven or job-required, private or open-to-public, actively participated or peripheral, etc. In Wenger’s (1998) exact words, “communities of practice are everywhere” (p. 6).

Wenger, McDermott, and Snyder (2002) further elaborated the concept, communities of practice, from a systematic, comprehensive, analytic, and pragmatic approach. Communities of practice are defined as “groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis” (p. 4). A conceptual framework of communities of practice is also established in terms of a structural model that consists of three key elements: domain, community, and practice. A domain of knowledge is a defined, often self-defined by participants, boundary that clarifies subject matters, purposes, and values of a community of practice. It also defines issues of agenda,
identity, and culture. A domain could be specific know-how, like how to use the Photoshop software, or broad issues, such as economic development in Bangladesh; yet, the domain must be appropriately and carefully developed. Vagueness is not favored. Well-honed and constantly renewed domains provide a solid ground for the healthy development of communities of practice, especially in terms of motivating and inspiring community participants to actively engage in the shared agenda, to make commitments to shared topics, and to make sense of their actions. Domains also guide the learning process, build identities and relationships, and legitimize communities to their hosting organizations.

A community of practice goes beyond its tangible infrastructure, i.e., conference room, web site, database, etc.; the element community creates the social structure of learning (Wenger et al., 2002). The structure is a social system in which participants interact with others and build relationships during the process of learning. Community also cultivates a sense of belongingness and fosters participatory learning. Motivated participation and interaction, openness and trust, distributed leadership, and mutual commitment are all important factors to a vigorous and sustainable community of practice (Cargill, 2006; Stuckey & Smith, 2004; Teigland & Wasko, 2006; Wartburg & Teichert, 2006). Participants of a strong community care for the domain of knowledge and share respect, trust, and passion. Interactions and relationships among participants of communities are voluntary, active, genuine, and open.

Wenger et al. (2002) used the term practice to denote “a set of common approaches and shared standards that create a basis for action, communication, problem
solving, performance, and accountability” (p. 38). Such common approaches and shared standards are a collective product: they are developed, accepted, shared, and continuously refined by community participants. The practice matches the domain and could be tools, language, basic skills, documents, ideas, methods, or any specific knowledge. With the shared practice, participants of communities of practice are enabled to work together efficiently on the established common ground.

There are a number of reasons to initiate a community of practice; for instance, sharing experiences, exchanging information, maintaining social connections with peers, or, responding to organizational changes (Wenger, 2000). The boundaries of communities of practice vary as well. A community of practice can exist within an organization–exclusively in one business division or across divisions–and across organizations (Wenger, 2000).

Communities of practice differ from traditional organizing forms, i.e., formal work groups and project teams, in a number of ways (Wenger, 2000). A heuristic comparison discloses that communities of practice embrace a different purpose from formal work groups and project teams. Communities of practice focus on developing participants’ capacities and building and exchanging knowledge; while formal work groups and project teams usually have a specified task, a product, and/or service in mind. In terms of membership, communities of practice rely on passion, motivation, commitment, and identification with other participants’ expertise; whereas, formal work groups and project teams depend on formal organizational structures that define job requirements and goals. Although communities of practice are fundamentally informal
and self-organizing, they differ from an informal network that does not possess organizing features, such as weekly meeting.

Considered a new way of organizing, though evident in practice for thousands of years, communities of practice add a number of distinct and pragmatic values to organizations (Wenger, 2002; Wenger et al., 2002). Communities of practice are capable of assisting organizations to develop and implement new and existing business strategies. Also, organizations start new lines of business from ideas generated in the context of communities of practice. To organizations, communities of practice add short-term values by improving business outcomes, such as diagnosing and solving problems, reducing time and costs, strengthening decision qualities, and transferring best practices across units. Long-term values to organizations include developing knowledge-management capacity, recruiting and retaining talent, and coordinating unconnected activities and initiatives across units or organizations. To participants, some of the intangible and long-term values communities of practice create are a sense of belonging, professional confidence and identity, enjoyable social relationships, enhanced professional skills, and employability.

Development Stages of Communities of Practice

A typical community of practice experiences a five stage life cycle: potential, coalescing, maturing, stewardship, and transformation (Ray, 2006; Wenger, 1998; Wenger et al., 2002). At the potential stage, existing social networks and common ground are to be identified so that participants feel connected and discover others facing similar situations. The key issues at this stage are to define the common interests, find extant
networks, and recognize knowledge needs, as well as to awaken passion from potential participants. A typical work plan includes seven steps: 1) determine the primary intent of the community; 2) define domain and identify engaging issues; 3) build a case for action; 4) identify potential coordinators and thought leaders; 5) interview potential participants; 6) connect participants; and, 7) create a preliminary design for the community (Wenger et al., 2002).

The coalescing stage begins when the community of practice is officially launched. During this stage, it is important to socialize participants in terms of building relationships, trust, and value-awareness. A typical work plan follows such a sequence: 1) build a case for membership; 2) launch the community; 3) initiate community events and spaces; 4) legitimize community coordinators; 5) build connections between core group participants; 6) find the ideas, insights, and practices that are worth sharing; 7) document judiciously; 8) identify opportunities to provide value; and, 9) engage managers (Wenger et al., 2002).

The first two stages of communities of practice are early stages that focus on planning, launching, and nurturing. The process and procedures are quite different from the design and implementation stages of traditional organizational units (Wenger et al., 2002). Moving into the mature stages, the emphasis shifts to active and sustainable development of communities of practice.

In the maturing stage, key issues are to clarify the community’s focus, set standards, define the agenda, develop relationships, and delineate boundaries (Ray, 2006; Wenger et al., 2002). As a community of practice grows, it faces both physical growth–
that involves socialization of new participants—and expansion on the body of knowledge, scope of interests, and network boundaries. Also, how to preserve member participation and relationships, passion and excitement, and trust are challenges dealt with by mature communities of practice. A typical work plan for this stage is: 1) identify gaps in knowledge and develop a learning agenda; 2) define the community’s role in the organization; 3) redefine community boundaries; 4) routinize entry requirements and processes; 5) measure the value of the community; 6) maintain a cutting-edge focus; and, 7) build and organize a knowledge repository (Wenger et al., 2002).

The stewardship stage is a phase that centers on how to sustain the active and engaging momentum of communities of practice. The maintenance of lively engagement from participants, keeping communities on cutting edge practices, and preserving the relevance of the domain are all intensive challenges. A typical work plan consists of: 1) institutionalizing the voice of the community; 2) rejuvenating the community; 3) holding a renewal workshop; 4) actively recruiting new people to the core group; 5) developing new leadership; 6) mentoring new participants; and, 7) seeking relationships and benchmarks outside the organization (Wenger et al., 2002).

The last development stage of communities of practice is transformation, in which communities of practice fade away, serve as a repository of knowledge only, go dormant, turn into a social club, split into different communities of practice, merge with other communities of practice, or become institutionalized into an organizational unit in the traditional sense (Ray, 2006; Wenger et al., 2002). It is a natural state that sometimes takes a long time; yet, at other times, it is radical due to dramatic changes.
In summary, the life cycle of a community of practice is seldom smooth and problem-free (Wenger et al., 2002). The cycle is full of tensions and often involves a lengthy incubation, difficult transitions, and a rough learning process. In some cases, the early stages take forever; yet, in other cases, initiation moves swiftly. The same applies to the mature stages: while some communities of practice maintain activity for a long time, others fade away quickly. Also, not all communities of practice go through all five stages; some of them die young. At last, please note that these five development stages are arbitrary and delineated mainly for classification and illustration purposes. The life cycle of communities of practice is ongoing, lively, and in flux.

Cultivating Communities of Practice

With a structural model conceived and development stages analyzed, the principles and strategies that guide the design and cultivation of communities of practice is now examined. Most traditional organizational designs emphasize a fixed internal and external structure, clear-cut responsibility and communication systems, and flat position roles; nevertheless, to cultivate communities of practice, the attention has to be focused on liveliness and spontaneous growth of the communities. Insider’s initiative, open and fluid boundaries, different levels of participation, value-centered, transformative leadership, and interests-oriented motivation are all key principles that allow the communities to evolve and develop, reflect on and re-design, and transform and sustain themselves throughout their existence (Wenger, 1999, 2000; Wenger et al., 2002).

Wenger et al. (2002) proposed seven principles for cultivating communities of practice: 1) design for evolution; 2) open a dialogue between inside and outside
perspectives; 3) invite different levels of participation; 4) develop both public and private community spaces; 5) focus on value; 6) combine familiarity and excitement; and 7) create a rhythm for the community (p. 51).

To cultivate a community of practice into its natural evolution, a vital step is to be loose and, sometimes, elusive in its design. As communities of practice often build on extant social networks, to catalyze the dynamic development needs a few key factors: establish core groups or thought leaders; stimulate engagement and promote social relationships; bring in new participants and add new interests; etc. A good design of communities of practice also integrates insider’s and outsider’s points of views. Insiders know best what a community is about and capable of; outsiders see a community’s potentials and opportunities better.

Alive communities of practice need different levels of participation from their members. Active engagement from community coordinators and core group participants is essential to dynamic growth, though peripheral participation is common and integral to a healthy community as well. Active and extensive participation, which requires tremendous energy and time from participants, may lead to worn-out commitment. Losing active and key players is dangerous to the sustainable development of communities of practice. Thus, the structure of communities of practice should enable participants to move up and down the levels of participation without hassles. To grant maximum flexibility and freedom to participants of communities of practice applies to the next principle, too—develop both public and private spaces. A common misconception is to think communities of practice should always focus on public events.
Communication through private channels, such as one-to-one emails and phone calls, greatly enhance social bonding and trust among participants. Eventually, a strong web of individual relationships benefits the entire community in terms of enriching and enhancing qualities of public events.

Keeping value and assessment of value in mind is important to cultivating communities of practice. Most of the time, values are represented in small, mundane, daily activities engaged in by participants. It takes time for current participants to see the values, let alone potential participants and other stakeholders, of communities of practice. To include and encourage conscious discussions of values from the early stages of communities of practice helps to make the impact of the communities more palpable.

Also necessary to cultivating vibrant communities of practice is developing a certain degree of familiarity for participants so they are comfortable engaging in daily activities; however, a sense of excitement is equally important. After all, involvement in communities of practice ought to be different from participants’ everyday work routines defined by traditional job descriptions. Last, but not least, a strong and healthy rhythm, such as regular meetings and web site activities, is vital to develop and maintain a web of strong and enduring relationships among participants; therefore, communities of practice are alive.

Defining Online Communities of Practice

Globalization, outsourcing, and digital technology development have led to a new era of communication among individuals, organizations, and societies. Devoting special attention to communities of practice that are not located in single sites is a necessity.
Wenger et al. (2002) used the term, distributed communities of practice, to describe “any communities of practice that cannot rely on face-to-face meetings and interactions as its primary vehicle for connecting members” (p. 115). Van den Hooff, de Leeuw van Weenen, Leidner, and Huysman (2009) used the term, networks of practice, to define “a knowledge network of individuals who share the same practice, yet are geographically dispersed” (p. 2).

Proposed as an innovative organizing concept that differs from traditional organizational designs, communities of practice exist in various forms as mentioned in the previous section. Online communities of practice are one of the forms and also cover a range of online communities that spread on continua of sizes, closeness, and purposes. For instance, online communities can be a small, restricted access by invitation, and professional association online on one end, or a large-scale, open-to-public, and social network on the other end, or anywhere in between and any combination of size, closeness, and purposes.

In this study, the researcher uses the term, online communities of practice, to refer to professional networks and work-oriented groups that own a common space online and rely on digital communication as the main tool to connect geographically scattered participants and carry out its practices. Three elements in this definition are particularly important in identifying and distinguishing online communities of practice with and from other online communities, computer-mediated groups, and networked communities: online central location, professional and work-oriented, and geographically scattered participants.
The central location is emphasized because co-location used to be a key factor for the formation of communities of practice (Wenger et al., 2002). For online communities of practice, this central location is no longer a physical site but a virtual space nested in the technology-enabled electronic network. Unlike some collaborative groups supported by computer-mediated tools, such as Group Decision Support Systems (GDSS), that often convene in computer-based virtual space, the central location of online communities of practice is often web-based, i.e., a web site.

Online communities of practice also differ from many web-based networks, for instance, social network sites (SNSs), because of the professional and work-oriented nature of the communities. SNSs are web-based services that allow its participants to build a personal profile and connect with others within the network (Boyd & Ellison, 2007). MySpace, Facebook, and LinkedIn are a few examples of SNSs. The main purpose of SNSs is to provide an online space for its users to articulate their extended social networks which were originated in offline connections, for example, classmates, although networking with strangers is possible (Boyd & Ellison, 2007). Online communities of practice often connect participants who have no other ways to be linked.

Networked communities are an innovative organizing concept focusing on technology and the knowledge workforce in achieving social and economic development goals (Albert, Flournoy, & LeBrasseur, 2009). Online communities of practice differ from networked communities because the practice participants are often geographically scattered. For networked communities, even though members communicate extensively
through technology and are connected virtually, they still share “a physical presence in space and time” (Albert, Flournoy, & LeBrasseur, 2009, p. 8).

Online communities of practice share similarities with the above mentioned and many other online communities and technology-facilitated groups. Understanding the distinctive features of digital communication and the structural elements of online communities is vital to explore and examine online communities of practice. In the next section, the historical development of digital technologies, computer-mediated communication, online communities, and key structural elements are reviewed.

Digital Communication

*Historical Development of Computers, the Internet, and Wireless Technology*

The (re)invention of computers and the Internet in the late 20th century has dramatically changed the way people communicate. In December 1950, Douglas Engelbart, a radar operator during WWII, dreamt of using computers to “help people think faster, better and solve more complex problems” (Rheingold, 1993, p. 57). In the 1950s, the period of priesthood, as Rheingold (1993) defined it, there were fewer than a dozen electronic computers all over the world. In October 1957, the former Soviet Union launched the first artificial satellite–Sputnik. In response, the U.S. Department of Defense created the Advanced Research Projects Agency (ARPA) to pioneer technology development.

In the 1960s, a group of elite researchers focused on re-designing computers so that human beings could interact with computers directly through keyboards, screens, and graphics instead of punched cards and printouts. They also aimed to develop computers
into communication devices to network with other people. The ARPANET, the predecessor of the Internet, went online in 1969 (Rheingold, 1993). Computer-using was a subculture in the 1970s. Harvard and MIT came online in 1970 and more than 30 different computers were connected with ARPANET by mid-1971. Emails, group conversations, and, thus, online communities came into being sequentially. The 1980s were packed with technological advancements in home computers, information gathering and sharing, search engines, computer networks (the Internet), electronic mail service, and online communities, such as MUDs (Multiple User Dungeons).

The 1990s witnessed a significant and intensified growth in the computer-using population. Computers were quite popular in organizational settings as well as at home. The Internet was connecting more and more individuals, groups, and organizations. Several events boosted the breakthrough in connectivity. British computer scientist Tim Berners-Lee developed the concept of the World Wide Web and posted the first web site online on August 6, 1991 (Friedman, 2007). Nested on the Internet, the World Wide Web generated virtual spaces in which individuals could post, organize, and link digital information that could be easily accessed. In the U.S., the White House was connected with emails on June 1, 1993, and seven days later, S. 564, the Government Printing Office Electronic Access Bill, was signed into law (P.L. 103-40) by President Clinton (Rheingold, 1993). The first popular commercial web browser—Netscape—went public on August 9, 1995, and created a different era ever since (Friedman, 2007). Web browsers functioned to retrieve information from the web sites hosted on the Internet and displayed them on your computer screens. Netscape’s easy-to-install and easy-to-use
features literally allowed many people to take advantage of digital technologies. Netscape also led to the booming development of protocols: FTP, HTTP, HTML, SSL, SMTP, POP, TCP/IP, etc., which made the Internet truly interoperable (Friedman, 2007).

In the new millennium, digital technologies climbed to a higher level: wireless. Wireless refers to “the transmission of data via electromagnetic airwaves from one point to another without relying on wires and cables for connection” (Kuo, 2005, p. 4). A variety of devices and equipment use wireless technology: two-way radios, mobile or cellular phones, Global Positioning Systems (GPS), and satellite television. Computers, especially laptops, are now wireless-enabled, i.e., capable of connecting to the Internet without cables when a wireless network is available. Sharing a similar development history as computers and the Internet, wireless technology has been used in military and commercial systems for more than fifty years. The 802.11 standard for wireless LANs (local area networks), which enables the wireless interface between computers and the Internet, was released by the Institute of Electrical and Electronics Engineers (IEEE) in 1999 (Kuo, 2005). This standard was immediately adopted and digital communication became more universal in social practice.

The prevailing digital technology, and its social use, has intrigued researchers from a variety of disciplines in the social sciences. Numerous research projects and studies have been conducted on all aspects of digital technologies and relevant social phenomena. The findings are contradictory though: some scholars are positive about the potentials digital technology has brought to human societies, and some findings seem daunting in terms of the possible negative effects it has also brought to societies and
individuals (Walther & Parks, 2002). To communication scholars, the Internet is a profoundly social medium; digital communication, more commonly known as computer-mediated communication (CMC), is produced in the Internet environment and (re)produces this continuously evolving medium.

In addition, a fascinating fact about contemporary research on digital technologies is that pragmatic evidence prevails and theoretical conceptualizations are lagging behind. Walther and Parks (2002) pointed out, “existing theoretical approaches to CMC could not account for … observations” (p. 540). With the rapid escalation of digital technologies, researchers can hardly catch up. Among numerous attempts to establish theoretical frameworks to understand, explain, and examine digital communication, there are a few classic theories worth mentioning.

**Classic Theories of Computer-Mediated Communication**

Dominant theories of computer-mediated communication have been developed not only in the context of interpersonal communication, small group communication, and message comprehension in online settings, but also imported and adopted from non-digital domains (Walther & Parks, 2002). Drawing on theories that initially study other media is a natural move, as the Internet is indeed a new medium in succession to other media. For example, Media Richness Theory (MRT) originally intended to explain the information processing in organizations through channels of face-to-face, documents, or telephone. MRT has now been adapted to explain why people choose computer-mediated channels for certain types of tasks.
MRT advocates an optimal match between communication media and equivocality of tasks (Daft & Lengel, 1984). The MRT theory states that media vary in richness, which refers to the carrying capacity of data in messages (Daft & Lengel, 1986). The richness is determined by four elements: speed of feedback, variety of communication cues, degree of personalness, and use of natural language. Face-to-face communication ranks as the richest medium on the five-step continuum. The continuum also includes: telephone, personal written documents, formal written documents, and numeric documents, in ranking order (Daft & Lengel, 1984). Computer-mediated communication was placed into the theory’s framework later with research efforts explaining managerial preferences in using electronic mail (Markus, 1994; Schmitz & Fulk, 1991; Trevino, Daft, & Lengel, 1987). MRT proposes a linear relationship between the equivocality of tasks and communication media; however, media selection is situational and involves more than a single and simple match.

One of the main themes of early theories was to make comparisons between face-to-face communication (FTF) and computer-mediated communication (CMC). Carnevale and Probst (1997) proposed nine unique characteristics of computer-mediated communication that differ from face-to-face communication. First, computer-mediated communication was often anonymous. In this situation, communicators were more likely to be aggressive in terms of expressing different opinions or making negative comments (Landry, 2000). Second, speed was crucial for computer-mediated communication. Digital technologies speeded up communication across nations or time zones. Communicators did not need to be located in the same time zone and space. Third, easy
and open access enabled users of digital technologies better access to information. Fourth, computer-mediated communication broadened individuals’ social interactions and formation of interest groups. Fifth, computer-mediated communication was based on text, the least rich medium. Sixth, computer-mediated communication lacked social context cues and that made it text-only communication. Seventh, computer-mediated communication allowed information be edited, forwarded, or stored easily. Dennis and Valacich (1999) defined these attributes as rehearsability and reprocessability. Eighth, it was difficult to judge the size of the audience. Ninth, in general, computer-mediated communication was new and changing rapidly and frequently.

Overall, the most significant difference between face-to-face communication and computer-mediated communication is related to the medium’s ability to transmit communication cues (Dennis & Kinney, 1998). Face-to-face communication relies heavily on multiple communication cues, such as gestures, vocal tones, and social context, in addition to verbal messages. In classic theories, computer-mediated communication is conceptualized as dependent solely on written text and lacks nonverbal contextual cues. There are a few approaches that elaborate on this assumption.

Social Presence Theory looks at traditional media in terms of their bandwidth, i.e., “the number of communication cue systems a technology can convey, specifically, the incremental addition to verbiage of voice, kinesics, and proxemics” (Walther & Parks, 2002, p. 531). The bandwidth of a medium is in a positive relationship with the social presence of communicators. That is, the more non-verbal and contextual cues a communication medium provides, the more salient communicators’ presence is, and the
more likely the warmth and friendliness of social interactions are enhanced. This theory is used to explain CMC and its impact on organizational behaviors. Early CMC was known as text-based, with a lack of non-verbal cues, and out of social context; thus, organizational performance through CMC was task-oriented and social relationships among communicators were weak and fragile compared to FTF groups. Social presence theory singles out the element “cues,” either non-verbal or contextual; yet, it neglects cognitive enhancement and social adaptation the new medium is capable of inspiring in its users (Walther & Parks, 2002). Some studies show that CMC users make extraordinary efforts to build social relationships, identities, and trust because the non-verbal cues are absent (Walther, Loh, & Granka, 2005).

The Social Information Processing (SIP) theory argues that when non-verbal cues are not available in text-based CMC settings, communicators are motivated to form impressions, reduce interpersonal uncertainty, and build relationships through content, style, and timing of verbal messages (Walther, Loh, & Granka, 2005; Walther & Parks, 2002). Numerous studies have been devoted to studying cue systems that are unique to CMC. Emoticons, one of the most popular cue systems in online settings, are graphic images that show facial expressions like smiles, frowns, and tears created with keyboard symbols or JPEG/GIF images. Research findings suggest limited and inconsistent effects of emoticons on interpretation of verbal messages (Walther & D’Addario, 2001). Furthermore, with digital technologies more advanced, voice and video content become more viable and popular in CMC and overthrow the assumption that CMC lacks of non-verbal cues.
Social Identity/Deindividuation (SIDE) theory assumed that when non-verbal cues were missing to disclose interpersonal and individual identity information in online settings, people relied on contextual clues to identify with the collective and to relate with others (Walther & Parks, 2002). SIDE theory was advantageous to explain group identification online, especially when CMC participants initially related to the group; however, this theory was not strong in examining the fluid, ongoing, and constantly changing processes in which personal identification and social relationships were negotiated and (re)produced recursively and communicatively in the context of online communities.

In addition to comparisons between FTF and CMC and the lack of non-verbal and contextual cues, another major research topic of computer-mediated communication focuses on online communities. Online communities, an emergent social structure resulting from the development of computers, the Internet, and digital technologies, have irreversibly changed the traditional definition of communities.

*Defining Online Communities*

Online communities, or virtual communities, or computer-mediated communities, are considered a newly-emergent and fast-evolving concept; however, the concept of *community* has a long social-theoretical history (Barab, Kling, & Gray, 2004). What is a *community* is not easy to answer. Examining the sociological definitions of two basic types of social groups, “community” and “society,” is important to truly understand what is and what constitutes a community (Ridings, 2006). These two concepts originated from the work of the German sociologist, Tonnies (1887/1940), and his proposed distinction
between *gemeinschaft* and *gesselschaft* (Cole, 2002). Gemeinschaft, or community, often involves more intimate and close relationships, whereas gesselschaft/society is exemplified with formal and abstract relationships, such as a nation state (Cole, 2002). Most scholarly propositions of defining computer-mediated communities take such distinction into consideration, implicitly or explicitly. Moreover, online communities vary greatly in terms of purpose, social and technical structure, and evolution. The concept of online communities is seemingly easy to understand; yet, there is (so far) no agreed-upon definition by scholars (de Souza & Preece, 2004).

Rheingold (1993) argued that three fundamental assembling elements are required to differentiate a community from a group of people: social network capital, knowledge capital, and communion. First, a community consists of a group of people (at least three, often a large number of people) who have interactions and develop social relationships within the group. The community is a place to enhance social networks. Second, this group of people has to maintain some common interests or goals as a basis so they can share, accumulate, and maintain knowledge. Third, participation in a community is often voluntary. Thus, the relationships among participants are genuine. Based on such criteria, Rheingold (1993) defined virtual communities as “social aggregations that emerge from the Net when enough people carry on those public discussions long enough, with sufficient human feeling, to form webs of personal relationships in cyberspace” (p. 5). From such a definition, a few key elements of online communities can be identified: *membership* (enough people), *social interactions* and *participation* (carry on those public discussions), *span of time* and *sustainability* (long enough), *emotional attachment*
(sufficient human feeling), social relationships and network (webs of personal relationships), and infrastructure (from the Net, and in cyberspace).

Jones (1998) coined the term “Cybersociety” to describe the new form of community enabled by the Internet and digital communication. He argued that community is one of the fundamental human needs and digital communication has re-created human communities in terms of new types and formations of community. He has reviewed multiple perspectives on community studies and has emphasized the need to examine scope (common interest, belongingness), substance (interactions, social system, identity), and dominance (authority, leadership, credibility, sustainability) in studies of online communities.

In their edited book, *Building Virtual Communities: Learning and Change in Cyberspace*, Renninger and Shumar (2002) pointed out that several features contribute to the defining references of online communities. They classified these features into three categories. First, for an online community, there must be a group of core users (membership) who participate actively and regularly over a period of time (span of time, sustainability) in forms of providing feedback, information, advice, and support (social interaction and participation, trust). Second, an online community shall bring different opportunities in terms of temporal and spatial relationships, enabling common interests and identity. Third, such community must maintain an infrastructure that differentiates itself from traditional community, for instance, multi-layered means of communication, archiving site, etc.
To frame concepts and particular applications in a more specific manner, Bellini and Vargas (2006) chose the term “Internet-mediated community” and defined it as “a group of people who share interests and make use for some time of the same class of Internet technology to exchange information with each other regarding the shared interests” (p. 292). This definition emphasizes membership, shared interests, span of time, identity, and especially, infrastructure.

De Souza and Preece (2004) advocated a broad definition, that an online community is “a group of people, who come together for a purpose online, and who are governed by norms and policies” (p. 580). They argued that a broad definition is advantageous in two ways. First, this broad definition offers a balanced view of online communities in terms of both social and technical factors: sociability and usability. Second, it applies to a variety of online communities that differ significantly in structure and practice. Regardless, this broad definition also includes elements of membership, common interest, and social system.

From various definitions, a list of structural elements that are essential to build and maintain, thus to define, an online community are: common interest, social interaction, participation, membership, identity, social system, span of time, sustainability, trust, relationship, social network, infrastructure, authority, leadership, and credibility. Taking a closer look at these structural elements is useful.

**Structural Elements of Online Communities**

To continue and extend the discussion, these structural elements identified from the literature are grouped into six categories according to the interconnectedness among
these elements: common interest and identity, infrastructure, social interaction and relationship, trust, leadership, and sustainability. Bear in mind that all of these elements are interrelated, inseparable, and supplemental to each other. This classification is arbitrary and only serves the purpose of having an organized discussion.

Common Interest and Identity

Common interests or goals often bring people together in the context of online communities (Ridings, 2006; Shumar & Renninger, 2002). Traditionally, community is defined primarily according to physical proximity so that a geographically localized group of people constitutes a community (Cole, 2002). Later on, the meaning of “community” is expanded to refer to those groups of people who share something in common, such as interests or goals, even if they are not located in the same geographic area. Such conceptualization is amplified in online settings. The Internet and digital communication have revolutionarily changed the way people communicate with each other and have provided a convenient space for those who share common interests or goals. What truly motivates people to interact through computers is a shared domain like Wenger et al. (2002) described.

Wenger et al. (2002) also argued that the shared domain provides a sense of common identity. As common interest is critical to the formation of online communities, it automatically contributes to the formation of the group identity. The common interest provides a base for people to relate to others who participate in the same group activities. Membership in online communities of practice is often voluntary, informal, and resistant to authority (Lave & Wenger, 1991). Organizations can strategically cultivate the
organizational environment for communities to flourish so that their great potentials are put into use to reach certain organizational goals, such as knowledge management and innovation development.

Infrastructure

Online communities need to have a certain infrastructure that enables its existence. Ridings (2006) argued that, even though online communities are not geographically centered, they do have a “common location.” Such location is not as tangible or physical as a geographic location, but it is a real mechanism that provides social space for interactions among members of online communities. Ridings (2006) proposed four basic ways that constitute the “common location”: listservs, bulletin boards or newsgroups, chat rooms or conferencing systems, and multiuser dungeons (MUDs), of which the first three, together with web sites, are often carriers of major activities for online communities of practice.

With computer-mediated infrastructure, communication between members is mainly based on text exchange, supplemented with voice and video files. Individuals send messages to the listserv or post opinions and questions on the forum. Others read emails or posts, and then respond with feedback or comments. There are multiple means of communication, such as one-to-one email, one-to-many email, electronic newsletters, private messages, and video conferencing. However, face-to-face communication is not excluded in online communities although face-to-face is not mainstream in such communities. Also, Shumar and Renninger (2002) argued that computer-mediated communities are “multi-layered communicative space” (p. 12) in the sense that people
could engage in several conversations through different communication channels simultaneously on the Internet.

**Social Interaction and Relationship**

Traditional communities have often emerged out of physical proximity. Social forces, such as ethics at work and norms of good neighborhoods, have a great deal of impact on the emergence of traditional communities (Shumar & Renninger, 2002). In contrast, the online environment is free of such forces so that genuine relationships and bonds are indeed one of the key foundations upon which online communities are built. Through social interactions, members of online communities make friends with each other and form bonds within the group. Relationship and network are naturally generated.

In organizational settings, social relationships are bound by organizational structures and norms and are not as versatile as the social relationships enacted in online communities with personal reasons. Regardless of distributed communities of practice (online communities within an organization) or electronic networks of practice (online communities across organizations), well-maintained and developed social relationships are key to the success of the communities (Teigland & Wasko, 2006; Wenger et al., 2002).

**Trust**

Trust is “fundamental to participation” (Barab, Kling, & Gray, 2004, p. 5). More so in online settings, trust among members is essential to the development and maintenance of communities. Without all the contextual cues provided with face-to-face communication, it is rational to assume that it is harder to generate trust among people
who interact through computers, for which the major medium is still text. Yet, there are opposite perceptions and experiences. Adrian Budiman argued that it is easier to build trust among members of computer-mediated communities because “there is no need to lie online” (personal communication, September 16, 2005) since members really do not know each other and do not need to meet face-to-face. Also, when people interact with each other over a span of time, they are connected by “expectations of obligation and reciprocity that are enforceable through social sanctions” (Teigland & Wasko, 2004). It is the same with online communities, especially in small and close online communities. Long-term interactions and relationships create similar obligations as those in traditional physical communities. Members of such online communities reinforce the trust among themselves through acting in conformity to social norms.

For online communities in a professional context, such as online communities of practice, trust involves more issues. Two key elements that embody trust, risk and dependence, are amplified in organizations (Wang & Gwebu, 2006). Trust certainly can bridge geographical and organizational distances and promote cooperation (Mezgár, 2006). Yet, at the same time, there co-exists the risk of unfair contribution and fear of exploitation (Waterson, 2006). Mezgár (2006) argues that multi-layered means of communication and duration of contact contribute positively to trust-building.

**Leadership**

Leadership and trust are interrelated dynamically (Storck & Storck, 2004). Since online communities are often informal or self-organized in nature, leadership in such communities is quite different from leadership in traditional communities. Storck and
Storck (2004) proposed a “leading from behind” leadership style for large online communities of practice. As such, a leader’s role in an online community should be informal (neither elected nor appointed), administrative (provide technical support), non-directive (does not set agenda), facilitative (participate regularly and consistently), and emotionally involved (devote time and energy).

A good leader in an online community gains trust from regular members and positions herself or himself as simply a member of the community, not a leader distinguished from a regular member. In other words, members of online communities often maintain a flat, non-hierarchical relationship among themselves. Often times, a core team (Callahan, 2004) will undertake the leadership role in online communities of practice. The core team emerges from discussion and is open for engagement (any regular participant could join by getting more involved) in fostering the community.

**Sustainability**

Online communities do not live forever (Gongla & Rizzuto, 2004). Sometimes, communities disappear after they have accomplished their goals or missions. This could be considered as a natural death. However, there are more situations wherein online communities go downhill because of a non-supportive environment (Gongla & Rizzuto, 2004), lack of participation, scarcity of resources, etc. Sustainability is, by default, a key issue of online communities and involves various factors: motivation and participation, leadership and turnover (Gongla & Rizzuto, 2004), and environmental and technical support (Bellini & Vargas, 2006). Members’ active participation in online communities depends on what motivates them. A common interest or goal keeps people motivated,
often at the beginning, “then it becomes more about the people than the interest” (Mia Consalvo, personal communication, September 16, 2005). An online community also dies out because one of its key participants has left due to job position change. Environmental and technical support is another critical issue. For example, if members’ access to an online community is hindered by “beyond-control” reasons, such as limited organizational technology resources, the community inevitably declines and eventually disappears. Technical support from organizations is, by all means, necessary to sustain the life of online communities.

These six structural elements are fundamental to understanding online communities and essential to comprehending how to cultivate, develop, and maintain such communities in the context of organizations and networks, i.e., online communities of practice. These structural elements contribute to the success of online communities of practice. Moreover, digital communication is both the medium and the outcome of social interactions carried out by participants of online communities of practice. The manifestation of social interactions in such context is the interactive and dynamic learning practices.

Communities of practice are recognized as an innovative organizational structure that manages organizational knowledge and promotes organizational learning. To understand how knowledge is produced, communicated, transformed, and reproduced in the context of communities of practice, it is necessary to examine not only the product of learning (knowledge), but also the living, interactive, and communicative activities (process) (Heaton & Taylor, 2002). In the next section, literature from the fields of
organizational learning and knowledge management are reviewed. An argument to combine concepts and ideas from both fields to better understand communities of practice is made.

Organizational Learning and Knowledge Management

Organizational Learning

The idea of organizational learning was first set out in Don Michale’s book, *Learning to Plan and Planning to Learn*, in 1973 (Sharma, 2003). It was not until the early 1990s that this concept received a great deal of attention from scholars in business management, economics, organizational studies, and sociology. Despite the extensive research on organizational learning in the past two decades, scholars do not have an agreement on a single theoretical framework for organizational learning (Crossan, Lane, & White, 1999; Esterby-Smith & Araujo, 1999; Sharma, 2003). On the one hand, this situation is due to the diffusion of the idea of organizational learning. A large number of theoretical perspectives are proposed by scholars from various disciplines with different emphases on issues of organizational learning. Developing an all-encompassing theoretical framework is difficult. On the other hand, it is possibly an intentional act to retain the plurality of perspectives from distinctive disciplines (Esterby-Smith & Araujo, 1999). Scholars conceptualize organizational learning in different ways to serve the propositions of their theories or models.

As a result, it is difficult to define organizational learning in a clear and linear manner. Fiol and Lyles (1983) proposed an initial definition to be a starting point for clarifying the confusion on how to define and measure learning in order to build a sound
theory: “organizational learning means the process of improving actions through better knowledge and understanding” (p. 803). Learning is critical to the long-term survival and growth of organizations because organizations need to make continuous strategic choices to respond to the constantly changing environment.

Most literature circumvents the definition and focuses directly on key issues of organizational learning. One issue concerns individual learning and organizational learning. Learning signifies a process (learning activities performed by learning agents) as well as an outcome (something learned in the form of knowledge from the process) (Argyris & Schön, 1996). Learning activities in organizations, in fact, are primarily carried out and achieved via their individual members, i.e., agents (Kim, 1993). Yet, organizational learning is not simply the sum of individual learning. It refers to the capacity of an organization to learn through the collective actions of its members and possess what has been learned as the aggregate itself (Weick & Ashford, 2001). In other words, organizational learning is the process of acquiring, transferring, and sustaining co-constructed knowledge in organizational settings.

To focus on the process, another issue is about the different stages involved in the process and the corresponding levels at which learning takes place. Crossan, Lane, and White (1999) proposed a 4I framework to study organizational learning: intuition, interpretation, integration, and institutionalization. At different stages, learning occurs at different levels: individual, group, and organizational. For instance, intuition and interpretation take place at the individual level. Interpretation could occur at the group level as well. Another stage that occurs at the group level is integration. Furthermore,
integration and institutionalization take place at the organizational level. Crossan et al. argued that learning is not a linear static process. Rather, learning is a dynamic loop that involves the tension between exploration (feed-forward) and exploitation (feed-back). The whole process of creating, sharing, and formalizing knowledge is central to their arguments.

Nonaka (1994) critiqued the post-positivist approach viewing organizations as a channel for knowledge transfer as being passive and limited. He proposed a dynamic perspective of viewing organizations as active agents in creating and distributing knowledge. Nonaka (1994) acknowledged the primary role individuals play in initiating knowledge creation. His model of the learning process pushed knowledge creation beyond the boundary of organizations and includes five stages: enlarging individual knowledge, sharing tacit knowledge, crystallization, justified action, and networking knowledge. Accordingly, Nonaka (1994) distinguished four levels of learning and knowledge creation: individual, informal community, organizational, and inter-organizational.

Wenger (2000) advocated a social constructivist perspective that learning is fundamental and central to human interactions. Learning is an ongoing process that we, as social beings, actively participate in to make sense of and (re)construct our living world. Of the three levels of learning: individual, group, and organizational, Wenger emphasized the middle level—communities. Nevertheless, Wenger et al. (2002) recognized the importance of the other two levels in the development process of communities of practice. In the early stages of cultivating a community of practice,
potential and coalescing, individuals play a key role as community leaders and coordinators. In the maturing, stewardship, and transformation stages, organizations provide more institutional support.

Another issue is concerned with the characteristics of knowledge. Several organizational studies scholars have addressed this topic (Argote, McEvily, & Reagans, 2003; Brown & Duguid, 2001; Hansen, 1999; Nonaka, 1994). In general, there are two types of knowledge: explicit and tacit. Explicit knowledge refers to the knowledge that can be codified and recorded in written documents or transmitted in formal and systematic language (Nonaka, 1994). Explicit knowledge represents a very small portion of knowledge located on top of the pyramid of human knowledge. As digital communication frequently depends on text-based exchanges, i.e., lacks non-verbal and contextual cues, transferring explicit knowledge is more privileged. Presumption could be made in confidence that, in online contexts, codified and independent knowledge are more likely to be created, transferred, and sustained. However, explicit knowledge is leaky (Brown & Duguid, 2001) and can be moved across the boundaries and be diffused easily into different contexts. In particular, when the knowledge is presented in online communities, it is difficult to control the access of people outside the communities. Thus, online communities of practice are more troubled with the undesired out-flow of knowledge.

For the rest of the pyramid, it is the tacit knowledge which is deeply rooted in social interactions. Tacit knowledge is implicit and cannot be articulated in any form of language, written or oral, as explicit knowledge (Nonaka, 1994). In other words, tacit
knowledge is uncodified and difficult to communicate. Tacit knowledge is situated in a specific context and hard to transfer to another occasion. Brown and Duguid (2001) refer to this characteristic of knowledge as “stickiness.” Sticky knowledge is often a challenge for knowledge transfer. Knowledge often sticks to practice; therefore, hard-to-break boundaries often prevent knowledge from being shared and transferred. Focused on practice, participants of communities of practice engage in lively discussions that situate problems in specific contexts and exercise shared approaches and standards (Wenger et al., 2002). In communities of practice, knowledge is shared, transferred, and transformed in a rather effortless way.

Knowledge Management

When the concept of knowledge economy emerged in the 1980s, knowledge became a critical resource for competitive organizations (Sharma, 2003). The term knowledge management has received increasing attention. It refers to “the tools, processes, systems, structures and cultures explicitly to improve the creation, sharing and use of knowledge critical for decision making in organizations” (p. 344). There is a confluence of trends in the mid-1990s that led to the prominence of knowledge management in late twentieth and early twenty-first centuries (Jennex, 2006; Zorn & May, 2002). The fad of business process reengineering (BPR) in the early 1990s is the first trend that called attention to knowledge management. With BPR in action, organizations re-structured and downsized; and, therefore, had to deal with the loss of valuable knowledge due to individuals leaving.
The accelerated advancement of digital technologies in the 1990s was another factor that led knowledge management to prosper. Also, the Year 2000 (Y2K) date problem prompted organizations to modernize their technological infrastructures by replacing computers or updating software. This trend allowed knowledge management to thrive by “providing organizations with technological capabilities for organizing, storing, searching, retrieving, and manipulating large amounts of structured and unstructured knowledge” (Jennex, 2006, p. 7).

The third issue is determined by the pervasiveness of the Internet, intranets, and databases. The explosion of information and open access to this information caused problems to knowledge control. This situation posited a challenge to management teams. The last, but not the least, trend is the shift to a service-based economy in which intellectual capital is a valuable organizational asset. In such historical, economic, and social contexts, research on knowledge management is more than ever amplified.

Knowledge management is to “manage structured and unstructured knowledge in order to help the organization improve its effectiveness through improved retention and reuse of knowledge” (Jennex, 2006, p. 2). Structured knowledge, i.e., explicit knowledge, is often found in documents and repositories; unstructured knowledge, or tacit knowledge, is often embedded in organizational norms, routines, practices, and processes. In general, knowledge is a mixture of experience, information, and opinions that individuals reply on to make judgments and decisions in organizations. It is important to keep in mind that knowledge is context specific. It is not trouble-free to transfer knowledge from a particular situation to another.
Knowledge management research often focuses on four constructs. Alavi and Leidner (2001) stated that “organizations as knowledge systems consist of four sets of data: (1) creation (also referred to as construction), (2) storage/retrieval, (3) transfer, and (4) application. The four constructs of this model are essential to effective organizational knowledge management” (p. 115). Knowledge can be generated in various forms and from diverse resources (Davenport & Prusak, 1998). Tacit knowledge is often personal and difficult to formalize. Nonaka (1994) reiterated the importance of social interactions of an informal community as the base for new knowledge to emerge. In his words, “‘communities of interaction’ contribute to the amplification and development of new knowledge” (p. 15).

The knowledge storage/retrieval construct concerns the way organizations codify and categorize knowledge into organizational memory and how to retrieve knowledge efficiently when needed (Peachey, Hall, & Cegielski, 2006). Since tacit knowledge is unstructured and is hosted by individuals or within communities, organizations are challenged in transforming tacit knowledge into organizational memory and maintaining it for easy access. The same challenge applies to knowledge transfer. It is less trouble to transfer explicit knowledge “among individuals, between individuals and explicit sources, between individuals and groups, among groups, and between groups and the organization” (Peachey, Hall, & Cegielski, 2006, p. 34). However, transfer of tacit knowledge is easier said than done. The transfer is often managed by observing and learned by doing in the context of communities. Davenport and Prusak (1998) argued that knowledge transfer is not completed until receivers internalize and apply the knowledge.
Although knowledge management and organizational learning are defined and viewed as two separate disciplines developed from different origins, the concepts from both fields are interrelated and reciprocally influenced (Jennex, 2006; Sharma, 2003). Jennex (2006) argued that a better understanding of knowledge management can be achieved by integrating concepts of organizational learning. Organizational learning is the structure that monitors and adjusts knowledge requirements needed for organizational performance. Sharma (2003) argued that knowledge management models could be used to facilitate organizational learning. Intellectual capital, socially-constructed knowledge, and different categories of knowledge contribute “towards the practical realization of organizational learning” (p. 343).

Combining concepts of organizational learning and knowledge management to explore communities of practice is advantageous so a full appreciation of the dynamic learning process taking place in the contexts of communities of practice can be obtained. Communities of practice provide an excellent environment for learning. Brown and Duguid (1991) emphasized that “what is learned is profoundly connected to the conditions in which it is learned” (p. 49). They asserted that learning is not acquiring abstract and objective knowledge; rather, learning is noncanonical and accomplished by doing in the context of communities. Noncanonical practices are fluid, constantly changing, and socially constructed actual practices, that determine the success or failure of organizational performance (Brown & Duguid, 1991).
Nevertheless, both organizational learning and knowledge management fields have limited and biased discussions on the construct of communication. Most of the time, communication is considered as one variable that can be manipulated to contribute to organizational performance from a managerial perspective. However, knowledge management is “fundamentally an organizational communication process” (Zorn & May, 2002, p. 238). For instance, knowledge creation, sharing, and use are largely communication issues. Also, communication is undeniably fundamental to learning. It calls for a study that centers communication in examining and understanding knowledge and the learning process.

Furthermore, Iverson and McPhee (2002) argued that communities of practice were “a theoretical construct for understanding the interactive roles of information systems and people and also as a model for understanding how knowledge management is negotiated communicatively between people” (p. 260). They elaborated their argument to conclude that “three key elements of communities of practice – mutual engagement, shared repertoire, and joint enterprise–encapsulate the socially constructed nature of knowledge creation, transfer, and management systems within and across organizations” (p. 260). It takes a social perspective to obtain a rich understanding on how knowledge is created, communicated, and transformed in the context of communities of practice in forms of human activities such as dialogues, storytelling, collaboration, and participation. In the next section, the construct of communication is conceptualized and a meta-theoretical framework in social perspective is explored. Research questions are then proposed.
Meta-Theoretical Framework

To study communities of practice from a communicative perspective, it is necessary to first conceptualize communication. Communication is a basic concept that is often taken for granted. Scholars often neglect to devote time and space to explaining what communication is. Yet, communication is a concept with numerous meanings. To apprehend a fine understanding of communication is imperative, especially when setting up criteria to evaluate communication. Definitions are convenient and sometimes appropriate; yet, some other times they produce arbitrary delineation, set boundaries, and reflect researchers’ values and interests (Deetz, 2001). As a matter of fact, it is difficult to find a clear-cut definition of communication. An alternative to understanding communication is to examine how it is conceptualized in contemporary theoretical perspectives: functionalist, interpretive, critical, as well as in structuration theory.

The functionalist perspective privileges objectivity and technical rationality which centers prediction, control, and teleological forms of behavior (Mumby & Stohl, 1996). This perspective assumes a control orientation and conceptualizes communication primarily in terms of information (Deetz, 2001). For example, Media Richness Theory (MRT) conceptualizes communication as information exchange and focuses on finding the optimal match between tasks and media selection (Daft & Lengel, 1984, 1986). Functionalists believe in causal relationships. They view communication as one variable that can be manipulated so that a certain causal relationship is assured, e.g., for instance, good communication between supervisors and subordinates contributes to effectiveness.
Most literature on organizational learning and knowledge management is housed in this perspective.

Studies on digital communication from such a traditional scientific approach focus on cues, such as non-verbal cues and social context cues, in relation to communication (Walther & Parks, 2002). For example, the Social Information Processing (SIP) theory argues that the absence of nonverbal cues does not restrict communicators’ capability in information exchange. Rather, members of online communities are more motivated to get their messages transferred effectively.

The interpretive approach centers on the study of meanings—“the way individuals make sense of their world through their communicative behaviors” (Putnam, 1983, p. 31). Communication is considered the central means by which the meaning is produced and sustained (Deetz, 2001). Organizational communication scholars who embark on this perspective conceptualize communication as constitutive to organizing (Mumby & May, 2005). They view organizations as social sites and explore “how particular realities are socially produced and maintained through ordinary talk, stories, rites, rituals, and other daily activities” (Deetz, 2001, p. 23).

Studies in online communities from this theoretical perspective recognize the constitutive capacity of communication, especially in terms of social interaction, identity formation, culture, trust, and community building. Research on online social support groups emphasizes communication as a means of bonding, coping, healing, and surviving (Alexander, Peterson, & Hollingshead, 2003; Christian, 2005).
The critical perspective addresses the dynamics of power and politics (Mumby, 2000). Critical theorists conceptualize communication in the same way as interpretivists, but focus on the distorted meanings produced by discursive practices. Mumby (1987) examined the relationships among power, ideology, and organizational narrative. He views organizational narrative as “one of the principal symbolic forms through which organizational ideology and power structure are both expressed and constituted” (p. 113). Organizational ideology and power structure are reified and reproduced through legendary stories. Critical theorists view online communities as discursively constructed, mainly in text; social space in which gender, identity, and hierarchy are recreated and sustained (Edley, Hylmo, & Newsom, 2004).

Structuration theory defines systems as human practices with observable patterns of relationships and structure as “the rules and resources drawn on by actors in taking part in system practices” (Poole & McPhee, 2005, p. 174). The core concept, duality of structure, “relates to the fundamentally recursive character of social life, and expresses the mutual dependence of structure and agency” (Giddens, 1979, p. 69). Social practices draw on structural rules and resources and reproduce the system and its structure. Structuration theory emphasizes “the role of processes in the constitution of society” (Poole & McPhee, 2005, p. 173). It “explains how social systems are produced and reproduced through ongoing structuration processes” (p. 180). Structuration theory conceptualizes communication as a process that (re)produces social structure. In this sense, communication, as a continuous discursive process, is the medium and the
outcome of social structure. Online communities are thus produced and reproduced through discursive activities engaged in by their participants.

Structuration theory explicates three assumptions of human agents that are relevant to communication (Poole & McPhee, 2005). First, human agents have three levels of consciousness: discursive, practical, and the unconscious. Discursive consciousness is explicit knowledge that can be expressed in language. Practical consciousness is the knowledge and skills human agents use in action but cannot be verbalized easily. The unconsciousness refers to the experiences underlying human agents’ daily routines which are not intended to be communicated. Second, human agents are knowledgeable. Third, human agents are learning-oriented. They monitor their actions reflexively.

Structuration theory also emphasizes the role of time and space in communication (Poole & McPhee, 2005). Discursive practices are situated, contextual, and specific to time and space. In online communities, the spatio-temporal relationship is (re)constructed through digital communication practices.

In Giddens’s (1979) arguments, the concept of structuration focuses on the duality of structure, which “relates to the fundamentally recursive character of social life, and expresses the mutual dependence of structure and agency” (p. 69). Miller (2000) further argued that the structuration process provided “a fertile ground for both post-positivist and interpretive theorists” (p. 65). Also, critical theorists can find, in structuration theory, a framework to “interrogate power, politics, and ideology” (Miller, 2000, p. 66).
Poole and DeSanctis (1992) used structuration theory to analyze the interactive processes in groups or organizations facilitated by GDSS. They emphasized the duality of structure that, structures “are used to produce and reproduce the social system and to act within it, but the structures themselves are produced and reproduced through actions in the system” (p. 10). GDSS—a computer-mediated technology—provides a structure with precise rules and resources for group participants who appropriate such rules and resources in facilitating the process of decision-making and in the process, the structure is adapted and reproduced (Poole & DeSanctis, 1992). In their argument, technologies are carriers of potential structures that enable and constrain actions.

This dissertation study embarks on the theory of structuration as a meta-theoretical framework to guide problem statements, research questions, research design, and analysis. Online communities of practice are an alternative form of organizing that highlight informal structure and give voice to participants who actively engage in constructing organizational knowledge. Communication is positioned at the center of the stage in understanding online communities of practice on three aspects: 1) digital communication, enabled and constrained by digital technologies, is both the medium and outcome of daily, interactive activities engaged by participants of online communities of practice; 2) communities of practice, as organizing structures with unique structural elements, define and, at the same time, are defined by digital communication practices; and, 3) learning is social and knowledge is co-constructed through ongoing and situated dialogues. Guided with such a meta-theoretical framework, this dissertation study raises the following research questions:
RQ1: How is communication (re)produced in the context of online communities of practice?
RQ2: How is the communication enabled and constrained by digital technologies?
RQ3: How are structural elements of communities enacted in online communities of practice?
RQ4: How is learning achieved in online communities of practice?
RQ5: What are the strengths and challenges of online communities of practice?

In the next chapter, the research design, site, and methods are explained. Instruments, sampling methods, and procedures are also explicated. A pilot study is reported, too. Finally, data analysis methods are presented.
CHAPTER THREE: METHODOLOGY

This dissertation study has conducted a multi-method case study of an online community of practice—The Communication Initiative (CI) network. The purpose of this study was four-fold: 1) to describe the daily practices of The CI network; 2) to explain the learning process in which participants of The CI network have engaged; 3) to examine how digital technologies have enabled and constrained the daily practices and the learning process; and, 4) to explore the strengths and weaknesses of The CI network.

Online research molds conventional research methods and adapts them to the online environment (Denzin, 2004). Electronic surveys (to collect quantitative data, such as user satisfaction ratings) and virtual ethnography (to collect qualitative data, such as discourses) are two popular methods in online research (Christians & Chen, 2004; Lazar & Preece, 1999; Walstrom, 2004). Electronic surveys are advantageous in terms of speedy distribution, shortened response cycles, and cost efficiency, though limited in sample representativeness and response quality (Andrews, Nonnecke, & Preece, 2003). Virtual ethnography is able to collect rich, detailed, and reliable data; yet it raises challenges to research ethics (Chen, Hall, & Johns, 2004).

With the rapid development of digital technologies, especially the wireless capacity, the boundary between the offline and online spaces is blurred. A single method solely conducted in an online environment is limited in getting inclusive data that promises validity and reliability. To comprehensively and accurately understand daily activities, learning processes, and strengths and weaknesses of online
communities, calls for a research design that encompasses various angles of research questions and analysis. A case study of a multiple methods approach that included electronic survey, in-depth and follow-up interviews, and analysis of narrative comments was conducted for this study to collect both quantitative and qualitative data for triangulation of analysis.

This chapter explicates the research design and methods. In the first section, the research site—The CI network—is briefly described. Three instruments and narrative comments are then explained in detail. The pilot study is reported in the section of electronic survey. Finally, the means of analyzing the collected data are documented.

Research Site

The Communication Initiative (The CI) network\(^1\) is known as an online community to many non-profit and non-governmental organizations. These organizations are devoted to using communication strategies in promoting and implementing economic and social development and change, especially in developing countries. The Communication Initiative (The CI) is a private company though, with the main office located in British Columbia, Canada. According to Mr. Chris Morry, Director of Special Projects and Coordination, The CI was intentionally registered as a private company so it could be a global company that did not legally belong to any particular country, even though it was headquartered in Canada (personal

\(^1\) The CI network consists of more than 80,000 subscribers to three e-newsletters: *The Drum Beat*, *The Soul Beat*, and *The Son de Tambora*. This research studies the population of 51,152 subscribers of two English e-newsletters: *The Drum Beat* and *The Soul Beat*. *The Drum Beat*, as the global and the largest e-newsletter in the network, has alone more than 44,000 subscribers.
communication, October 14, 2008). This is also reflected on the domain name of The CI web site: that is, it ends with “.com” rather than “.org.”

The CI started as “a small knowledge website with a bi-weekly electronic newsletter—*The Drum Beat*—and a network of approximately 300 people and organizations” (*The Drum Beat 500*, July 13, 2009). The very first issue of *The Drum Beat* went out on September 1, 1998. Since then, the subscriber base has risen from 200 close friends of Mr. Warren Feek, the founder and executive director, to more than 44,000 current subscribers (*The Drum Beat 500*, July 13, 2009). During these eleven years, The CI and the network has gone through remarkable growth and development. *The Drum Beat* first expanded to weekly distribution in 2000 to accommodate responses from partners and participants. Special issues of *The Drum Beat*, featuring specific interest categories, such as *DB Clicks*, were added in September 2002.

Subsequently, The CI expanded to include geographic-specific focus by launching La Iniciativa de Comunicacion site in mid-2001 with a bi-weekly e-newsletter—*The Son de Tambora*. The Spanish web site and e-newsletter highlight the Latin American projects, ideas, and opportunities. Soul Beat Africa, a web site in English that spotlights African experience, was launched in late 2003 with a bi-weekly e-newsletter—*The Soul Beat*.

The researcher first learned about The CI network from a mentor who had a collaborative connection with Mr. Warren Feek. The network was chosen as the research site because: 1) by preliminary observation The CI network fit well with the
description of the subject—online communities of practice—of this research; and, 2) this research was supported by the management team of The CI network.

Instrumentation

This research has employed multiple instruments to collect data. A variety of data have produced multi-faceted and supplemental results. Three instruments and comments are explained in this section.

Electronic Survey

The increased use of the Internet and digital technologies has led to a widespread use of electronic surveys not only for studies of online populations but also for traditional studies that adopt electronic surveys to reach Internet-friendly populations. Electronic surveys provide a number of advantages, such as access to unique populations, saving time, and cost efficiency, over conventional surveys (Wright, 2005).

The research site is a community of practice with its activities mainly mediated by digital technologies. An electronic survey is appropriate and practical to reach its participants who are scattered all over the world. Participants of The CI network are familiar with electronic communication channels to the extent that they are capable of visiting The CI web site and receiving e-newsletters through email accounts; therefore, they are eligible to complete an electronic survey: first receiving an email invitation and reminders and then visiting the survey hosting web site to fill in responses. An electronic survey saves money, labor, and time, compared with paper-and-pencil surveys (Andrews, Nonnecke, & Preece, 2003; Wright, 2005). A subscription to a
professional online survey service provider, such as SurveyMonkey, is inexpensive. The survey invitation sent through email accounts can be delivered to intended receivers within seconds. Most tedious logistic workloads, such as sending email invitation and reminders, collecting responses, and transforming raw data into analysis-ready data are all facilitated by technologies, which tremendously liberates the researchers.

_Pilot Study_

Because the survey questions were designed and composed by the researcher for the particular use of this dissertation research, a pilot study was imperative to test the wording and length of survey questions. With this purpose in mind, two additional questions were added to the end of each survey page in the pilot study. These two questions asked respondents to remark on the clarity of the survey questions they just answered. Open comments and suggestions were also welcomed. At the end of the entire survey, respondents were asked to estimate the time they spent completing the survey.

_Sampling._

A sample of 50 respondents was needed for the pilot study. This sample was selected by a systematic sampling procedure from a list of 500 subscribers on Excel spreadsheets that The CI provided to the researcher. This list was intended as a showcase of the Maximizer, the contact management database used by The CI. This list of 500 subscribers was retrieved in three steps. First, the combined list of subscribers to _The Drum Beat_ and _The Soul Beat_, a total of 51,152 as April 10, 2009,
was organized by alphabetizing first names. Second, a staff member from the CI network chose a random number: 2796. Last, the information of 500 subscribers beginning from 2796 was retrieved and exported to an Excel spreadsheet. From this list of 500 subscribers, a systematic sampling with a random start was performed to select the sample for the pilot study. A random number between one and ten was selected: eight. According to the sampling interval (500 divided by 50 equals 10), the 8th, 18th, 28th elements and so on were selected.

Procedure.

The pilot study lasted for two weeks. The electronic survey was available online at SurveyMonkey beginning at 8am US Eastern Daylight Time on Monday, April 20, 2009. Mr. Chris Morry, Director of Special Projects and Coordination of the CI network sent out an email message to the selected 50 subscribers on Tuesday, April 21, to introduce this pilot study and encourage their participation. A few hours later, the researcher sent a survey invitation to these 50 subscribers through SurveyMonkey. The first email reminder was sent on the morning of Friday, April 24, and the second email reminder was sent on the morning of Wednesday, April 29. The pilot study survey was closed at 11:59pm US Eastern Daylight Time on Friday, May 1.

Results.

Out of the 50 subscribers in the sample of pilot study, 12 survey invitations (24%) failed in delivery due to mailbox error. There were a total number of six responses (16%) out of the 38 potential respondents and only three survey questionnaires (8%) were completed. In this case (8% completion rate), to reach 420
completed survey questionnaire (70% of the original set sample of 600), the sample size of the official survey should be increased to 6912.

There were two weaknesses of the sampling procedure that might have been the cause of the low response rate. First, the sampling frame was used out of convenience since it was already available to the researcher. Second, the sample size of 50 subjects was determined based on the experience of conducting conventional paper-and-pencil surveys. Pragmatically, the results of the pilot study turned out to be too small for research on online communities.

The data collected in this pilot study were too few to generate any meaningful statistical results. The researcher carefully reviewed the answers of the six responses, especially those three completed ones. Minor changes were made to the survey questionnaire accordingly.

Sampling

Electronic surveys also bring challenges to research design, especially to the sampling frame (Wright, 2005). Demographic information of most online community populations is limited and self-reported. Often times, only ID (pseudo names) and email addresses are required for online community registration. The inadequate information is even more problematic considering: 1) people might register with the same online community multiple times using different email addresses; 2) people might use invalid email addresses to register online communities if email activation is not required; and, 3) even if email addresses are valid, they might become inactive over time. It is necessary to bear these challenges in mind when sampling is carried out and analysis is conducted.
The CI network has now more than 80,000 subscribers including the core team, active participants, regular participants, and lurkers. Within the entire network, there are participants from Latin-American countries who subscribe to the Spanish e-newsletter, *Son de Tambora*. Considering language barriers, this research is limited to the subscribers of the two English e-newsletters: *The Drum Beat*, the e-newsletter for the global site, and *The Soul Beat*, the e-newsletter for the Africa site. As of April 10, 2009, these two newsletters had 51,152 subscribers. Taking the outcome of the pilot study into consideration, no sampling was attempted and the entire population of the CI network (51,152 subscribers) was invited to complete the electronic survey to maximize survey responses and reduce the risk of Type II error.

**Survey questionnaire**

This survey questionnaire was composed in accordance with the research questions of the dissertation, the 2002 user survey of the CI network, the communication audit questionnaire (Downs & Adrian, 2004), and other popular web communication surveys. The management team of the CI network, Mr. Warren Feek and Mr. Chris Morry, in particular, contributed in revising survey questions.

There were 88 multiple-choice questions and 10 open-ended questions. These questions were grouped into five sections. The section of demographics was further divided into two parts. The first part, that included subscription information, geographic locations, and organizational associations, was placed at the beginning of the survey per request of the management team of The CI network. The second part, that included questions of sex, age, and education, was placed at the end of the survey
consistent with regular self-administered survey designs. The four sections in-between were: 1) Communication exchanges within The CI network; 2) Community and learning; 3) The CI web site; and 4) The e-newsletters: *The Drum Beat* and/or *The Soul Beat*.

Section 1 asked about respondents’ experience in communicating with other participants of the network, for example, what communication channels have they used and what was the purpose of such communication exchanges. Section 2 made inquiries on issues of community, knowledge, and learning: level of participation, motivation, emotional attachment, leadership, value of information, etc. Section 3 raised questions about respondents’ experience in using The CI web site, for instance, reasons for visiting and evaluation of the layout of the web site. Section 4 targeted respondents’ experience in receiving and reading e-newsletters, such as how often do they click on the hyper-links provided in the newsletters. A copy of the survey questionnaire is available in Appendix A.

This survey was hosted at SurveyMonkey. Those five sections were further divided to fit into web pages so that each page had an appropriate length. Questions that had similar layout or theme were re-formatted into matrix and/or drop-down menu questions. It was intentional to keep each web page at an appropriate length and layout so that: 1) the respondents do not need to scroll down too much to read questions; and 2) each page looked concise and straightforward. On top of each page, at the right corner, a progress bar provided timely feedback to respondents so they knew how far they were into the survey and could plan their time accordingly. Also, respondents had
the option to pause and save the survey so they could come back to finish at a preferred
time. These strategies were intended to reduce error rates and make respondents more
comfortable in completing this survey.

**Survey procedures**

Electronic surveys are usually responded to much faster than traditional mailed
surveys because they do not involve time in post offices and road transportation
(Andrews, Nonnecke, & Preece, 2003). Thus, the electronic survey was initially
planned to last for approximately three weeks from June 17, 2009 to July 3, 2009.
After the first invitation for survey participation went out, the researcher received a fair
number of “out of office” auto-reply notices. The management team of The CI network
also confirmed that late June and early July were the time that a lot of participants take
vacations. In such a situation, the researcher decided to extend the timeline to July 17,
2009, and spread out reminders accordingly.

On the morning of June 17, 2009, the initial email invitation of survey
participation was sent out in the researcher’s name. To attract appropriate attention and
avoid being perceived as Spam, this email message was personalized, i.e. addressed to
receivers’ first names, and was automatically generated by Maximizer. It took the
Maximizer system approximately 10 hours to finish the job. On June 30, 2009, the first
email reminder was strategically sent in Mr. Warren Feek’s name to raise more
attention from subscribers. This email message was also personalized and Mr. Warren
Feek encouraged the subscribers to participate in the survey. The second, and last,
reminder, personalized as well, was sent again in the researcher’s name on July 14,
2009, with the phrase “more participants needed” included in the subject line. In this email, the deadline for this electronic survey was announced. In addition to these two reminders, a brief message about this electronic survey was also included in two issues of *The Drum Beat*, on June 26, 2009 and July 10, 2009 respectively. The survey was officially closed at midnight of July 17, 2009.

There were 978 completed survey responses out of 1192 started survey responses. The completion rate was 82%. Table 3.1 details the waves of survey data collection.

Table 3.1.

| Three Waves of Survey Invitation and Reminders and Corresponding Responses |
|--------------------------------------------------|-----------------|---------------------|--------------------------|
| Population² | Completed Surveys | Percent of Completed Surveys | Accumulative Percent |
| Initial Invitation | 50,882 | 470 | 48.1 | 48.1 |
| First Reminder | Information not available | 220 | 22.5 | 70.6 |
| Second Reminder | 51,173 | 288 | 29.4 | 100.0 |
| | | 978 | 100.0 |

² The actual numbers fluctuate and are slightly different from the theoretical number of 51,152 subscribers due to different timing of emails sent and different staff members of The CI who handled the Maximizer at each time.
Follow-Up Phone Interviews

At the end of the survey, respondents were asked whether they were willing to participate in a 40-minute follow-up phone interview to further discuss their experience with The CI network. The follow-up interviews aimed to collect rich and detailed data, such as stories. The questions focused on the communication exchanges among participants of the CI network and on the topic of community and learning. Interviewees also had the chance to elaborate on the answers they provided in the survey.

A total of 308 survey respondents showed their interest in follow-up interviews and served as the sampling frame. Thirty interviews were intended and were randomly selected from the available population.

Sampling

The sample frame list was organized into 4 groups according to survey respondents’ self-reported level of participation: 1) very active; 2) active; 3) somewhat active; and, 4) peripheral. There were 15 very active participants, 52 active participants, 125 somewhat active participants, and 116 peripheral participants. Each group was alphabetically sorted and numbered by the participants’ email accounts. A total of 30 follow-up interviews were desired; therefore, it was determined based on ratio distribution that 2 participants would be selected in group 1—very active, 5 in group 2—active, 12 in group 3—somewhat active, and 11 in group 4—peripheral.

A Table of Random Numbers was used to select the sample from each group. For group 1, number 42698 was randomly pointed to be the starting number. Decisions were
made to consider only the left-most two digits and moving downward on the table. As a result, 9 and 13 were selected. For group 2, number 25555 was randomly pointed, left-most two digits were considered, and progressed downward. Five numbers: 25, 46, 19, 47, and 41 were selected. For group 3, number 78128 was randomly pointed. Since there were a total of 125 participants in this group, the left-most three digits were considered. The progress was still moving downward. Twelve numbers: 119, 27, 95, 121, 25, 8, 68, 54, 90, 56, 51, and 78 were thus selected. For group 4, number 71341 were randomly pointed, left-most three digits were considered, and progressed downward. Eleven numbers: 81, 15, 11, 59, 48, 23, 99, 82, 66, 69, and 20 were selected.

Follow-Up Interview Procedures

Shortly after the survey was closed, an appreciation email message was sent to all 308 survey respondents who indicated their willingness to further participate in this research. This message, sent on August 3, 2009, also briefly explained the intended sampling procedure and indicated that the researcher would be in further contact should survey respondents be selected for follow-up interviews. This email was sent directly from the researcher’s email account and blind-carbon-copied to these 308 respondents to protect their privacy. No personal information was used in this email. Receivers were addressed as “Dear Survey Respondent.”

After the sampling was conducted, an email invitation for the follow-up interview was sent to 30 survey respondents on August 24, 2009. This email was also blind-carbon-copied. In this email, the researcher reiterated the voluntary nature of research participation. Out of 30 sampled survey respondents, 8 replied within a few
days. Further communication was attempted to schedule the follow-up interviews. One interview was conducted. Two respondents were declined due to the unavailability of a Skype connection. On October 25, 2009, an email reminder of the follow-up interview invitation was sent to 22 survey respondents who did not reply in August and individual emails were sent to those 5 who replied in August but had not been interviewed or declined, explaining the situation and seeking interest. Three more survey respondents and all five originally replied respondents showed they were still interested, though a number of respondents did not show up for the scheduled interviews or did not respond further when interview schedules were suggested. Due to time constraints, the follow-up interview attempt was ended in mid-November.

In summary, 11 survey participants responded to the follow-up interview invitation and only five interviews were successfully conducted in the end. Among these five, three were self-reported somewhat active participants and two peripheral participants of The CI network. Limitations that caused low participation rate will be discussed in chapter five.

*Follow-Up Interview Technique*

When the interview time was coordinated, the researcher sent out a copy of the IRB consent form and a copy of the tentative interview questions to the individual interviewee by email approximately one day before the interview. The consent form was for the interviewee’s review and record. The tentative interview questions were intended to give the interviewee a general idea of what to expect. The researcher made
it clear in the email message that the interview questions only serve as a general guideline and the conversation would flow freely.

Skype was used to conduct the phone interviews for two reasons. First, Skype, a VoIP service, was commonly used in online communities of practice (Chris Morry, personal communication, October 14, 2008). Skype offered long-distance phone calls through the Internet at no or little cost and the quality of voice was not compromised when high-speed Internet connection was available. Skype had both PC to PC (free) and PC to phone (little cost) options. Considering participants of The CI network were scattered all over the world, using Skype greatly reduced the cost of international long-distance calls and made the research budget manageable. Second, recording Skype conversations is simple with add-on software. No extra equipment was required. A number of free software programs were available online. MP3 Skype Recorder was one of them and was selected for this research based on online user review and recommendation. In a nutshell, Skype was the most convenient and cost efficient tool to collect phone interview data for this study.

**In-Depth Interviews with the Core Team**

To better understand the goals, strategies, and development stages of The CI network, in-depth interviews were conducted with members of the Core Team—staff and long-term partners. Mr. Chris Morry recommended a list of potential interviewees that include five staff members and nine partners who had a long relationship with, and knowledge of, The CI. Mr. Morry also served as the initial contact person and sent personal emails and introduced the researcher to these potential interviewees.
The invitation was sent out by email in late July 2009 and six interviews (three staff members and three partners) were completed in late August and early November, 2009. These interviews were also conducted by Skype.

**Narrative comments**

On The CI web site, visitors are welcomed to leave their comments. It is to The CI core team’s interest to have a systematic understanding of these comments. A narrative analysis also brings enriched data to this research study. Almost eight years of comments, from August 2001 to March 2009, were available for analysis.

This set of data was unique in its value because it covered a span of time that regular research projects usually do not have. Also, the data were not collected in the name of any particular research project so it reduced the risk of response bias that research participants subconsciously shaped their responses to please the researcher.

**Data Analysis**

*Electronic Survey Data Analysis*

Survey data in various forms were downloaded from SurveyMonkey. Incomplete responses were filtered out and seven completed responses were removed. Those seven completed responses were removed due to the abnormalities in the results of question 2, which asked respondents to report the length of their subscriptions (in months) to the e-newsletters. For instance, one respondent put 2005 (the year of subscription) in the answer box instead of the required estimated months of subscription and, thus, the entire survey response from this respondent had to be removed. As a result, a total of 971 completed responses were eligible for analysis.
This database contained responses to 88 multiple-choice questions and 10 open-ended questions. The answers to those 10 open-ended questions were moved into separate Excel spreadsheets for manual analysis. The rest of the database was cleaned for minor format errors and then imported into SPSS. All variables were carefully named, labeled, and values were inputted. Frequencies and Descriptives analyses of all variables were first performed. Results are reported in chapter four.

*Follow-Up Interview Data Analysis*

The questions for the follow-up interviews focused on probing information about the communication exchanges, collaborations, and community involvement among participants of The CI network. Most questions were process-oriented, focusing on the details of communication exchanges and community activities. Please refer to Appendix B for a complete list of follow-up interview questions. Recorded interview sessions were transcribed. Due to limited data, the analysis was simplified in terms of coding. Common themes and unique cases were identified and reported corresponding to the research questions.

*In-Depth Interview Data Analysis*

The in-depth interview questions with the core team members focused on infrastructure, community, sustainability, and development issues of The CI network. A complete list of in-depth interview questions can be found in Appendix C.

Interviews were transcribed. The data analysis process is identical with the data analysis of follow-up interviews.
Narrative Analysis

The narrative data included a total of 92 months (from August, 2001 to March 2009) and 989 entries of comments. Detailed counts of comments for each month are listed in Table 3.2.

Table 3.2.

<table>
<thead>
<tr>
<th>Count of Comments</th>
<th>01</th>
<th>02</th>
<th>03</th>
<th>04</th>
<th>05</th>
<th>06</th>
<th>07</th>
<th>08</th>
<th>09</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>11</td>
<td>17</td>
<td>4</td>
<td>14</td>
<td>6</td>
<td>12</td>
<td>16</td>
<td>16</td>
<td></td>
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<tr>
<td>Feb</td>
<td>10</td>
<td>7</td>
<td>2</td>
<td>8</td>
<td>10</td>
<td>17</td>
<td>20</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Mar</td>
<td>6</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>12</td>
<td>11</td>
<td>7</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Apr</td>
<td>12</td>
<td>9</td>
<td></td>
<td>14</td>
<td>6</td>
<td>6</td>
<td>15</td>
<td></td>
<td></td>
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<tr>
<td>May</td>
<td>23</td>
<td>10</td>
<td>9</td>
<td>14</td>
<td>11</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jun</td>
<td>10</td>
<td>3</td>
<td>5</td>
<td>9</td>
<td>15</td>
<td>10</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jul</td>
<td>12</td>
<td>4</td>
<td>5</td>
<td>13</td>
<td>13</td>
<td>10</td>
<td>9</td>
<td></td>
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<tr>
<td>Aug</td>
<td>32</td>
<td>14</td>
<td>7</td>
<td>10</td>
<td>12</td>
<td>22</td>
<td>19</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Sept</td>
<td>13</td>
<td>14</td>
<td>7</td>
<td>16</td>
<td>23</td>
<td>7</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oct</td>
<td>15</td>
<td>16</td>
<td>6</td>
<td>17</td>
<td>12</td>
<td>16</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nov</td>
<td>8</td>
<td>8</td>
<td>6</td>
<td>9</td>
<td>6</td>
<td>24</td>
<td>11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dec</td>
<td>5</td>
<td>9</td>
<td>3</td>
<td>12</td>
<td>8</td>
<td>13</td>
<td>9</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>73</td>
<td>145</td>
<td>84</td>
<td>68</td>
<td>136</td>
<td>152</td>
<td>152</td>
<td>145</td>
<td>34</td>
</tr>
</tbody>
</table>
NVivo was used in analyzing this set of data. All 989 entries were copied and pasted into NVivo. Then, they were carefully read three times. In the first round, the researcher took notes, interpreted phrases and sentences, and identified seven themes with key words in each theme. Key words were then input into NVivo as *free nodes* and themes were identified as *sets* that include clusters of free nodes. At the second time, each entry is tagged with free nodes. A single entry sometimes contains only one free node and other times, multiple nodes. Finally, key words and themes of all entries were reviewed and stages of development were proposed.

In summary, this research project was an exploratory case study that used multiple methods to learn the communicative processes and evaluate the strength of the research site—The Communication Initiative. An electronic survey, follow-up interviews with survey respondents, in-depth interviews with core team members, and narrative analysis of web site comments were the instruments employed. Quantitative and qualitative data were analyzed by SPSS and NVivo respectively. Results are presented in the next chapter.
CHAPTER FOUR: RESULTS

This chapter reports the results of this research, including data collected by three instruments—an electronic survey, follow-up interviews with survey respondents, in-depth interviews with the core team of The CI—and comments collected on The CI website over eight years. The invitation to the electronic survey was sent to all subscribers of *The Drum Beat* and *The Soul Beat*, which were approximately 51,000 participants of The CI network. A total of 1192 subscribers (2.3% of The CI network) responded to the survey and 978 (1.9%) completed the survey. Seven completed responses were removed due to the shown abnormality in the results of question 2 and the final completed responses were 971.

Overall, the response rate of 1.9% (n=971) was lower than the researcher’s expectation (3-4%) but comparable to the response rates of two user surveys The CI network conducted in 2002 and 2005, respectively. In 2002, the user survey went to approximately 18,800 subscribers and 2% (n=376) responded to the survey. In 2005, the user survey went to 75,493 subscribers, including subscribers to the Spanish e-newsletter, *Son de Tambora*, and 3% (n=2,334) completed the survey. Survey data were examined mainly through descriptive statistical analyses.

Thirty respondents were invited to the follow-up interviews and five interviews (16.7%) were successfully conducted. This response rate was significantly lower than the researcher’s expectation (40%). Reasons for the lower number of completed interviews are discussed in chapter five. A total of 14 members of The CI core team were invited to the in-depth interviews and six interviews (42.9%) were conducted. This response rate
met the researcher’s expectation. Interviews data were inspected for recurring themes.

Results are presented in the following sections of this chapter.

The comments collected on The CI web site was not designed for this research. This data set covered a span of time from August 2001 to March 2009 with a total of 989 entries. The interpretation of narrative comments resulted in seven themes: 1) The CI network is a useful resource; 2) The CI network is appreciated; 3) The CI network connects participants and assists collaboration; 4) The CI network provides valuable service; 5) The CI network is a community; 6) The CI network helps in professional learning; and, 7) The CI network has grown strong with time. These themes are not exclusive; rather, they are intertwined and embedded in remarks and personal stories shared by The CI web site visitors. The classification is for the purpose of an organized discussion.

Key words were also identified in each theme. These key words are representative because sometimes phrases and sentences do not contain the specific words but reflect the same meaning. Here is a list of selected key words:

1) Resource: informative, resourceful, reference, ideas, etc.

2) Appreciation: thanks, appreciation, grateful, helpful, honored, service, keep up the good work, etc.

3) Collaboration: collaboration, interaction, publicize, response, connection, networking, dissemination, request, bridge, etc.
4) Recognition: tremendous, marvelous, exceptional, fantastic, useful, impressive, innovative, inspiring, valuable, comprehensive, diversity, contribution, etc.

5) Community: platform, portal, hub, center, community, village, family, etc.

6) Learning: knowledge, learning, skills, thinking, etc.

7) Growth: evolution, growing, future, etc.

The narrative data were also examined at the macro level and the stages of development of The CI were proposed. Results are reported in detail in later sections.

With these data sets and analyses, this exploratory research aimed to grasp a descriptive understanding and assessment of The CI network, an online community of practice. The demographic information is described first and then results are presented for each of the research questions. In each section, research questions are restated and the results are presented in detail.

Demographics

*Electronic Survey*

Survey respondents were asked to report their subscriptions to The CI e-newsletters, length of subscription, their locations including countries/regions and cities/towns/districts, their organizational associations, and job positions (see Appendix A, page 4). Most of the above information was collected in open-ended questions. Respondents’ age, sex, and level of education were also inquired in multiple choice questions (see Appendix A, page 26).
From a total of 971 survey respondents eligible for analysis, on the matter of subscription to The CI e-newsletters, 574 respondents (59.1%) subscribed to *The Drum Beat*, 25 (2.6%) subscribed to *The Soul Beat*, and 372 (38.3%) subscribed to both e-newsletters. In other words, a majority (97.4%) of survey respondents subscribed to the main and global e-newsletter—*The Drum Beat*, and a substantial portion (40.9%) of survey respondents subscribed to the African and regional-oriented e-newsletter—*The Soul Beat*.

*The Drum Beat* was first issued in September 1998 as a bi-weekly publication and expanded into weekly distribution in 2000. *The Soul Beat* was launched in late 2003. The survey results showed that maximum length of subscription was 132 months (11 years) and the minimum length was 1 month with a mean of 33 months. The months of subscription were also transformed into yearly subscription for analysis. 1 month to 12 months were counted as 1 year or less; 13 months to 24 months were counted as More than 1 year, less than or equal to 2 years; and so forth. More than 60 months of subscription are counted as More than 5 years of subscription. Table 4.1 shows the breakdown of the yearly subscription.
Table 4.1.

<table>
<thead>
<tr>
<th>Year Subscribed</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 year or less</td>
<td>280</td>
<td>28.8</td>
<td>28.8</td>
</tr>
<tr>
<td>More than 1 year, less than or equal to 2 years</td>
<td>219</td>
<td>22.6</td>
<td>51.4</td>
</tr>
<tr>
<td>More than 2 years, less than or equal to 3 years</td>
<td>168</td>
<td>17.3</td>
<td>68.7</td>
</tr>
<tr>
<td>More than 3 years, less than or equal to 4 years</td>
<td>111</td>
<td>11.4</td>
<td>80.1</td>
</tr>
<tr>
<td>More than 4 years, less than or equal to 5 years</td>
<td>99</td>
<td>10.2</td>
<td>90.3</td>
</tr>
<tr>
<td>More than 5 years</td>
<td>94</td>
<td>9.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>971</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Item Mean</td>
<td>2.81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item SD</td>
<td>1.655</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The 971 survey respondents came from 117 countries/regions and over 400 cities/towns/districts. The top ten countries/regions of their current residence were: the United States (20.0%), the United Kingdom (6.1%), India (5.9%), Canada (5.1%), South Africa (4.8%), Argentina (3.9%), Kenya (3.1%), Colombia (2.6%), Bangladesh (2.3%), and Nigeria (1.6%). The accumulative percentage of survey respondents residing in these top ten countries/regions was 55.4%, more than half of the respondents. The majority of survey respondents were associated with over 180 organizations except for 80 respondents (8.2%) who reported as freelance, independent, or none.
Self-reported job positions were carefully reviewed and grouped into the ten most popular categories plus an Other category that covered self-employed, unemployed, retired, etc. (Table 4.2). These ten categories are, in alphabetic order: Academic (14.1%), Communication Specialist (8.2%), Consultant (12.8%), Editor (1.6%), Executive (20.5%), Journalist (2.2%), Media (2.5%), Assistant/Project Coordinator/Program Officer/Manager (19.7%), Researcher (3.0%), and General Specialist (10.9%). It is important to note that these 11 categories were subjectively defined by the researcher for the purpose of an organized report and discussion. The diversity of self-reported job titles and limited information retrieved from the survey made it difficult to draw finer distinctions that were meaningful. The best efforts were made to put corresponding job positions into the best-fit categories.
Table 4.2.

<table>
<thead>
<tr>
<th>Job Position</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academics</td>
<td>137</td>
<td>14.1</td>
<td>14.1</td>
</tr>
<tr>
<td>Communication Specialists</td>
<td>80</td>
<td>8.2</td>
<td>22.3</td>
</tr>
<tr>
<td>Consultant</td>
<td>124</td>
<td>12.8</td>
<td>35.1</td>
</tr>
<tr>
<td>Editor</td>
<td>16</td>
<td>1.6</td>
<td>36.8</td>
</tr>
<tr>
<td>Executive</td>
<td>199</td>
<td>20.5</td>
<td>57.3</td>
</tr>
<tr>
<td>Journalist</td>
<td>21</td>
<td>2.2</td>
<td>59.4</td>
</tr>
<tr>
<td>Media</td>
<td>24</td>
<td>2.5</td>
<td>61.9</td>
</tr>
<tr>
<td>Assistant/Project-Coordinator/Program Officer/Manager</td>
<td>191</td>
<td>19.7</td>
<td>81.6</td>
</tr>
<tr>
<td>Researcher</td>
<td>29</td>
<td>3.0</td>
<td>84.6</td>
</tr>
<tr>
<td>Specialist – General</td>
<td>106</td>
<td>10.9</td>
<td>95.5</td>
</tr>
<tr>
<td>Other – Self-Employed, Freelance, Unemployed, Retired, etc.</td>
<td>44</td>
<td>4.5</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>971</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

The Academic category includes professors, lecturers, librarians, and students who are associated with universities. Researchers are in their own category because they are associated with organizations other than academic institutes. Consultants, editors, and journalists are distinct and self-reported so they are clustered into respective categories.
The media category consists of those who identified themselves as producers, media experts, filmmakers, reporters, and other media-related job positions.

Respondents in the Communication Specialist category are those who identified themselves as communication specialist, communication officer, communication manager, and other communication-centered job positions. The general Specialist category includes those respondents who hold diverse specialized responsibilities, such as IT specialist, policy analyst, knowledge management officer, human resource, health education specialist, community relations officer, and web site manager.

The Executive category and Assistant/Project Coordinator/Program Officer/Manager category are the largest two groups and each covers a variety of job titles. Included in the Executive category are chief executive officers, chairman, board members, directors, deputy directors, presidents, vice presidents, owners, founders, etc. Respondents who hold these job positions are more likely involved in strategic planning, decision making, and funding seeking practices. The Assistant/Project Coordinator/Program Officer/Manager category consists of middle management positions, such as coordinator of special projects, program manager, senior program officer, regional coordinator, head of department, program assistant, supervisor, etc. These respondents are more likely interested in information seeking, experience-sharing, and problem solving practices.

The demographic information of sex, age, and education were also collected in the electronic survey. Of all survey respondents, 52.2% were female and the other 47.8% were male. The age distribution is a slightly peaked normal curve with the highest
percentage (28.4%) in interval 36-45 years old. Both the 26-35 and 46-55 age intervals possess substantial percentages: 24.6% and 26.5%, respectively (see Table 4.3). The education experience of survey respondents was concentrated in three levels: 4-year college degree, master’s degree, and doctoral degree, with a cumulative percentage of 86.7%. More than one-half of the survey respondents held masters’ degrees (see Table 4.4).

Table 4.3.

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-25</td>
<td>31</td>
<td>3.2</td>
<td>3.2</td>
</tr>
<tr>
<td>26-35</td>
<td>239</td>
<td>24.6</td>
<td>27.8</td>
</tr>
<tr>
<td>36-45</td>
<td>276</td>
<td>28.4</td>
<td>56.2</td>
</tr>
<tr>
<td>46-55</td>
<td>257</td>
<td>26.5</td>
<td>82.7</td>
</tr>
<tr>
<td>56 or older</td>
<td>168</td>
<td>17.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>971</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>
### Table 4.4.

<table>
<thead>
<tr>
<th>Education</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than high school</td>
<td>5</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>High school graduate/GED</td>
<td>13</td>
<td>1.3</td>
<td>1.9</td>
</tr>
<tr>
<td>Some college</td>
<td>28</td>
<td>2.9</td>
<td>4.7</td>
</tr>
<tr>
<td>2-year college degree (Associate’s)</td>
<td>32</td>
<td>3.3</td>
<td>8.0</td>
</tr>
<tr>
<td>4-year college degree (BA, BS, etc.)</td>
<td>192</td>
<td>19.8</td>
<td>27.8</td>
</tr>
<tr>
<td>Master’s degree</td>
<td>508</td>
<td>52.3</td>
<td>80.1</td>
</tr>
<tr>
<td>Doctoral degree</td>
<td>142</td>
<td>14.6</td>
<td>94.7</td>
</tr>
<tr>
<td>Professional degree (MD, JD, etc.)</td>
<td>51</td>
<td>5.3</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>971</strong></td>
<td><strong>100.0</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Interviews**

Follow-up interview participants were randomly sampled from survey respondents who agreed to further participate in the interviews. Out of five final interview participants, four were female and one male. The ages of the four female participants were 26-35 (one), 46-55 (one), and 56 or older (two). The male participant was 36-45 years old.

There were four levels of participation identified in The CI network: very active participants who initiated and led discussions, collaborations, and other activities; active participants who engaged in discussions, collaborations, and other activities; somewhat active participants who sent in information; and peripheral participants who were lurkers.
Two follow-up interview participants were self-identified as somewhat active participants in The CI network, one with 48 months of subscription to the e-newsletters and one with 18 months. The other three are self-identified as peripheral participants, one with 36 months and two with 60 months of subscription.

In-depth interview participants also included three staff members and three organization partners. The three staff members were two females and one male and were located in South Africa, the United States, and Canada, respectively. The three partners were also two females and one male and they were located in Brazil, Geneva, and South Africa. No age information was collected on these interviewees.

RQ1—Communication

One of the fundamental features of communities of practice is the interactive practices participants have engaged in. Communication exchanges are essential daily activities that (re)produce processes of information sharing, knowledge transfer, and learning. To fully understand these processes, it is imperative to put daily interactive practices into the spotlight and examine how communication is enacted in the context of a community of practice. RQ1 asked: How is communication (re)produced in the context of online communities of practice?

The CI web site

The results presented in this section include answers to the following survey questions. The response options to these questions can be viewed in Appendix A. Section numbers and page numbers of these questions in the questionnaire are marked:

Have you visited The Communication Initiative web site? (Section 3, page 16)
How did you first learn about The Communication Initiative web site? (Section 3, page 17)

For which of the following reasons have you visited The Communication Initiative web site? (Section 3, page 17)

Did you find the information you were looking for on The Communication Initiative web site? (Section 3, page 19)

Would you recommend The Communication Initiative web site to others? (Section 3, page 22)

On the topic of web site experience, 88.5% of the survey respondents report that they have visited The CI web site. Most respondents first learned about The CI web site from their colleagues (34.7%), other web sites (21.3%), and search engines (18.0%). They visit The CI web site for different reasons. Please refer to Table 4.5 for a list of ranked reasons and their respective frequencies and percentages.
Table 4.5.

<table>
<thead>
<tr>
<th>Reason</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>News on development related issues</td>
<td>564</td>
<td>58.1</td>
<td>1</td>
</tr>
<tr>
<td>Resource materials</td>
<td>508</td>
<td>52.3</td>
<td>2</td>
</tr>
<tr>
<td>Vacancies for jobs</td>
<td>458</td>
<td>47.2</td>
<td>3</td>
</tr>
<tr>
<td>Academic work</td>
<td>403</td>
<td>41.5</td>
<td>4</td>
</tr>
<tr>
<td>Funding possibilities (awards, grants, scholarships)</td>
<td>386</td>
<td>39.8</td>
<td>5</td>
</tr>
<tr>
<td>Training opportunities</td>
<td>344</td>
<td>35.4</td>
<td>6</td>
</tr>
<tr>
<td>Consultant information</td>
<td>312</td>
<td>32.1</td>
<td>7</td>
</tr>
<tr>
<td>Strategic insights</td>
<td>307</td>
<td>31.6</td>
<td>8</td>
</tr>
<tr>
<td>Program descriptions</td>
<td>304</td>
<td>31.3</td>
<td>9</td>
</tr>
<tr>
<td>Online links</td>
<td>269</td>
<td>27.7</td>
<td>10</td>
</tr>
<tr>
<td>Policy ideas</td>
<td>264</td>
<td>27.2</td>
<td>11</td>
</tr>
<tr>
<td>Networking with potentially helpful contacts</td>
<td>258</td>
<td>26.6</td>
<td>12</td>
</tr>
<tr>
<td>Request for proposal outlines</td>
<td>91</td>
<td>9.4</td>
<td>13</td>
</tr>
</tbody>
</table>

The 13 reasons for visiting The CI web site shown in Table 6 were initially drafted by The CI executive director, Mr. Warren Feek, as he was the most experienced user of The CI web site. These reasons were then alphabetically arranged to avoid personal preference. Respondents were allowed to choose all options that applied to their own experience. Survey results confirmed that these 13 reasons were adequate to cover most cases. Out of a total of 861 survey respondents who replied to this inquiry, there
were only 24 respondents (2.8%) who provided written responses under the option of Other (please specify). These 24 individual and varied open-ended responses included, for instance, helping students to find jobs, just to look around for interesting stuff in general—without a strict purpose in mind, to see best practices in online social networks, research for developing a new website, online discussion as a co-moderator, and I can’t remember.

Survey results showed that the overall purpose of visiting The CI web site was to find information and 90.9% of respondents were satisfied: 21.4% were completely satisfied; 69.5% found what they were looking for and The CI web site pointed them to other sources for more information. Another 7.8% did not find what they were looking for but The CI web site pointed them to other sources. Only 1.3% of respondents was disappointed and did not find anything useful on The CI web site. Ninety-four percent of survey respondents indicated that they would recommend The CI web site to others.

Analysis of narrative comments also confirmed the user satisfaction of The CI web site. Respondents highly appreciated the information and services The CI web site provided, for example:

“I opened your website and found it really an eye opener! So much data gathered and consolidated…” (AA³, January, 2002);

“I came across your website through the ‘google’ search engine, and what a discovery! ... Invaluable, one-stop website!” (AB, July, 2002);

“Your web site is a great source of information and an excellent networking tool” (AC, January, 2004);

³ Two-letter codes are used instead of pseudonyms to represent sources of these comments.
“We’re big fans of your site and very proud to be featured on the home page” (AD, May, 2007);
“I think the new online platform looks great, well done!” (AE, January, 2008);
“I use this website for many things such as for training, jobs, updates on gender movements, institutional building and organizational management…” (AF, February, 2009).

Survey results and narrative comments showed the tremendous success of The CI web site in terms of providing extensive information to the network participants on a daily and consistent basis. Follow-up interviews also confirmed this result. Jennifer4 said, “I do that [visit The CI web site] as my basic reading to know what’s happening in other parts of the world. It is a very good resource. It is easy and reader friendly. I don’t need to spend hours searching for information” (personal communication, November 13, 2009).

“It is a valuable resource tool …” another follow-up interview respondent said so too (Sara, personal communication, November 2, 2009).

**E-Newsletters: The Drum Beat and/or The Soul Beat**

The results presented in this section include answers to the following survey questions. The response options to these questions can be viewed in details in Appendix A. Section numbers and page numbers of these questions in the questionnaire are marked:

Do you receive *The Drum Beat* and/or *The Soul Beat*? (Section 4, page 23)
Do you read *The Drum Beat* and/or *The Soul Beat*? (Section 4, page 24)
Do you share part or all of the information you receive from *The Drum Beat* and/or *The Soul Beat* with others? (Section 4, page 24)

---

4 Pseudonyms are used for follow-up interviewees.
How often, on average, do you seek more information through hyper-links provided in *The Drum Beat* and/or *The Soul Beat*? (Section 4, page 24)

How often, on average, do you contact people or organizations whose work is of interest to you and whose names and emails are listed as contacts in *The Drum Beat* and/or *The Soul Beat*? (Section 4, page 24)

Another key activity of The CI participants was to receive, read, and respond to e-newsletters. In the 500th issue of *The Drum Beat*, there was one paragraph that precisely depicted the significance of e-newsletters to The CI network:

“*The Drum Beat* is and has been the foundation of communication among The CI Global network. Through this electronic tool, tens of thousands of communication experts, practitioners, academics, and funders have shared, critiqued, debated, and connected around projects, publications, problems, and philosophies of communication and media for development. This community has guided the development of the e-magazine by suggesting themes, sending new information in response to current issues, sending critiques and suggestions, and contributing opinion pieces for publication. Without the community, the e-magazine has no purpose. Without the community, there is no e-magazine. Without you, the *Drum Beat* would not resonate the way we have heard from you that is has—far and deep within the network.” (*The Drum Beat 500*, July 13, 2009)

The CI participants had positive experiences with e-newsletters with 932 survey respondents (96% of the total) having received e-newsletters from The CI. Among these 932 respondents, the majority had always (27.5%) and often (44.4%) read the received e-
newsletters. A share of 22.5% sometimes read the received e-newsletters. Only 5.6% of survey respondents seldom (4.8%) or never (0.8%) read the received e-newsletters. When asked whether they shared part or all of the information they received from the e-newsletters with others, these 932 survey respondents indicated: always (7.4%); often (29.1%); sometimes (40.5%); seldom (16.8%); and never (6.2%) (see Table 4.6).

Table 4.6.

<table>
<thead>
<tr>
<th>Experience with E-Newsletters</th>
<th>Do you read e-newsletters?</th>
<th>Do you share part or all of the information you receive from e-newsletters?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percentage</td>
</tr>
<tr>
<td>Always</td>
<td>256</td>
<td>27.5</td>
</tr>
<tr>
<td>Often</td>
<td>414</td>
<td>44.4</td>
</tr>
<tr>
<td>Sometimes</td>
<td>210</td>
<td>22.5</td>
</tr>
<tr>
<td>Seldom</td>
<td>45</td>
<td>4.8</td>
</tr>
<tr>
<td>Never</td>
<td>7</td>
<td>0.8</td>
</tr>
<tr>
<td>Total</td>
<td>932</td>
<td>100.0</td>
</tr>
<tr>
<td>Item Mean</td>
<td>2.07</td>
<td></td>
</tr>
<tr>
<td>Item SD</td>
<td>.870</td>
<td></td>
</tr>
</tbody>
</table>

The CI participants also engaged in interactive activities with the e-newsletters, such as clicking on hyper-links provided in the e-newsletters for more information and contacting
featured people or organizations whose work is of interest to them. Table 4.7 shows the frequencies and percentages of such interactions.

Table 4.7.

*Average Activities with E-Newsletters*

<table>
<thead>
<tr>
<th>How often do you seek more information through hyperlinks provided in e-newsletters?</th>
<th>How often do you contact people or organizations whose work is of interest to you and whose names and emails are listed as contacts in e-newsletters?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>Percentage</td>
</tr>
<tr>
<td>Every Issue</td>
<td>137</td>
</tr>
<tr>
<td>Every other issue</td>
<td>280</td>
</tr>
<tr>
<td>One in 5 issues</td>
<td>254</td>
</tr>
<tr>
<td>One in 10 issues</td>
<td>133</td>
</tr>
<tr>
<td>No more than one in 20 issues</td>
<td>96</td>
</tr>
<tr>
<td>Never</td>
<td>32</td>
</tr>
<tr>
<td>Total</td>
<td>932</td>
</tr>
<tr>
<td>Item Mean</td>
<td>2.86</td>
</tr>
<tr>
<td>Item SD</td>
<td>1.317</td>
</tr>
</tbody>
</table>

Narrative comments confirmed the positive feelings the CI participants shared towards e-newsletters. A number of comments were devoted to this specific matter. For instance, one respondent said, “I enjoy getting your Drumbeat newsletter. So many other
newsletters are difficult to plough through (we get quite a few) but yours is short, sharp and interesting!” (AG, May, 2002). Another respondent appraised The CI email service by saying,

“I wanted to let you know that they [The Drum Beat] are the only emails I receive from listservs that I truly look forward to …” (AH, August, 2001).

This respondent was not alone. Many other respondents expressed similar thoughts about the e-newsletters. Such comments were consistent through the years, for instance:

“I have been receiving the beat for quite some time and find it very useful” (AI, January, 2002).

“I find Drum Beat very useful and have made regular use of it. I have found it keeps me in touch with things going on in the communications field, which, not being mainline work for me, I would otherwise not keep abreast of” (AJ, December, 2002).

“We receive The Drum Beat regularly and find your updates on the development community around the world informative and highly relevant to our work” (AK, September, 2003).

“Let me also take this opportunity to let you know that we are regular readers of the Drum Beat and find it increasingly useful and relevant” (AL, June, 2004).

“Just want to say, I found the format of your DB 293 info-letter extraordinary. It’s in itself an outstanding piece of communication” (AM, April, 2005).

“I am a subscriber to the Drum Beat, which I think is excellent. Over the years I have recommended it to many people” (AN, January, 2007).
“I’m very much enjoying your newsletter with its broad range of information from all over the world” (AO, December, 2008).

E-newsletters are one of the key activities that The CI network uses to engage its participants and evidence has shown the success and importance of this practice. Follow-up interview respondent Tina affirmed, “reading *The Drum Beat* is my way of seeing what’s going on out there, keeping up to date” (personal communication, August 26, 2009). The next section focuses on the results regarding the matter of communication exchanges.

*Communication Exchanges*

Communication exchanges are central in understanding and (re)producing the processes and development of communities of practice. Through web sites and e-newsletters services, The CI network builds connections and encourages collaborations among its participants. A section of the electronic survey (Section 1, page 5-11) was devoted to inquiring into respondents’ experiences in communicating with others in The CI network.

Thirty-three percent of the total survey respondents (n=323) had contacted someone who was identified as a contact person featured in any entry either on The CI web site or in the e-newsletters. Another 51.7% of respondents (n=502) had not contacted anyone and 15% (n=146) could not recall whether they had contacted anyone from The CI network. Among these 323 respondents who had made contacts, the number of contacts varied (see Table 4.8).
Table 4.8.

*How Many People Have You Contacted?*

<table>
<thead>
<tr>
<th>Response Option</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>2</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td>1</td>
<td>83</td>
<td>25.7</td>
<td>26.3</td>
</tr>
<tr>
<td>2 to 10</td>
<td>202</td>
<td>62.5</td>
<td>88.9</td>
</tr>
<tr>
<td>11 to 20</td>
<td>20</td>
<td>6.2</td>
<td>95.0</td>
</tr>
<tr>
<td>21 to 50</td>
<td>7</td>
<td>2.2</td>
<td>97.2</td>
</tr>
<tr>
<td>51 to 100</td>
<td>5</td>
<td>1.5</td>
<td>98.8</td>
</tr>
<tr>
<td>More than 100</td>
<td>4</td>
<td>1.2</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>323</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Item Mean: 2.93
Item SD: .875

On the topic of receiving responses, 44.6% of survey respondents who had contacted someone (n=144) always received responses from the people they contacted and 9.2% (n=89) frequently received responses. A share of 18.6% (n=60) occasionally received responses from the people they contacted. Only 6.2% of respondents (n=20) rarely and 3.1% (n=10) never received responses. Furthermore, 60.7% of respondents (n=196) engaged in further communication exchanges after the initial contact and 28.8% (n=93) did not. Another 10.5% could not recall whether they engaged in further contact.

Approximately one-third of these 323 survey respondents (n=111, 34.4%) had also been featured as a contact person in an entry either on The CI web site or in the e-
newsletters. Another 53.6% (n=173) had not been featured and 12.1% (n=39) could not recall. The 111 respondents, who had been featured as a contact person, received various responses from other participants of The CI network (see Table 4.9)

### Table 4.9.

**How Many Have Contacted You as a Result?**

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>28</td>
<td>25.2</td>
</tr>
<tr>
<td>2 to 10</td>
<td>54</td>
<td>48.6</td>
</tr>
<tr>
<td>11 to 20</td>
<td>15</td>
<td>13.5</td>
</tr>
<tr>
<td>21 to 50</td>
<td>6</td>
<td>5.4</td>
</tr>
<tr>
<td>51 to 100</td>
<td>3</td>
<td>2.7</td>
</tr>
<tr>
<td>More than 100</td>
<td>5</td>
<td>4.5</td>
</tr>
<tr>
<td>Total</td>
<td>111</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Item Mean: 2.25  
Item SD: 1.232

In addition to communication exchange frequencies, the nature of these interactions was of interest and was examined. The common nature of communicative interactions listed for the survey respondents to choose among were: 1) debating principles; 2) discussing strategies; 3) seeking opinions; 4) seeking information; 5) sharing ideas; 6) sharing information; and, 7) seeking other contacts. Survey respondents were asked to identify the most popular nature and the second most popular nature of the
communication exchanges in which they had engaged. They also had an option to choose
Other and then input their own choices in open text boxes. Results showed that the most
popular nature was seeking information and the second most popular nature was sharing
information. Table 4.10 shows the detailed and ranked responses to these two questions.

Table 4.10.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Most Popular Nature</th>
<th>Percentage</th>
<th>Second Most Popular Nature</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Seeking information</td>
<td>45.7</td>
<td>Sharing information</td>
<td>24.5</td>
</tr>
<tr>
<td>2</td>
<td>Sharing information</td>
<td>27.6</td>
<td>Sharing ideas</td>
<td>18.3</td>
</tr>
<tr>
<td>3</td>
<td>Sharing ideas</td>
<td>9.9</td>
<td>Seeking information</td>
<td>16.8</td>
</tr>
<tr>
<td>4</td>
<td>Discussing strategies</td>
<td>7.8</td>
<td>Seeking other contacts</td>
<td>15.2</td>
</tr>
<tr>
<td>5</td>
<td>Debating principles</td>
<td>2.5</td>
<td>Discussing strategies</td>
<td>10.6</td>
</tr>
<tr>
<td>6</td>
<td>Seeking other contacts</td>
<td>2.5</td>
<td>Seeking opinions</td>
<td>7.1</td>
</tr>
<tr>
<td>7</td>
<td>Seeking opinions</td>
<td>1.2</td>
<td>Debating principles</td>
<td>3.1</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td>2.8</td>
<td></td>
<td>4.3</td>
</tr>
</tbody>
</table>

In the end of this section of the survey, respondents were asked to comment on,
i.e., agree or disagree, with the following statement: These communication exchanges
have contributed positively to your work (see page 11, Appendix A). The results showed
that 34.2% of respondents strongly agreed with this statement and 50.0% agreed with this
statement. A share of 13.7% neither agreed nor disagreed with this statement. Only 0.6%
disagreed and 1.6% strongly disagreed with this statement.
Survey results revealed the statistics of communication exchanges. Data retrieved from narrative comments provided supplementary details to the statistics. In narrative comments, respondents shared their stories of being connected with others through The CI network. These stories varied in topics but all shared the same theme: after being featured either in the e-newsletter or on the web site, individuals or organizations had experienced more and positive communication exchanges with other participants. Some experiences were as simple as being found by others:

“… I am grateful to you and your colleagues for posting my resume, since someone has found me that way” (AP, December, 2001).

“I must say I love to hear form drumbeat readers. And the power of drumbeat is evident in that, 5 years after an old piece of mine was featured, I STILL get new emails from your readers!” (AQ, February, 2005).

Some appreciated the effective service The CI network provided to disseminate or publicize the program, the material, or the work:

“Thanks so much. It’s great to learn that the info has been featured on the Drum Beat, and we have received numbers of emails from various people all over the world interesting to know more on the program or have been impressed with it. We all appreciate this great sharing to other” (AR, August, 2007).

“I haven’t publicized it at all except on your website and have had 100s of requests (for the materials)” (AS, May, 2002).

“Thank you for the kind courtesy of including information about our work on the DB Classifieds. Lately, we have been bombarded with requests for [materials,
A number of respondents mentioned the specific experience of getting more traffic on their own web sites as a result of being featured in The CI network, for example:

“Very cool! Just to let you know, every time we are featured on CI’s web site or the Drumbeat, we get a significant increase in visitors and people registering for more updates – it really makes a big difference – thanks so much” (AV, August, 2002).

“I am getting some traffic on my website from people in America and Europe. The reason is the link you added on the message you posted on your website” (AW, January, 2003).

Bridged connections then led to collaborations among participants and organizations in various forms, like the following cases:

“Just to let you know that we’ve had some great response from being included in your newsletter. We’re especially pleased about regional feedback that seeks to collaborate on [subject, specific information removed by the researcher to protect privacy]. Thanks again!” (AX, August, 2001).

“Communit is great. And thanks to your posting our last issue, [organization, specific information removed by the researcher to protect privacy] got in touch
with us, I met with them while in [location, specific information removed by the researcher to protect privacy] and they are now writing an article on peer education for our next issue” (AY, May, 2003).

“I’ve had several requests for my full thesis from development practitioners who saw the posting on the Soul Beat Africa Site. One of these practitioners then followed up by visiting [organization, specific information removed by the researcher to protect privacy] which then led to collaboration among [organization, specific information removed by the researcher to protect privacy] and [another organization, specific information removed by the researcher to protect privacy] on [project, specific information removed by the researcher to protect privacy]” (AZ, October, 2005).

“Thanks for featuring us in the Communication Initiative! I really appreciate your help in getting the word out. Already, one potential donor has contacted us after reading about it on your e-magazine! Please keep up the great work of informing folks about everything that is going on” (BA, September 2007).

“Being featured in the Drum Beat will greatly enhance the visibility of the competition and allow many broadcasters to participate. That’s fantastic!” (BB, January, 2008).

“We really appreciate the work the Communication Initiative has done with Soul Beat Africa and Drum Beat. I am in fact in the field in rural [location, specific information removed by the researcher to protect privacy] working on a project
that is funded by a foundation who found us through the *Drum Beat!*” (BC, January, 2009).

In conclusion, the survey results showed that the majority of The CI participants thought positively about their communication exchanges with other participants. Respondents who had been featured in entries of The CI web site or in the e-newsletters had mainly received 2 to 10 communication exchanges from other participants and the nature was mostly seeking and sharing information. Narrative comments showed grateful feelings from participants for being featured in The CI network and connected with others. Also, The CI network participants were satisfied with their experience with the web sites and e-newsletters, i.e., *The Drum Beat* and *The Soul Beat*. They were able to find the information they were looking for in most cases and connect with others, if needed. Results showed a positive and successful image of The CI network in terms of communication practices. Next, RQ2 examines the role digital technologies have played in such communication practices.

**RQ2—Digital Technology**

In online communities of practice, such as The CI network, communication practices among participants are facilitated by digital technologies. On one hand, communication is enabled by digital technology because, otherwise, participants who are physically located thousands of miles away would not connect—share information, exchange ideas, or negotiate collaborations—with others in a timely manner. On the other hand, such communication is also constrained by the unique, somewhat limited, characteristics of digital technologies. For instance, emails are mainly text-based and lack
contextual cues. RQ2 focuses on technology-related topics, such as the means through which participants of online communities of practice communicate, whether digital communication is the preferred means, and the effects digital technologies have on such communication practices.

The results of the following survey questions are covered in this section (see Appendix A for detailed options to these questions):

What was the communication channel you used, or used most often, for the initial contact? (Section 1, page 6)

What communication channels did you use for further contacts? (Section 1, page 8)

Which communication channel do you consider was the most convenient (in terms of accessibility)? (Section 1, page 8)

Which communication channel was the most preferred (as to your own preference)? (Section 1, page 8)

Which communication channel was the most effective (in terms of conveying accurate message)? (Section 1, page 8)

Do you agree that digital communication channels have made your connection with The CI network possible? (Section 2, page 15)

Do you agree that digital communication channels are adequate in accomplishing all communication tasks involved in The CI network? (Section 2, page 15)

As reported in the previous section, 323 survey respondents had contacted other participants of The CI network who had been listed as contact persons on The CI web site
or in the e-newsletters. The communication channel these respondents used, or used most often, for the initial contact was, overwhelmingly at 96.9%, email. The rest, 3.1%, included in person (1.5%), letter (0.3%), phone-landline (0.9%), and video conference (0.3%). No respondents used fax or VoIP (Voice over Internet Protocol) for the first contact. For those 196 respondents who engaged in further contact with others, the commonly used communication channel was also email (83.7%), but the rates of phone-landline (5.1%) and in person (2.6%) slightly increased.

Table 4.11 shows the results of the survey questions in which respondents were asked to identify the most convenient, the most preferred, and the most effective communication channel for their interactions.
The results reveal that email is predominantly the favorite communication channel for The CI participants regardless of whether it is the most convenient, the most preferred, or the most effective. In this particular survey, convenience refers to the availability and accessibility of the channel. For online communities of practice, like The CI network, email is certainly the best choice for communication for three reasons. First, access to email is almost as prevalent as phones as a result of free email services such as Google Mail, Yahoo Mail, Hotmail, etc. Second, email requires minimal technological infrastructure. In other words, email does not demand a high speed or stable Internet
connection. Reading and writing emails can be done offline. Usually it takes a few seconds of Internet connection to send or receive a regular text-based email. Third, email is socially recognized as a convenient way of communication in the current digitized world. Peer review and recommendation is one of the key factors in adopting innovations (Rogers, 2003).

The most preferred communication channel speaks to personal preference in choosing the way to communicate with others. Some people are more at ease adopting new technologies, such as VoIP, while other are more comfortable using conventional phones, landline or cellular. Also, face-to-face communication is still one of the popular choices. Effectiveness refers to the capacity of conveying accurate messages that a communication channel possesses. The results show a slight increase in choices of in person, landline, VoIP, and video conference on this matter.

Not only does this result show the pervasiveness of email, one of the primary and well-established forms of digital communication, but also the obsolescence of two traditional communication channels in The CI network: fax and letter. No respondents considered these two channels in terms of convenience, personal preference, or effectiveness.

All 971 survey respondents, including those who had not engaged in communication exchanges with other participants of The CI network, were asked to comment on the capacities of digital communication channels, such as email, instant messenger, audio and video conference, etc. Most survey respondents, 82.2%, strongly agreed or agreed that digital communication channels had made their connections with
The CI possible (see Table 4.12). Also, 65.3% of the survey respondents strongly agreed or agreed that digital communication channels were adequate in accomplishing all communication tasks involved in The CI network, though 28.1% neither agreed nor disagreed (see Table 4.13).

Table 4.12.

<table>
<thead>
<tr>
<th>Have Digital Communication Channels Made Your Connection with The CI Network Possible?</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Cumulative Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly agree</td>
<td>358</td>
<td>36.9</td>
<td>36.9</td>
</tr>
<tr>
<td>Agree</td>
<td>440</td>
<td>45.3</td>
<td>82.2</td>
</tr>
<tr>
<td>Neither agree nor disagree</td>
<td>150</td>
<td>15.4</td>
<td>97.6</td>
</tr>
<tr>
<td>Disagree</td>
<td>18</td>
<td>1.9</td>
<td>99.5</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>5</td>
<td>0.5</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>971</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Item Mean</td>
<td></td>
<td>1.84</td>
<td></td>
</tr>
<tr>
<td>Item SD</td>
<td></td>
<td>.786</td>
<td></td>
</tr>
</tbody>
</table>
Table 4.13.  
*Were Digital Communication Channels Adequate in Accomplishing all Communication Tasks Involved in the CI network?*

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percentage</th>
<th>Cumulative Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly agree</td>
<td>187</td>
<td>19.3</td>
<td>19.3</td>
</tr>
<tr>
<td>Agree</td>
<td>447</td>
<td>46.0</td>
<td>65.3</td>
</tr>
<tr>
<td>Neither agree nor disagree</td>
<td>273</td>
<td>28.1</td>
<td>93.4</td>
</tr>
<tr>
<td>Disagree</td>
<td>55</td>
<td>5.7</td>
<td>99.1</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>9</td>
<td>0.9</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>971</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Item Mean 2.23  
Item SD .855

In the narrative data, most comments were appreciation and recognition messages of the services the CI has provided. These comments focused on the practices as results rather than the means through which these practices were made possible. However, there were a couple of interesting comments worthy of mentioning. One respondent said,

> For a decade, I have read your mailings and activities, in spite of the fact that my work has nothing to do with health. I’ve kept it up, though, simply because I think you and your colleagues provide a first-rate example of how to use mail and the internet to connect and engage people across the world, and because you have examples worth copying. (BD, August, 2007)
Another respondent commented, “It is interesting to see how the site is developing – quite a feat of ICT engineering I imagine?” (BE, January, 2008). These two comments were not a recurring theme; however, they were referential evidence that indicated the enabling effect of digital technologies in terms of cultivating online communities of practice.

When asked about technology and its influence on their experiences with The CI network, interviewees were positive in affirming emails as functional and convenient. One respondent raised a rhetorical question, “what would be other options?” (Sara, personal communication, November 2, 2009). The major concern some interviewees had on the topic of technology was regarding the connectivity. In some countries and regions, Internet connectivity was poor and not stable. One person commented, for example:

“I am in the middle of a country where Internet connectivity is really challenging … right now to access the web site, it takes 5 minutes to download.” (Sara, personal communication, November 2, 2009)

In summary of this section, email was the prevalent means for communication in The CI network. Together with the web site, email-based newsletters had achieved the purposes of The CI network. Yet, lack of alternatives and limited regional Internet connectivity were concerns.

RQ3—Community

Common interests, identity, social relationship, networking, trust, and leadership are pertinent elements that define communities of practice. The CI network participants share a common interest and practice—communication in development, though they
differ in levels of participation, reasons of motivation, emotional attachment to the network, trust, and attitudes on leadership. This section records the results of these community relevant topics. Corresponding survey questions are listed below and details of response options can be viewed in Appendix A:

How would you describe yourself as a participant in The CI network? (Section 2, page 12)

Is your involvement in The CI network voluntary? (Section 2, page 12)

Regardless of your role, why are you motivated to be a participant in The CI network? (Section 2, page 12)

How do you evaluate the social network you developed through The CI network? (Section 2, page 13)

Do you agree that the knowledge you obtained from communicating with other participants of The CI network is trustworthy? (Section 2, page 14)

Do you agree that you share common interests and goals with many other participants of The CI network? (Section 2, page 14)

Do you agree that you feel emotionally attached to The CI network? (Section 2, page 14)

Do you agree that the leadership of The CI network is informal? (Section 2, page 15)

Do you agree that the leadership of The CI network is facilitative? (Section 2, page 15)
Do you agree that the leadership of The CI network is supportive? (Section 2, page 15)

Survey respondents self-identified into one of the four levels of participation: 1) very active—initiate and lead discussions, collaborations, and/or other activities; 2) active—participate in discussions, collaborations, and/or other activities; 3) somewhat active—send in information; or, 4) peripheral—lurker (see Table 4.14).

Table 4.14.

<table>
<thead>
<tr>
<th>Level of Participation</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very active</td>
<td>18</td>
<td>1.9</td>
<td>1.9</td>
</tr>
<tr>
<td>Active</td>
<td>79</td>
<td>8.1</td>
<td>10.0</td>
</tr>
<tr>
<td>Somewhat active</td>
<td>308</td>
<td>31.7</td>
<td>41.7</td>
</tr>
<tr>
<td>Peripheral</td>
<td>566</td>
<td>58.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>971</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Item Mean</td>
<td>3.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item SD</td>
<td>.723</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As results showed, more than one-half of the respondents were lurkers who engaged in minimum participation, such as visiting the web sites and reading e-newsletters. Another large group of respondents sent in information to be posted on the web sites or included in e-newsletters. A total of 10% of respondents described themselves as active or very active participants who engaged in various activities, such as
leading or participating in thread discussions on the forum. In other words, this small
group of active participants was the core of The CI network (Wenger et al., 2002).
Regardless of their levels of participation, 793 respondents (81.7%) reported their
involvement to The CI network as voluntary, 45 (4.6%) as required by job responsibility,
and 133 (13.7%) as both. The reasons that motivated their participation are ranked and
listed in Table 4.15.

Table 4.15.

<table>
<thead>
<tr>
<th>Reason for Participating in the CI Network</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>To learn knowledge that contributes to my work</td>
<td>726</td>
<td>74.8</td>
<td>1</td>
</tr>
<tr>
<td>To get more information</td>
<td>720</td>
<td>74.2</td>
<td>2</td>
</tr>
<tr>
<td>To enhance strategic thinking</td>
<td>439</td>
<td>45.2</td>
<td>3</td>
</tr>
<tr>
<td>To find people who have common interest</td>
<td>316</td>
<td>32.5</td>
<td>4</td>
</tr>
<tr>
<td>To be part of a work force that makes a difference</td>
<td>313</td>
<td>32.2</td>
<td>5</td>
</tr>
<tr>
<td>To develop social network</td>
<td>289</td>
<td>29.8</td>
<td>6</td>
</tr>
<tr>
<td>To share experience</td>
<td>254</td>
<td>26.2</td>
<td>7</td>
</tr>
</tbody>
</table>

The most popular reasons that motivated participation were getting information
and learning knowledge. To develop social network was close to the bottom of the
motivation list (see Table 4.15) and was corroborated by the following results. There
were 30% of respondents who thought the social network developed through The CI was
extremely valuable (8.2%) or valuable (21.7%). One-third (33.7%) of all respondents
reported it as neutral on this matter. A share of 10.6% considered the social network had little value and 5% judged it as having no value. In addition, 20.7% reported this matter was not applicable.

Respondents not only assigned less value to the social network, but also trusted less the knowledge they obtained from other participants of The CI network. In comparison, respondents thought the knowledge learned from The CI web sites and e-newsletters was more trustworthy (see Table 4.16).
Table 4.16.

<table>
<thead>
<tr>
<th>Knowledge Obtained from is Trustworthy</th>
<th>The CI web sites</th>
<th>E-newsletters</th>
<th>Other participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>Percentage</td>
<td>Frequency</td>
<td>Percentage</td>
</tr>
<tr>
<td>Strongly agree</td>
<td>211</td>
<td>21.7</td>
<td>217</td>
</tr>
<tr>
<td>Agree</td>
<td>599</td>
<td>61.7</td>
<td>609</td>
</tr>
<tr>
<td>Neither agree nor disagree</td>
<td>129</td>
<td>13.3</td>
<td>111</td>
</tr>
<tr>
<td>Disagree</td>
<td>6</td>
<td>0.6</td>
<td>10</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>2</td>
<td>0.2</td>
<td>3</td>
</tr>
<tr>
<td>Not applicable</td>
<td>24</td>
<td>2.5</td>
<td>21</td>
</tr>
<tr>
<td>Total</td>
<td>971</td>
<td>100.0</td>
<td>971</td>
</tr>
<tr>
<td>Item Mean</td>
<td>2.03</td>
<td>2.01</td>
<td>3.07</td>
</tr>
<tr>
<td>Item SD</td>
<td>.888</td>
<td>.868</td>
<td>1.653</td>
</tr>
</tbody>
</table>

Overall, survey respondents shared common interests with others of The CI network, although they were not strongly attached to this network. A total of 74.2% of respondents strongly agreed (19.5%) or agreed (54.7%) with the statement that they “share common interests and goals with many other participants of The CI network”; 18% neither agreed nor disagreed with this statement; 1.1% disagreed and 0.2% strongly disagreed; and 6.5% thought it was not applicable to their cases. As to the statement,
“You feel emotionally attached to The CI network,” the results were: 8.5% strongly agreed; 28.8% agreed; 31.8% neither agreed nor disagreed; 19.3% disagreed; 7.4% strongly disagreed; and 4.1% reported it was not applicable.

Leadership style in communities of practice was usually less formal than in other professional settings such as teams (Wenger et al., 2002). The CI staff and partners did not position themselves as leaders and they consciously avoided portraying such an image to the participants of The CI network (Warren Feek, personal communication, June 12, 2009). Table 4.17 shows the results of survey questions that concerned leadership.
Table 4.17.

Leadership of the CI Network is _____?

<table>
<thead>
<tr>
<th></th>
<th>Informal</th>
<th>Facilitative</th>
<th>Supportive</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency Percentage</td>
<td>Frequency Percentage</td>
<td>Frequency Percentage</td>
</tr>
<tr>
<td>Strongly agree</td>
<td>127</td>
<td>189</td>
<td>194</td>
</tr>
<tr>
<td></td>
<td>13.1</td>
<td>19.5</td>
<td>20.0</td>
</tr>
<tr>
<td>Agree</td>
<td>398</td>
<td>456</td>
<td>418</td>
</tr>
<tr>
<td></td>
<td>41.0</td>
<td>47.0</td>
<td>43.0</td>
</tr>
<tr>
<td>Neither agree nor disagree</td>
<td>396</td>
<td>300</td>
<td>332</td>
</tr>
<tr>
<td></td>
<td>40.8</td>
<td>30.9</td>
<td>34.2</td>
</tr>
<tr>
<td>Disagree</td>
<td>37</td>
<td>18</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>3.8</td>
<td>1.9</td>
<td>1.8</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>13</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>1.3</td>
<td>0.8</td>
<td>1.0</td>
</tr>
<tr>
<td>Total</td>
<td>971</td>
<td>971</td>
<td>971</td>
</tr>
<tr>
<td>Item Mean</td>
<td>2.39</td>
<td>2.18</td>
<td>2.21</td>
</tr>
<tr>
<td>Item SD</td>
<td>.811</td>
<td>.788</td>
<td>.814</td>
</tr>
</tbody>
</table>

The survey results confirmed to some extent the informal, facilitative, and supportive leadership style of The CI network. To each statement listed in Table 4.18, there were much more respondents who strongly agreed or agreed than respondents who disagreed or strongly disagreed. More than one-half of the respondents considered the leadership of The CI network as informal, facilitative, and supportive, although approximately one-third of respondents neither agreed nor disagreed.
The analysis of narrative comments revealed more vivid data on the community-related topics. Respondents shared their personal stories and expressed their appreciation and other feelings towards The CI network in their comments.

There were references to The CI network as a community, explicitly in some comments and implicitly in other comments. One respondent explicitly stated, “You are building a remarkable community, stimulating and facilitating valuable dialogue, and creating a powerful learning network” (DR, August, 2001). Other respondents used different words to describe The CI network, such as global village, hub, center, and platform:

“I call this place a hub. It’s a reservoir of numerous answers” (BF, December, 2004).

“Really I see the CI as a big resource center for whatever I want on communication. I am happy to be part of this family” (BG, February, 2006).

“As a matter of fact, I read all Drum Beat issues. Please keep me in your mailing list. It’s a pleasure to have this kind of platform for common interest discussions” (BH, January, 2007).

“I am one of the frequent visitors and ardent ‘fan’ of the comminit domain. Congratulations for the global utility success of the comminit web entity. It’s almost a global village for dissemination, discussion, evaluation (to a certain extent), assessing challenges, etc to help sort out suggestions and possible solutions for human development, especially for those unfortunate peoples” (BI, January, 2008).
As the last comment showed, many respondents identified themselves as participants of The CI network. The level of participation varied:

“… many of us are out here quietly and quite effectively making use of the materials you make available” (BJ, September, 2002).

“… we are regular readers of the Drum Beat and find it an increasingly useful and relevant site” (BK, June, 2004).

“The whole team has subscribed to the Drum Beat a long time ago, and we really appreciate all the information it proposes” (BL, December, 2004).

“Thanks for organizing/coordinating such an excellent newsletter. The Drum Beat is by far the best newsletter I receive. Sorry I don’t contribute much, but I wanted you to know how much I appreciate all your hard efforts to produce this very very useful update on what is going on in so many different development fields. One very satisfied network member” (BM, May, 2005).

“I check out your page daily, as there’s always something really interesting to read” (BN, August, 2005).

“I’ve been subscribed to Drum-Beat and La Iniciative de la Comunicacion for more than 3 years now. I am one of your avid readers…” (BO, April, 2007).

“I applaud what you are doing, and am a long-standing supporter of CI” (BP, June, 2007).

Some respondents conveyed strong emotional attachment towards The CI network. One part of a comment read, “It is … truly a wonderful contribution to us who would otherwise be ‘orphaned’ and working alone” (BQ, December, 2003). Another
respondent said, “… nothing is more valuable than learning about the work of other people and feeling part of a community” (BR, October, 2005). Different respondents shared similar feelings:

“I was once again amazed at how efficient, effective and useful everything you do is. I feel incredibly lucky to have found y’all and to have such great thinking going on that I can benefit from and hopefully share in” (BS, October, 2001);

“I can not tell you enough the deepest joy and support your mails bring me in helping my work as a development worker. I am so grateful and wish you to continue the good works” (BT, September, 2006).

Such emotional attachment was also showcased in people’s trust in The CI network, “You can always count on Comminit” (BU, August, 2004). Another respondent said, “I just want to tell you how much I appreciate and rely on the Drum Beat…” (BV, April, 2007). The trust was also displayed in messages of recognition and appraisal:

“Let me take this opportunity to congratulate you and your team on making the Comminit site a ‘must-see’ for professionals in the world of communication. Drum Beat provides so much news about what is happening and your easy access to papers and materials is great. Thanks again and keep on with the good work!” (BW, January, 2003).

“Indeed it is one of the most reliable sources concerning [subject, specific information removed by the researcher to protect privacy]. Your website is one of the most effective ways to help [professionals, specific information removed by the researcher to protect privacy] and researchers, who are seeking professional
guidelines for excellence in the [profession, specific information removed by the researcher to protect privacy]…” (BX, October, 2008).

Many respondents confirmed the contribution of The CI network in terms of networking:

“Your web site is a great source of information and an excellent networking tool” (BY, January, 2004).

“I must tell you that Drum Beat is consistently good and is very helpful in networking” (BZ, August, 2006).

“Thank you for featuring information on our project again. We have just received several requests for more information … It’s a great way to network!” (CA, May, 2007).

“Reading Drum Beat was quite satisfying and enriching and it enabled me to develop my knowledge on what was happening in the Globe. I wish all of you more strength and vision to continue the networking for many more challenging years ahead” (CB, June, 2007).

“Since I have started browsing your newsletters I have created a very good network around the globe” (CC, December, 2007).

“I just came across your site and realized it is a great networking site for people working in the arts geared at development issues” (CD, May, 2008).

Unlike results from the analysis of narrative comments, data from follow-up interviews reveal opposite evidence in community relevant topics. All five respondents commented, as did Sara, “I’ve never used it as a social networking tool” (personal
communication, November 2, 2009). Tina considered The CI network as a newsletter and a web site rather than a community (personal communication, August 26, 2009). Jason expressed his wishes of seeing The CI network provide more space for interactions and networking (personal communication, November 2, 2009). Jennifer even pointed out that it was difficult for online communities to keep interest alive and periodic conferences are helpful in keeping relationships (personal communication, November 13, 2009). In contrast, results of in-depth interviews with staff members and partners revealed evidence that support The CI network as a community. Two partners used the term “communities of practice” to define The CI network in their responses.

In summary, results from the electronic survey, analysis of narrative comments, and in-depth interviews showed positive evidence in confirming The CI network as a community. However, there were inconsistent results. First, participants used The CI network more for obtaining information and learning and less for networking. Second, participants thought knowledge obtained from other participants was less trustworthy than knowledge obtained from The CI web site and e-newsletters. Third, there were mixed results on the topic of emotional attachment to The CI network and it was weak in correlation to level of participation. Results pertinent to learning and knowledge sharing are presented next.

RQ4—Knowledge and Learning

Communities of practice are theoretically an ideal context for organizational learning and knowledge management. RQ4 explored the process by which learning is achieved in online communities of practice. Knowledge, implicit knowledge in particular,
and learning are concepts most difficult to quantify and measure. There are limited results produced from the electronic survey. Narrative and interview comments provide better and more subtle understandings of the learning process.

Wenger et al. (2002) stated that people were motivated in participating in professional communities of practice because they believed it would help their work. Survey respondents were asked to reply to the statement: “Connected with The CI network (by visiting the web site, receiving e-newsletters and other publications, and communication with other participants) has become an important part of your job” (Section 2, page 14, in Appendix A). The results showed that approximately one-half of the respondents thought their participation to The CI network were important to their work (see Table 4.18).
Survey respondents also evaluated the information they obtained from The CI network (Section 2, page 13, in Appendix A). Of the 971 respondents, 28.5% (n=277) considered the information they obtained extremely valuable and a substantial portion of 59.5% (n=578) considered it valuable. These two categories held a total of 88.1% of the survey respondents. A small share, 9.4% (n=91), of survey respondents thought the information they obtained had neutral value. Only 1.8% (n=17) determined the information had little value and 0.1% (n=1) found it has no value. In addition, 0.7% (n=7) responded to this question as not applicable.

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percentage</th>
<th>Cumulative Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly agree</td>
<td>138</td>
<td>14.2</td>
<td>14.2</td>
</tr>
<tr>
<td>Agree</td>
<td>346</td>
<td>35.6</td>
<td>49.8</td>
</tr>
<tr>
<td>Neither agree nor disagree</td>
<td>287</td>
<td>29.6</td>
<td>79.4</td>
</tr>
<tr>
<td>Disagree</td>
<td>128</td>
<td>13.2</td>
<td>92.6</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>30</td>
<td>3.1</td>
<td>95.7</td>
</tr>
<tr>
<td>Not applicable</td>
<td>42</td>
<td>4.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>971</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Item Mean</td>
<td></td>
<td>2.68</td>
<td></td>
</tr>
<tr>
<td>Item SD</td>
<td></td>
<td>1.213</td>
<td></td>
</tr>
</tbody>
</table>
The question of judging the value of knowledge learned from The CI network showed similar results (Section 2, page 13, in Appendix A). Almost one-quarter, 23.1% (n=224), of all survey respondents thought the knowledge learned was extremely valuable and 58% (n=563) considered it valuable. These two categories added up to a majority of 81.1%. Percentage and counts for neutral, little value, and no value were 14.2% (n=138), 3.1% (n=30), and 0.4% (n=4), respectively. Another 1.2% of respondents chose not applicable to this question.

The analysis of narrative data confirmed that participants highly valued the practices and services of The CI network in terms of disseminating information, stimulating thinking, sharing knowledge, and assisting participants’ work. Numerous respondents expressed their appreciation of the information and knowledge shared in The CI network as innovative and inspiring. For instance, some respondents said:

“… the ideas you have compiled and shared are inspiring – and have given me some great ideas to pursue regarding communications” (AH, August, 2001).

“… I always read the Drum Beat, which I find provides interesting, useful and thought-provoking information” (CE, December, 2004).

“Your efforts are really enlightening many due to this information exchange process” (CF, January, 2005).

“Thanks a million for the excellent work you and the Communication Initiative do in keeping us informed and our thinking challenged” (CG, August, 2006).
“I am a subscriber and regular reader of your outstanding site…The news and information sources help me to gather knowledge and it also stimulates my thinking” (CH, March, 2008).

Many respondents stated that what they had learned from The CI network was relevant, useful, and had helped with their work:

“… the Communication Initiative, and more specifically Drumbeat, has had a direct impact on my career path, plans for the future, and my worldview, frankly” (CI, November, 2001).

“I have been keenly following the rapid development of the comminit website. I have found it extremely useful in my work as a communications officer working for an NGO” (CJ, January, 2003).

“I did learn a lot from the Drum Beat Publication last year” (CK, December, 2006).

“I am a subscriber to DrumBeat and find it a useful tool for learning about other communication for development initiatives” (CL, May, 2007).

“… you have enriched me greatly knowledge wise” (CM, November, 2007).

“It has been very useful to my research” (CN, August, 2008).

“I personally am enjoying the article, document and study reports from your site and enhancing myself with knowledge and skills” (CO, February, 2009).

“… it’s truly a knowledge and networking portal, and I found a lot of materials that is relevant to our work in [location, specific information removed by the researcher to protect privacy]” (CP, February, 2009).
Other respondents also expressed their satisfaction of The CI network in its contribution to knowledge and learning:

“Fascinating information! Many thanks. This site is an exciting movement toward global community skill share and partnership of knowledge and experience for the growth and hopefully well being of world society” (CQ, October, 2002).

“We use Drum Beat extensively and we look forward to learning from your initiatives in the future as well” (CR, April, 2006).

“I will keep my eyes open for any lessons learned, best practices we can share and will keep in touch. Congratulations also on the good work in sharing information and knowledge in this area!” (CS, November, 2006).

“This site is marvelous for not only job seekers but also knowledge as well as information gatherers” (CT, February, 2007).

“I should congratulate you & the team for making & managing & posting the instantly available, 365/24 & free, gateway and repository of vast knowledge & information base” (CU, November, 2007).

“TCI is a highly treasured knowledge platform for me. None others can even compare with its breadth & depth. Congratulations” (CV, May, 2008);

“Thks a million!! Great, timely paper and I’m sharing it with [organization, specific information removed by the researcher to protect privacy] and other colleagues… Keep up the great Communication Initiative work – use it every week! Would be lost without it!” (CW, October, 2008).
Results of follow-up interviews revealed mixed feelings. One respondent recognized The CI network as a useful information source but thought learning was less accomplished (Helen, November 2, 2009). Another respondent spoke highly about the conference organized by The CI,

It was a good learning experience, you know, hearing people talking about communication and development. It was the first conference of its kind that I had attended. It was good to find people, you know, working in the similar fields like yours, exchanging notes, hearing their stories, their challenges and experience …
(Tina, August 26, 2009)

Overall, results showed that one-half of survey respondents thought their participation to The CI network was important to their work and 88% of them valued the information and knowledge they obtained from The CI network. Even though the learning process is not apparent to some respondents, many participants confirmed their positive experiences in knowledge sharing and learning in The CI network.

RQ5—Sustainable Development

RQ5 examined the strengths and weaknesses of The CI network, the research site in this project, for an understanding of how to cultivate and sustain the continuous development of online communities of practice. Analysis of narrative comments revealed past stages of development. The electronic survey devoted sections to evaluate functionalities of The CI web site and e-newsletters. Interviews with staff and partners focused on envisioning future development of The CI network.
Narrative Comments

The analysis of narrative comments showed seven themes: 1) The CI network is a useful resource; 2) The CI network is appreciated; 3) The CI network connects participants and assists collaboration; 4) The CI network provides valuable service; 5) The CI network is a community; 6) The CI network helps in professional learning; and 7) The CI network has grown strong with time. These interwoven themes illustrated the process of how The CI network was cultivated and sustained. The strengths of The CI network were revealed in those comments, including the usefulness of information, the worth of networking, the value of services, the meaning of learning, and the significance of practice in communication and development.

Respondents recognized the strengths and contributions of The CI network and appraised it with words. A couple of comments are presented here as examples:

“… makes me to have more confidence in the NGO world regarding efficiency and proficiency in making things work in a troubled way. My organization benefits so much from your updates ever since we started receiving concise information from you. Thank you and Keep up the Beat I say!!” (CX, January, 2005).

“We hold your initiative in high esteem as a great contribution to human and social well being. Keep the good work” (CY, March, 2009).

Compared to the massive and extensive messages that appraised and confirmed the strengths of The CI network, there were only five comments out all 892 comments that offered constructive criticism or suggestions. They are listed here:
“I would encourage you to develop formal writers’ guidelines that could be posted on the CI website. I would also suggest that you find a way of paying for original essays and analysis” (CZ, July, 2005).

“You do a wonderful job with the vacancy listings. Unfortunately they are shared so infrequently that at least 1/3 to 1/2 are already dated and often no longer available. A weekly, ongoing sharing would be helpful to those using the listings… Strong recommendation that you seriously consider the audiences using these listings rather than be tied to the kind of schedule now being used” (DA, November, 2007).

“I appreciate the intentions of subscribing me to DrumBeat, but please don’t. I am already overwhelmed by the amount of newsletters reaching my inbox and I am sure we can find other ways to exchange important information” (DB, August, 2008).

“I think your website is unique, however it does exclude lots of people, because I know many colleagues in North Africa and the Middle East cannot read your website and others find little information about their countries” (DC, September, 2008).

“Please publish more information on current policies and strategies in addressing women issues in Africa” (DD, September, 2008).

Narrative comments with a span of 92 months successfully revealed development stages of The CI network. The CI published its first e-newsletter in September 1998. Although The CI web site did not start to gather responses until almost three years later—
August 2001—the comments from the first couple of years (2001-2002) showed representational messages of an early stage of development. These comments used terms like innovative, interesting, and helpful to describe The CI network. Appreciative and congratulatory messages were quite common in this interval of time. Many comments rated The CI web site and e-newsletters as information resources. Two themes were apparent in this early stage: 1) The CI network is a useful resource; 2) The CI network is appreciated. Here are a few examples:

“Thank you for a great service with Drum Beat and the website. It’s been a constant source of critical and usable information” (DE, September, 2001).


“It is an invaluable information and resource tool for all of us working in the field of communication for change” (DG, February, 2002).

“I’d like to let you know that I love your website and your newsletter, which I use very often. You are doing a great, very useful job” (DH, June, 2002).

Starting from year 2003, more messages about new services, such as featuring organizations and publicizing materials, emerged. Respondents continued to appreciate and appraised The CI network, using terms like resourceful, exceptional, and consistent. Comments rating The CI network as a community increased significantly. Also increasing were messages describing collaboration practices and affirming learning experiences. Growth was implicitly indicated in many messages. All seven themes were noticeable in this maturing stage of development, from 2003-2005, for instance:
“Thank you so much for your kind effort. In the past few hours we have had six inquiries for free copies! It is clear therefore that donors need to support a more energetic dissemination strategy and services like yours are probably the way to go” (DI, May, 2003).

“We at [organization, specific information removed by the researcher to protect privacy] remain extremely grateful for your promotion of the course and we find it a vital communication channel for getting the word out about the training” (DJ, November, 2004).

“I really admire what you have put in place and I am glad to see that it seems to be thriving. I will do my best to contribute” (DK, February, 2005).

“I can hardly believe that you are celebrating number 300 of the Drum Beat. It seems only yesterday that Warren Feek started the network with only a handful of sponsors. And now the Network has grown not only in size, but has become one of the most important sources for the sharing of information and knowledge among communication practitioners and academics. I congratulate you for the excellent work and look forward to another 300 issues” (DL, May, 2005).

Comments from 2006 to 2009 showed more palpable evidence of all seven themes. In addition to consistently appearing terms such as useful and informative, respondents started to use words like prestigious, well-known, and the best, to describe the reputation of The CI network. The quality, comprehensiveness, diversity, and depth of the information and services The CI network provided were confirmed in comments
collected at this stage. More respondents stated that they were honored to be part of, and rely on, The CI network. All these comments indicated a thriving stage of development:

“Thank you for creating this website, which is highly educative, resourceful and loaded” (DM, October, 2006).

“Thanks again for featuring information about [organization, specific information removed by the researcher to protect privacy] on The Communication Initiative site—we’re most honored!” (DN, April, 2007).

“It seems that you have put together a very worthy publication and I am honored that you are featuring [organization, specific information removed by the researcher to protect privacy], and I would be happy to be part of your network” (DO, August, 2007).

“I would like to take this opportunity to congratulate you and site researchers, designers and makers for creating one of the most informative, unbiased and easy to use website available on the WWW. The quality and wealth of information you’ve presented is excellent” (DP, October, 2008).

“I’m very much enjoying your newsletter with its broad range of information from all over the world” (DQ, December, 2008).

These three stages—early stage, maturing stage, and thriving stage—were derived from the macro analysis of narrative comments and time lined with approximation. This delineation was guided by the model of development stages of communities of practice proposed by Wenger et al. (2002).
Electronic Survey

The CI Web Site

Results to most questions in section 3 of the survey questionnaire are reported in this section. Questions from page 18 to page 22 (see Appendix A) are mainly 5-point Likert-type scale questions designed in soliciting survey respondents’ evaluation of The CI web site.

Almost all (88.5%, n=859) of the survey respondents had visited The CI web site. When asked about the overall quality of The CI web site, these respondents reported: excellent (40.4%), good (50.2%), average (8.1%), poor (1.0%), and very poor (0.2%). On the matter of ease of navigation, they thought: excellent (22.7%), good (56.7%), average (18.0%), poor (2.0%), and very poor (0.6%). Also, they considered the overall look of the web site: excellent (17.6%), good (54.2%), average (23.0%), poor (4.4%), and very poor (0.8%).

Survey respondents also expressed their opinions on details of The CI web site, such as grammar and spelling, layout, links, and availability. These details are common standards that evaluate the usability of a web site. Results can be found in Table 4.19. Combined with results in the previous paragraph, it is reasonable to conclude that The CI web site is an excellent/good site with decent usability features. Refinement of the layout, links, and navigation can further improve and sustain the success of The CI web site. Efforts to double check grammar and spelling can be beneficial, judging from the results that a substantial percentage of 44.8% neither agreed nor disagreed with the statement—“The CI web site contains no grammatical and spelling errors.”
### Assessment of Usability of the CI Web Site

<table>
<thead>
<tr>
<th></th>
<th>Layout is well-organized</th>
<th>Links are current and working</th>
<th>The web site is always online</th>
<th>No grammatical or spelling errors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly agree</td>
<td>11.5%</td>
<td>15.0%</td>
<td>22.2%</td>
<td>11.2%</td>
</tr>
<tr>
<td>Agree</td>
<td>58.0%</td>
<td>59.1%</td>
<td>60.3%</td>
<td>39.1%</td>
</tr>
<tr>
<td>Neither agree nor disagree</td>
<td>20.3%</td>
<td>21.7%</td>
<td>15.6%</td>
<td>44.8%</td>
</tr>
<tr>
<td>Disagree</td>
<td>8.5%</td>
<td>3.6%</td>
<td>1.7%</td>
<td>4.3%</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>1.6%</td>
<td>0.6%</td>
<td>0.1%</td>
<td>0.7%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Item Mean</td>
<td>2.31</td>
<td>2.16</td>
<td>1.97</td>
<td>2.44</td>
</tr>
<tr>
<td>Item SD</td>
<td>0.843</td>
<td>.735</td>
<td>.677</td>
<td>.774</td>
</tr>
</tbody>
</table>

The content of The CI web site is also assessed and results are shown in Table 4.20. Positive results have again confirmed the success of the web site in terms of providing relevant, useful, and up-to-date information to participants of The CI network.
Table 4.20.

<table>
<thead>
<tr>
<th>Assessment of Content on the CI Web Site</th>
<th>Easy to understand</th>
<th>Up-to-date</th>
<th>Relevant to my needs</th>
<th>Useful to my needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly agree</td>
<td>22.1%</td>
<td>16.4%</td>
<td>23.7%</td>
<td>23.8%</td>
</tr>
<tr>
<td>Agree</td>
<td>64.7%</td>
<td>55.5%</td>
<td>58.7%</td>
<td>60.5%</td>
</tr>
<tr>
<td>Neither agree nor disagree</td>
<td>10.3%</td>
<td>23.4%</td>
<td>16.2%</td>
<td>13.8%</td>
</tr>
<tr>
<td>Disagree</td>
<td>2.8%</td>
<td>4.5%</td>
<td>1.0%</td>
<td>1.5%</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>0.1%</td>
<td>0.2%</td>
<td>0.3%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Item Mean</td>
<td>1.94</td>
<td>2.17</td>
<td>1.96</td>
<td>1.94</td>
</tr>
<tr>
<td>Item SD</td>
<td>.666</td>
<td>.757</td>
<td>.686</td>
<td>.682</td>
</tr>
</tbody>
</table>

The CI web site consists of a number of sections that devoted to specific interests: Theme Sites, Special Focus, Knowledge Sections, and Classified. Theme Sites include Dem/Gov, Early Child Dev, HIV/AIDS, ICT4D, Media Dev, NRM, and Polio. Special Focus includes Avian Flu, C-Change Picks, MDGs, and MeTA. Knowledge Sections are Awards, Change Theories, Evaluations, Experiences, Funding, Materials, Online Research, Planning Models, Strategic Thinking, Trends, and Universities. Classified has Events Calendar, Training, Vacancies, Request for Proposals, Books Videos and Journals, and Consultants.

Survey respondents were asked to choose those sub-sections they visited the most often, the second most often, and the third most often in each major section. Table 4.21
shows the results in details. Survey respondents were also asked to choose the most useful, the most well-organized, and the most up-to-date sub-sections in each major section. Detailed results can be found in Table 4.22. This set of questions was complicated in design. Also, it required extensive knowledge of The CI web site to answer these questions legitimately. Some survey respondents, in open-ended spaces, indicated their concerns of not being able to answer these questions due to their lack of familiarity with The CI web site. Thus, the results are only referential.
Table 4.21. The Most Often, Second Often, and Third Often Accessed Sections of the CI Web Site

<table>
<thead>
<tr>
<th>Theme Sites</th>
<th>Top Place</th>
<th>Second Place</th>
<th>Third Place</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most Often</td>
<td>HIV/AIDS</td>
<td>24.4%</td>
<td>Media Dev</td>
</tr>
<tr>
<td>Second</td>
<td>Media Dev</td>
<td>20.0%</td>
<td>Dem/Gov</td>
</tr>
<tr>
<td>Third</td>
<td>Dem/Gov</td>
<td>13.1%</td>
<td>Media Dev</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Special Focus</th>
<th>Most Often</th>
<th>Second Often</th>
<th>Third Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDGs</td>
<td>28.6%</td>
<td>C-Change Picks</td>
<td>13.7%</td>
</tr>
<tr>
<td>C-Change Picks</td>
<td>15.3%</td>
<td>MDGs</td>
<td>15.3%</td>
</tr>
<tr>
<td>MDGs</td>
<td>10.5%</td>
<td>MeTA</td>
<td>10.3%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Knowledge Sections</th>
<th>Most Often</th>
<th>Second Often</th>
<th>Third Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>Materials</td>
<td>13.9%</td>
<td>Strategic Thinking</td>
<td>13.3%</td>
</tr>
<tr>
<td>Materials</td>
<td>11.6%</td>
<td>Strategic Thinking</td>
<td>10.8%</td>
</tr>
<tr>
<td>Strategic Thinking</td>
<td>10.7%</td>
<td>Experiences</td>
<td>9.8%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Classified</th>
<th>Most Often</th>
<th>Second Often</th>
<th>Third Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vacancies</td>
<td>37.4%</td>
<td>Training</td>
<td>15.3%</td>
</tr>
<tr>
<td>Training</td>
<td>27.2%</td>
<td>Vacancies</td>
<td>12.6%</td>
</tr>
<tr>
<td>BooksVideosJournals</td>
<td>12.3%</td>
<td>Events Calendar</td>
<td>11.8%</td>
</tr>
</tbody>
</table>
### Table 4.22.

*The Most Useful (M.U.), Most Well-Organized (M.WO.), and Most Up-To-Date (M.UTD.) Sections of the CI Web Site*

<table>
<thead>
<tr>
<th>Theme Sites</th>
<th>Top Place</th>
<th>Second Place</th>
<th>Third Place</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.U. HIV/AIDS</td>
<td>22.7%</td>
<td>Media Dev</td>
<td>17.1%</td>
</tr>
<tr>
<td>M.WO. HIV/AIDS</td>
<td>15.2%</td>
<td>Media Dev</td>
<td>14.4%</td>
</tr>
<tr>
<td>M.UTD. HIV/AIDS</td>
<td>17.6%</td>
<td>Media Dev</td>
<td>12.7%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Special Focus</th>
<th>M.U. MDGs</th>
<th>C-Change Picks</th>
<th>Avian Flu 6.5%</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.WO. MDGs</td>
<td>18.3%</td>
<td>C-Change Picks</td>
<td>Avian Flu 4.0%</td>
</tr>
<tr>
<td>M.UTD. MDGs</td>
<td>16.2%</td>
<td>Avian Flu 9.0%</td>
<td>C-Change Picks 8.6%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Knowledge Sections</th>
<th>M.U. Experiences</th>
<th>Strategic Thinking</th>
<th>Materials 9.8%</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.WO. Materials</td>
<td>11.2%</td>
<td>Experiences 8.6%</td>
<td>Strategic Thinking 7.6%</td>
</tr>
<tr>
<td>M.UTD. Experiences</td>
<td>9.5%</td>
<td>Materials 9.2%</td>
<td>Strategic Thinking 7.1%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Classified</th>
<th>M.U. Vacancies</th>
<th>Training 10.9%</th>
<th>Books Videos Journals 8.5%</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.WO. Vacancies</td>
<td>19.0%</td>
<td>Training 15.8%</td>
<td>Books Videos Journals 8.1%</td>
</tr>
<tr>
<td>M.UTD. Vacancies</td>
<td>21.3%</td>
<td>Training 10.7%</td>
<td>Books Videos Journals 8.1%</td>
</tr>
</tbody>
</table>
In general, survey results showed a positive and successful web site for The CI network. The majority (94.3%) of those 859 respondents who visited the site voted Yes when asked whether they would recommend The CI web site to others. Only 2.0% said No and 3.7% reported Don’t know. Compared with similar web sites, 34.6% of survey respondents thought The CI web site was excellent and another 49.1% thought it was good. These two added up to a total of 83.7%. A share of 11.6% considered The CI web site average compared with similar web sites. Only 1.2% thought the web site was poor and 0.3% considered it very poor.

**E-Newsletter**

E-newsletters were also assessed on the features of usability: content, grammar and spelling, layout, links, text size, and length. A total of 932 survey respondents answered a series of questions (section 3, page 25, in Appendix A). Table 4.23 and 4.24 show the results.
Table 4.23.

*Usability Assessment of the E-Newsletters (Part I)*

<table>
<thead>
<tr>
<th></th>
<th>Content is clearly written and easy to understand</th>
<th>The e-newsletters contains no grammatical or spelling errors</th>
<th>The layout is well-organized</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly agree</td>
<td>31.3%</td>
<td>15.5%</td>
<td>18.0%</td>
</tr>
<tr>
<td>Agree</td>
<td>58.6%</td>
<td>40.1%</td>
<td>54.1%</td>
</tr>
<tr>
<td>Neither agree nor disagree</td>
<td>8.7%</td>
<td>42.2%</td>
<td>21.6%</td>
</tr>
<tr>
<td>Disagree</td>
<td>1.2%</td>
<td>2.1%</td>
<td>5.7%</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>0.2%</td>
<td>0.1%</td>
<td>0.6%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Item Mean</td>
<td>1.80</td>
<td>2.31</td>
<td>2.17</td>
</tr>
<tr>
<td>Item SD</td>
<td>.655</td>
<td>.758</td>
<td>.808</td>
</tr>
</tbody>
</table>
Table 4.24.

Usability Assessment of the E-Newsletters (Part II)

<table>
<thead>
<tr>
<th></th>
<th>The links are working</th>
<th>The text size is easy to read</th>
<th>The length is right</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly agree</td>
<td>19.8%</td>
<td>21.2%</td>
<td>18.2%</td>
</tr>
<tr>
<td>Agree</td>
<td>57.6%</td>
<td>60.7%</td>
<td>57.1%</td>
</tr>
<tr>
<td>Neither agree nor disagree</td>
<td>20.8%</td>
<td>14.3%</td>
<td>19.0%</td>
</tr>
<tr>
<td>Disagree</td>
<td>1.7%</td>
<td>3.5%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>N/A</td>
<td>0.2%</td>
<td>0.6%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Item Mean</td>
<td>2.04</td>
<td>2.01</td>
<td>2.13</td>
</tr>
<tr>
<td>Item SD</td>
<td>.688</td>
<td>.719</td>
<td>.785</td>
</tr>
</tbody>
</table>

Overall, the results were positive enough to conclude that the e-newsletters were in good shape. Similar to the results for The CI web site, refinement on the assessed features would sustain the success of the e-newsletters. Also, grammar and spelling needed a bit more attention.

Interviews

Follow-up interview respondents were asked for their recommendations to The CI network in terms of further development. Helen suggested The CI network develop more local focuses and “more interactions not necessarily through the Internet and emails” (personal communication, November 2, 2009). Jennifer also suggested stronger local focus and recommended regional conferences (personal communication, November 13,
As mentioned in last section, Jason wanted to see more efforts in assisting interactions and networking (personal communication, November 2, 2009).

In-depth interview respondents were asked to identify strengths of The CI network and envision The CI network in 5 or 10 years. More than one-half (n=4) of the respondents identified one strength of The CI network—being consistent in its practice (Staff 1\(^5\), personal communication, August 11, 2009; Staff 2, personal communication, August 10, 2009; Partner 1, personal communication, November 6, 2009; Partner 2, personal communication, November 10, 2009). Two respondents mentioned the challenge of language barriers for the further development of The CI network (Partner 3, personal communication, August 12, 2009; Staff 3, personal communication, November 6, 2009). Another respondent thought it was a big challenge for The CI network to stay the way it is because “many people who work in communication value novelty and resisting the inclination to change things for change’s sake is something that takes real expertise” (Partner 3, personal communication, November 10, 2009).

In the end of this chapter, it is reasonable to conclude that this research project has collected a diversity of results, confirming or conflicting, through multiple instruments. These results are discussed and reflected in the next and final chapter. Implications and limitations are also discussed.

\(^5\) Staff 1, 2, 3 and Partner 1, 2, 3 are used to name in-depth interviewees instead of pseudonyms.
CHAPTER FIVE: DISCUSSIONS

This chapter analyzes the results presented in chapter four. First, understandings drawn from the interpretations of the results are discussed. Implications for research and practical applications are presented in the second section. Future research directions are proposed as well. Then, the limitations of this study are recognized. Last, lessons learned from doing online research are recorded and suggestions for fellow researchers are offered.

Understandings

This research aimed to understand the communication practices in the context of online communities of practice and how learning was enacted in such practices. The enabling and constraining capacities of digital technologies were also explored. Strengths and challenges of a specific online community of practice were assessed for its sustainable development. To achieve these goals, this project studied The Communication Initiative network (The CI network), an online community of practice, using multiple methods that included an electronic survey, follow-up interviews, in-depth interviews with the core team, and narrative analysis of comments posted on The CI web site. Results were presented in the previous chapter. As the results were contemplated, seven understandings emerged. These understandings are, in fact, interwoven but put into different sections for an organized discussion.

Communicative Practices

The communicative practices of The CI network are mainly supported by a web-based repository of information—The CI web site and e-newsletters—*The Drum Beat,*
The Soul Beat, and special issues, and discussion forums—web-based or through email exchanges, workshops, and conferences. The network participants visit the web site to search and retrieve information, participate in discussion forums, and leave comments. If they are subscribed to e-newsletters, participants receive issues of The Drum Beat, and/or The Soul Beat, and/or special issues. A powerful contact management database, the Maximizer, plays a key role in directing newsletters and mail-outs (Staff 3, personal communication, 2009). The Maximizer has a filter function that easily handles sending special issues of e-newsletters to those who, in their subscription forms, have expressed interests in corresponding subjects. This database is also capable of sending personalized emails in bulk, which is how the email invitations were handled for the electronic survey. Such capability gives a personal touch to mail-outs and helps in attracting more attention from recipients.

Participants also send in information to be published on the web site or included in the e-newsletters, for example, to share their experiences, to publicize their projects, and to announce their research. Further, participants get in touch with other participants using the contact information listed on these featured entries on the web site or in the e-newsletters. Collaborations are then bridged and fostered.

From time to time, a certain group of participants receive invitations to peer review and critique materials on topics in they have expertise. Such dialogues usually take place in two forms—email exchanges or discussion threads on web-based forums. Peer reviewed pieces of information are considered “definitive, validated, and evaluated” (Partner 2, personal communication, November 10, 2009). Such practice is highly
appreciated by participants and has earned credibility for The CI network. The CI network participants are also invited to post comments or respond to polls. Through these processes, the participants have made their voices heard.

In the language of structuration theory, The CI network is a platform with multiple technological tools that, presents a structure to its participants within which to act. This platform enables the participants to engage in processes, for instance, getting access to enormous and diverse information, connecting with others who practice communication strategies or work in the same development field, engaging in dialogues and debates of relevant policies and practices, and the like. Through these processes, The CI network participants adapt rules and resources to their own contexts and reproduce the structure and thus the network. The collective and interactive actions The CI participants engaged in define and continuously re-define The CI network. Also, these communicative processes, ongoing, lively, and interactive in nature, are the means through which knowledge is created and shared and, at the same time, outcomes of a dynamic learning experience.

Knowledge and Learning

As Heaton and Taylor (2002) have pointed out, learning is a collective process and knowledge is not a product of individual cognition; therefore, once the knowledge is textualized, dissemination and interpretation is problematic because the original, situational, and vivid context is compromised. This theoretical argument not only guided the research design and conceptualization of this project to examine how learning is achieved in online communities of practice, but also applied to the pragmatic practices
since most participants of an online community of practice engage in text-based interactions.

The CI team has engaged in several practices that facilitate the learning process and alleviates the concern of loss of context in knowledge dissemination and transferring processes within the network. First, The CI team serves as a moderator and maintains an objective perspective.

“We don’t promote anything as the best, or the most successfully project, or the most essential strategy, for people to use. We feature basically anything that anybody sends us that specific to the use of communication or media for development. We allow the users of The CI network to choose and select what’s best for them in their context.” (Staff 2, personal communication, August 10, 2009)

Leaving the control to the network participants enables a better match between participant’s needs and available information. Participants, who know best their own situations, are empowered in filtering information and strategies to seek the information best suited to their context. In other words, participants learn what they want to learn and what they need to learn based on their own judgment.

Nevertheless, this enabling and empowering structure, on the other hand, constrains the actions of The CI participants. The extensive information provided on The CI web site can be overwhelming and intimidating to new visitors who are intentionally looking for the best practice or the most essential communication strategy used in a specific field of development. To alleviate this constraining aspect, The CI team has
developed tools, such as the Africa web site and e-newsletters for Spanish-speaking participants, to cultivate regional processes. Also, The CI web site has theme sites that center on different fields of development, special focuses that highlight popular issues, and knowledge sections that feature various topics. The e-newsletters’ special issues are designed to appeal to specific groups of participants. Results of this study have revealed the usefulness of these resources in helping the network participants filtering knowledge pertinent to their situation, though requests for more localized focus and better navigation on the web site also surfaced in the results.

The CI team is making efforts to bring the self-controlled learning process to a new level by incorporating Organic Groups in the infrastructure of The CI network to substitute for the discussion forums. Organic Groups is a module for online communities that enables users to create and manage their own groups (Drupal, 2009). People who set up the groups have full administrative control over their groups, unlike the old-fashioned discussion forums where general moderators maintain most of the administrative control. Group creators get to decide the privacy setting—public or private groups, invite or decline participants, approve or reject posts, delete the groups, etc. Group subscribers are able to communicate among themselves without supervision or interruption from general moderators. This module changes the hierarchical model of how discussions happen in old discussion forums—general moderators set up the forums for participants and establish the rules—and provides online spaces for the free flow of communication among participants (Staff 3, personal communication, November 6, 2009).
Organic Groups provides clear rules and resources that enable motivated and self-administered discussions. Yet, this module is, at the same time, constraining in some aspects. For instance, discussions on similar topics could be scattered in a number of private groups and stay disconnected without coordination from a general moderator. Valuable information that could benefit other network participants if disseminated properly might be buried or get lost when the group creator decides to close the group.

**Digital Technologies**

Essentially, digital technologies are the building blocks for the existence of online communities of practice. The CI network, for instance, has a vision of connecting people and organizations around the globe who use communication strategies in the work of economic and social development and change. To achieve this goal, the infrastructure is inevitably facilitated by digital technologies. Since the (re)invention of computers and the Internet in the late 20th century, web sites and emails are now well-established and sometimes taken for granted. In fact, these two basic manifestations of digital technologies consistently and reliably provide services to allow distanced communication and collaborations to happen and happen with ease.

The CI web site provides a virtual central location that holds the information and records of processes for participants to visit remotely at their own time and pace from every corner of the world where an Internet connection is available. E-newsletters, in the form of emails, arrive in inboxes and reach participants who are scattered in different geographic and physical locations even though the Internet connection is not available all the time. The wireless technology, especially for those equipped with cell phones, has
enabled these daily practices of The CI network, i.e., visiting the web site and receiving e-newsletters, to be accomplished at any time in any location. New features and modules on the web site are enabling collective and self-ruled learning processes.

The enabling effect of digital technologies to online communities of practice is significant and conspicuous. In short, online communities of practice are not possible without the facilitation of digital technologies. The constraining effect of digital technologies and derived tools is recognized and discussed in the literature (Heaton & Taylor, 2002; Mezgár, 2006; Wang & Gwebu, 2006; Waterson, 2006; Wenger et al., 2002). A major constraint for The CI network that stands out in the results is: most practices are text-based. This constraint leads to two concerns. The first one is what we have discussed in the previous understanding concerning knowledge and learning. Text-based information and practices are not capable in sustaining 100% coverage of the context in which the original knowledge is created; therefore, the learning process and knowledge transfer is problematic. In addition to what The CI team has done to alleviate this concern, video content is suggested as an alternative to text-based content in the research results for videos can provide more contextual cues. This is a great idea but dependent on the Internet connectivity, and there is a digital divide. In some areas in Africa, for instance, steady electricity is still a concern, let alone a reliable Internet connection. The high and stable bandwidth required for video streaming prevents its popularity and function in many areas of the world. The text-based practices will remain the mainstream for online communities of practice until the digital divide is resolved.
Another concern caused by this major constraint is related to trust-building among participants of online communities of practice. Trust is an important social element to the success of communities of practice. Cultivating trust in an online context is particularly difficult. After all, participants view and interact with virtual and cognitive images created by text. Trust does not come naturally. Time and effort from all parties involved are essential to building trust. In communities of practice that are not online-based, participants get to meet with others face-to-face to send and receive contextual cues that help in generating trust. In the environment of online communities of practice, it takes a longer time and more effort to nurture trust. The CI network has engaged its participants in daily practices consistently over the years to foster trust.

In summary, digital technologies have enabled, and simultaneously constrained, online communities of practice. Digital technologies have made online communities of practice possible. Yet, to online communities of practice, like The CI network, the fact that there are no alternatives to the current infrastructure of relying on a web site and e-newsletters to carry out practices is probably the biggest constraint.

**Structural Elements of Online Communities of Practice**

In chapter two, structural elements pertinent to online communities were reviewed in six categories: common interests and identity, infrastructure, social interaction and relationship, trust, leadership, and sustainability. Infrastructure and trust have been discussed in earlier understandings in this chapter. Reflections on common interest and identity, social interaction and relationship, and leadership are presented in this section. Sustainability is contemplated in the next section.
Common Interests and Identity

Wenger, McDermott, and Snyder (2002) proposed a structural model of communities of practice that included three key elements: domain, community, and practice. The domain defines a community of practice by naming subject knowledge, setting boundaries, and building identities for the community. In other words, the domain is the common interest(s) that pull participants together. In The CI network, the domain is, at the broad level, the communication strategies used for economic and social development and change. Participants connect with others by sharing the same interest in using or learning the communication strategies, regardless of their different fields of work in HIV/AIDS, Children, Poverty, etc. Along with the growth of The CI network, more specific domains, such as theme sites or regional focuses, were developed to accommodate the interests of the participants. Thus, the domain of The CI network is like an umbrella with one main subject and multiple sub-sections.

The above-described domain and sub-domains are the overall interests that participants of The CI network share. Wenger et al. (2002) have argued that the shared domain provides a sense of belonging and is fundamental to form group identity. However, The CI network is extensive with more than 50,000 participants. As the follow-up interview and in-depth interview results showed, peripheral and somewhat active participants do not identify themselves with the network to the same extent as the active and very active participants of the network. Thus, to many participants, The CI network is simply a web site or several e-newsletters where they find useful information for their work. However, according to Wenger et al. (2002), different levels of
participation are common and integral to a healthy community. Thus, even though these participants do not view The CI network as a community of practice because of their lesser involvement, the aggregation of such participation is fundamental to The CI network.

**Social Interaction and Relationship**

Unlike social communities, social interactions in the context of online communities of practice are not the mainstream; therefore, social relationships are less developed. The CI network involved its participants in a highly professional approach. Most communicative practices the network participants engaged in are work-related. The CI network is also a platform for networking and developing work relationships. Names and organizations are featured with permission in the materials published on the web site or in the e-newsletters for two reasons. One, participants who are interested in these materials can get in touch with the originators. Two, it adds credibility and generates trust. Although this practice brings risks to privacy, which will be discussed in the later section, such a professional approach is one way that participants of online communities of practice cope with the trust issue (Staff 2, personal communication, August 10, 2009).

**Leadership**

The CI network was founded and is guided by Mr. Warren Feek and his team at The CI. Mr. Feek and his team are further guided by a group of partners who share interests in communication and development. Mr. Feek worked in the field of communication and development before he founded The CI. His vision of establishing such a community of practice was in response to the collective wishes of sharing
information and finding others who work in the same field. In this sense, The CI network is informal and self-organized in nature.

Mr. Feek, his team, and partners of The CI compose the core team, which takes the leadership role of The CI network. As mentioned in the previous section of knowledge and learning, The CI team has made tremendous efforts to lead from behind (Storck & Storck, 2004). The CI network is established as a platform on which participants of the network engage in processes at their wishes. The CI team plays an administrative role by providing technical support, such as setting up the web site and putting together e-newsletters. The team is facilitative since team members personally participate in practices regularly and consistently. The leadership is also non-directive and emotionally involved. The non-invasive lead from behind style is greatly appreciated by participants of The CI network and is significant to the success of online communities of practice (Partner 2, personal communication, November 10, 2009).

**Strengths and Challenges**

The CI network has evolved into a large online community of practice and established an authoritative presence in the field of communication and development over the years. Revealed in the results, three key factors, among many, have contributed to the success and continuous development of The CI network: a distinctive vision and non-invasive leadership, consistent and reliable practice, and a functional infrastructure.

A distinctive and well-honed vision has served as the foundation of The CI network. Mr. Feek created the network with a vision and has been consistent, “the importance of partnership, peer review and critique, constructive engagement of diverse
partners” (Partner 2, personal communication, November 10, 2009). The CI network has always been a service to the field of communication and development. It is neither competitive nor disturbing to the field and is highly appreciated (Partner 2, personal communication, November 10, 2009). The non-invasive practice is guided by a well-practiced leadership.

“Warren has really perfected the art of leading from behind. His specific personal expertise, network, and vision are very well recognized by everyone that I know!” (Partner 2, personal communication, November 10, 2009).

The CI network has been consistent and reliable in its practice—providing a platform for information sharing, dialogues, and peer review and critique. The network is open, inclusive, yet non-invasive. The web site and e-newsletters contain enormous information for participants to choose. Connections and collaborations among participants are bridged. Discussions, dialogues, and peer review are promoted. Most importantly, these processes are available over the years to make the network reliable.

The technical infrastructure has been proficient in enabling The CI network to carry out its practice. The web site is well managed and updated; usability is excellent/good. The e-newsletters are well-organized. Overall, these three factors stood out as significant building blocks of The CI network from the results of this research.

The results have also revealed a number of challenges The CI network faces for its continuous and sustainable development, including regional or local appeals, technological advancement, and privacy concerns. Over the years of growth, regional focuses, such as Soul Beat Africa and the Latin-American site, have been added to The
CI network to better serve participants with specific interests in these two regions. Yet, African and Latin-American countries use different and multiple local languages in additional to official languages: English and Spanish. Social, economic, and political situations differ tremendously from country to country (Partner 2, November 10, 2009; Staff 3, personal communication, November 6, 2009). Local culture also varies significantly. The challenge for The CI network is to further serve participants with more specific local and regional interests while maintaining the large global picture.

Wireless technology has moved digital communication to a new level. With the widespread use of cell phones, it is an opportunity and challenge for The CI network to mobilize its practices (Staff 3, personal communication, November 6, 2009). There are a number of possibilities that ought to be considered. One, text messages can be used to alert participants about new e-newsletters or updated materials on the web site. The challenge is how to develop or incorporate available systems into the current technical infrastructure of The CI network. Two, cell phones, especially smart phones, are used to access emails and web sites. The challenge is how to adjust e-newsletters and the web site to maintain usability on cell phone screens. Three, cell phones are used to upload messages and video clips to online spaces, such as Twitter and YouTube. The challenge is how to embrace such opportunity. Four, in many countries, changing cell phones (and numbers) every few months is common and runs the risk of a quickly outdated list of numbers to contact.

The CI has strived to maintain a non-invasive approach to serving the participants of The CI network. For example, participants can post comments or respond to polls as
anonymous users. However, this practice is problematic because the anonymous interactivity is often exploited by spammers (Staff 3, personal communication, November 6, 2009). It is a struggle to maintain the balance of avoiding spam and protecting the legitimate privacy of participants.

The CI network has established itself as a successful and reputable online community of practice over the years. The three development stages revealed in the results have shown the path that leads the network to its current presence. With the constantly evolving world environment and the advancement of digital technologies, The CI network is facing new opportunities and challenges that will, if managed effectively, contribute to its continuous and sustainable growth.

Understandings, reflections, and discussions of the research results were productively guided by structuration theory in revealing the dynamic digital communication, enabling and constraining influence of digital technologies, and interactive learning processes in The CI network. Although a case study is not generalizable, this research project provides insights in understanding online communities of practice and is informative to researchers and users of online communities of practice. Implications and future research directions are discussed in the following section.

Implications

This study is a research project that explores multiple research topics relevant to online communities of practice using multiple research methods. There are four key contributions to be recognized. First, this study takes a perspective that centers
communication in understanding daily practices, technological infrastructure, and the learning processes in the context of an online community of practice. Such a perspective allows the researcher to examine and reflect on the lively, situational, and interactive details of communication. This approach is particularly helpful in understanding knowledge creation, sharing, and the dynamic collective learning process because it views communication as the means (that produces) as well as the outcomes (that are being produced) in the learning process. This study adds valuable observations to current literature on online communities of practice, knowledge management, and learning.

Second, this study is valuable in its coverage on research topics related to online communities of practice: structural elements (common interest, trust, leadership, etc.), technological facilitation and constraints, knowledge and learning, assessment, etc. More focused and in-depth studies are needed to further understand, examine, and critique these research topics. For example, how trust is created, strengthened, and maintained in an online context is an important topic for the development of online communities of practice. Leadership and its role in facilitating interactions and participation can be examined in detail. The use of cell phones and the influence on online communities of practice is a trendy topic. How learning is (re)produced through dialogues in the context of online communities of practice is also intriguing and pragmatic.

A correlation matrix with a number of variables was created to showcase what further studies and analyses could be conducted (Table 5.1). For instance, previous results have revealed that The CI participants have less trust in the knowledge obtained from other participants than from The CI web site or e-newsletters. The correlation
matrix shows that the level of participation has a stronger positive correlation with trust of the knowledge obtained from other participants ($r=0.338, p\leq 0.001$) than with trust of the knowledge obtained from The CI web site ($r=0.124, p\leq 0.001$) and The CI e-newsletters ($r=0.126, p\leq 0.001$). Further research could examine in detail whether cultivating trust in online communities of practice is dependent on the level of participation and what other factors might influence trust-building.
### Table 5.1

**Correlation Matrix**

<table>
<thead>
<tr>
<th></th>
<th>V1</th>
<th>V2</th>
<th>V3</th>
<th>V4</th>
<th>V5</th>
<th>V6</th>
<th>V7</th>
<th>V8</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1 Year subscribed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V2 Level of Participation</td>
<td>-0.072*</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V3 Share common interest and goals with others</td>
<td>-0.067*</td>
<td>0.206**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V4 Connected with The CI is important to job</td>
<td>-0.042</td>
<td>0.313**</td>
<td>0.343**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V5 Emotionally attached to The CI</td>
<td>-0.067*</td>
<td>0.279**</td>
<td>0.337**</td>
<td>0.494**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V6 Knowledge obtained from The CI web site is trustworthy</td>
<td>-0.085**</td>
<td>0.124**</td>
<td>0.302**</td>
<td>0.349**</td>
<td>0.422**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>V7 Knowledge obtained from The CI newsletters is trustworthy?</td>
<td>-0.063</td>
<td>0.126**</td>
<td>0.294**</td>
<td>0.363**</td>
<td>0.382**</td>
<td>0.712**</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>V8 Knowledge obtained from other participants is trustworthy</td>
<td>-0.019</td>
<td>0.338**</td>
<td>0.329**</td>
<td>0.382**</td>
<td>0.340**</td>
<td>0.326**</td>
<td>0.321**</td>
<td>1</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

a. Listwise N=971

Third, this study is also valuable in its methodology that multiple methods, including an electronic survey, follow-up interviews, in-depth interviews with the core team, and analysis of narrative comments, are used to collect data from various sources. The combination of data reveals different perspectives from various stakeholders of
Fourth, this study offers insights for conducting a distanced, i.e., online research project that relies on digital technologies to collect data. Experiences and lessons learned from this research might be helpful to fellow researchers who might be interested in online studies. Details are presented in the final section of this chapter. Limitations of this research are acknowledged in the next section.

Limitations

This study had several limitations on survey design, interview outcome, and data analysis. The survey questionnaire was composed by the researcher based on research questions and other available sources. A pilot study was conducted to test the wording and length of survey questions. However, the questionnaire was revised after the pilot study to accommodate suggestions made by The CI team. On one hand, the researcher was willing to make the changes so that this research would be more useful to the research site. On the other hand, the timing of the changes was detrimental to the survey design. A few small problems in the questionnaire were discovered in the process of collecting survey data and could have been avoided if the revised questionnaire had been piloted a second time. Yet, it was not an option due to the limited and rigid time schedule of dissertation and collaboration research.

Interview data were limited due to a few reasons. First, the response rate of follow-up interviews was low. Although there were over 300 survey respondents who indicated their interest in participating in follow-up interviews, the initial response rate
was low. Only 40% (n=12) of the 30 sampled respondents responded to the invitation of follow-up interview. Trouble in scheduling interview sessions due to time differences and technological obstacles—no Skype availability and poor Internet connectivity at the respondents’ ends—had made the actual participation even lower. Second, a similar situation was encountered in in-depth interviews with The CI core team. Due to schedule conflicts, the intended interview with Mr. Warren Feek, was not conducted, causing limited information on the initiation and early stages of The CI network.

Initially proposed technical data, e.g., data logs, were not collected because it was no longer provided by the research site. The concern was possible misinterpretations due to limited technical knowledge of the researcher.

In summary, limitations on survey design, interview results, and unavailability of technical data should be acknowledged and are cautions in reading this dissertation. Future research should try to avoid or minimize such limitations. Suggestions of how to conduct an online research are offered in the following, and final section of this chapter.

**Online Research**

**Online Survey**

Online surveying has become popular as a research instrument for its advantages in saving time, cost, and accessibility. This study used an online survey to solicit responses from over 50,000 participants of The CI network. A number of lessons learned from this project are constructive to fellow researchers who might choose to use online surveys for data collection.
First, it is important to find a reliable online survey service provider. SurveyMonkey was chosen for this study because it provided professional service and the cost was affordable. SurveyMonkey offers two types of accounts: basic and professional, and other online survey service providers offer similar packages. Basic subscription is free of charge and has most features available. The differences between basic and professional subscriptions that matter most at the designing stage are: 1) the basic account only allows up to 10 questions per survey; 2) the basic account only allows up to 100 responses per survey. It is highly recommended to get a basic subscription and become familiar with the features, including survey design, data collection, and analysis. The best way to get familiarized is to design and conduct a trial survey. Pay specific attention to survey design features, such as question types, completion progress bar, numbering of pages and questions, missing response alert, randomize or sort answer choices, etc. Knowledge on these survey design features is helpful to the composition of questionnaires. An upgrade to the professional subscription with service fees can be done quickly when everything is set for the actual survey. In this way, the expenses of doing research are minimized.

Second, questionnaires for online surveys are different in format from pen-and-pencil questionnaires. There are two ways to design an online survey. One is to write questions on a personal computer, in a Word document for example, and import questions into the design template of the online survey service provider. In this case, picture how the web pages look like when composing the questionnaire. Break questions into small groups that contain similar themed questions to fit in one web page. Use matrix
questions to visually shorten the length of the web page and, seemingly, the questionnaire. It is difficult to compose matrix questions in a Word document though. Make sure the questions are well-designed and prepared for a smooth transition into the online survey service provider. Another way to compose the questionnaire is to design the questions using templates provided by the online survey service provider. When the questionnaire is completed, a copy of survey can be downloaded and printed. This approach is not recommended for a few reasons. Usually, questionnaires are composed at the stage of research design and have to be approved by IRB and research committees. It takes time, which means the time of professional subscription of online survey service provider is prolonged and costs are increased. The downloaded printable copies of questionnaires are in PDF format (for SurveyMonkey) and cannot be edited easily. Also, choices of answers for drop-down menu questions are not shown on the print-outs.

Third, when the actual survey is set, test it before official invitations are sent. A pilot study is ideal; however, if that is not possible, ask colleagues or friends to try out the survey. The key is to have a fresh eye to detect anything obvious to the researcher but not obvious to others, and to have a fresh computer to detect anything obvious, i.e., stored in the temporary files and accessed easily, to the researcher’s computer. Also, pay attention to the default settings of question templates the online survey service provider offers. For example, in this study, a question asked the respondents to fill in the length of their subscription to e-newsletters at a numerical textbox. When non-numerical text was entered, an error message showed, “please enter a positive number.” Even though positive number was more accurate in describing the needed numerical response, it was
not a common use in social science and caused confusion to respondents. The term *number* or *whole number* is possibly more appropriate. Thus, making sure all the details of an online survey are consistent is important. A test of collecting responses is helpful to detect any nuanced errors.

Fourth, invitations to online surveys usually take two forms: emails or links posted on web pages. In this study, the survey invitation and reminders were emails sent through the mail-out system of The CI network so no contact information was disclosed out of the Maximizer, the contact management database. A *web link* of the online survey was generated by the online survey service provider, i.e., SurveyMonkey in this case, and included in the email invitations. Another type of invitation SurveyMonkey offers is *email invitation*. Researchers can input email addresses of potential survey respondents into SurveyMonkey and send invitation and reminders through the system of SurveyMonkey. The pilot study was conducted with this approach. There are two advantages of using SurveyMonkey to handle email invitations. First, email messages can be stored at SurveyMonkey and scheduled for delivery. Second, SurveyMonkey keeps track of who responded, those who are unresponsive, recipients who have opted out of receiving such email invitations, and bounced addresses for recipients. Email reminders can be sent to only those who have not responded, avoiding disturbing all recipients again.

Fifth, the time intervals between the initial email invitation and any following email reminders are situational and contingent. Usually, the response time of online surveys is faster than traditional pen-and-pencil surveys; thus, the time intervals between
invitation and reminders should be short. In the case of this study, the original plan was to space invitation and reminders by one week. Yet, judging from the responses received after the initial invitation was sent, an extended interval serves better to attract as many respondents as possible. Be prepared to make necessary adjustments.

Sixth, it is an art to write an appropriate subject line for email invitation and reminders. The subject line of an email is so powerful that it can immediately catch a recipient’s attention but can also turn recipients away. There are a few points to be considered. First, avoid using generic terms or sentences like “You are invited to a survey!” Emails with such subjects are often perceived as marketing attempts. In some cases, such emails are not even able to make to the inboxes of recipients and are automatically labeled as spam and delivered to junk mail folders. Second, start the subject line with a term or label that recipients are familiar with. Third, use the term “survey invitation” and announce the purpose of the survey to give recipients a preview. Fourth, use similar subject lines in reminder emails but include terms like “reminder,” “deadline,” “more participants needed,” etc. In this study, for example, the subject line of the initial invitation was “Drum Beat/Soul Beat Network—Survey Invitation Your Experience with The Communication Initiative.” The responses flowed in quickly after the invitation was sent. Then, the first reminder’s subject line was different and more generic: “Network Survey—The Communication Initiative” and responses were slow. The last reminder’s subject line was: “Drum Beat/Soul Beat Network—Survey Deadline Coming Up More Participants Needed.” The responses were higher and satisfying (see Table 3.1 for details).
Seventh, the usual mindset perceives a picture that: to set up an online survey often takes a long time and requires much effort from the researcher and then it is much easier for the researcher to handle after the online survey starts because the collection of responses is handled by the system of the online survey service provider. This mindset is misleading. Be prepared to be bombarded with all sorts of email responses, especially if the survey population is a large group of people. It takes time to read and reply these email responses. In the case of this study, because email invitation and reminders were not handled by SurveyMonkey, all email responses, including bounced and out-of-office auto responses flooded the researcher’s email account. It took time to filter important email responses out of over 600 bounced and out-of-office auto message emails from every round of email invitation or reminders. Some respondents wrote to confirm that they have completed the survey; a thank you note was returned. Some respondents asked for technical help because they had trouble accessing the survey; possible solutions were brainstormed and responded. Some respondents requested more information about the survey; information was provided. In summary, expect emails from respondents and be prepared with answers. First, it is important to check with the researcher’s email service provider to make sure the email account is capable of receiving a large number of email messages in a short period of time. Second, prepare an electronic file of the questionnaire that can be attached to emails for those respondents who have difficulties in accessing the online survey but are still willing to share their opinions. Third, have a synopsis of the research purpose and design available in lay language for those who are interested in knowing more about the research.
Eighth, after the survey collection is completed, make sure the data are downloaded in all formats available. Also, apply a filter that removes incomplete responses and then download the data again in all formats. It is important to keep a full record of collected data. Once the professional subscription of the online survey service is expired or terminated, the data are no longer available online at the service provider.

*Skype Use*

Skype was used to collect interview data in this study. The advantages of Skype are cost-saving and easy-recording. Conversations between Skype to Skype, i.e., PC to PC, are free of charge. Phone calls from Skype to local phones or cell phones, i.e., PC to phone, vary in rates but, in general, are low in cost. Make sure the Internet connection from the researcher’s end is reliable and has enough bandwidth. Also a handset with decent quality is recommended.

There are a number of free add-on software programs that record Skype conversations into digital audio files. Downloading and installing such software is no harder than handling any other software and is always guided. Yet, a careful selection of the software is necessary. In the case of this study, software called CallGraph was used at first. It caused longer time delay and created an echo of voices. MP3 Skype Recorder was then selected based on online user reviews and was providing quality recording service. It is recommended to test the software with someone located at a distance.

The challenges of Skype use are mainly related to the Internet connection. First, Skype use is dependent on the Internet availability. The connection sometimes is temporarily not available due to severe local weather, network service upgrade, or
electricity outage. For research that involves participants from different countries and regions, always keep the connection issue in mind and be prepared to reschedule the Skype conversations. The connectivity also influences the voice quality of Skype conversations. Sometimes the time delay of voices grows longer as the conversation proceeds; thus re-connection is needed. Make sure such interruption is minimal to the flow of the conversations. Supplement the audio conversation with text messages on Skype if it is needed, especially in situations of time delay.

One last thing to be mentioned, reiterated to be exact, for online research is: use emails effectively and efficiently. For both online survey and Skype interviews, emails are playing a significant role in communicating information and schedules between the researcher and respondents. Respond to emails in a timely manner and be specific and articulate in writing messages.
REFERENCES


Page 1 Introduction

Dear Participants in The Communication Initiative Network,

Thank you for your interest in taking this survey. This is a part of the dissertation project conducted by Li Wang, a doctoral candidate at the School of Communication Studies, Ohio University, USA.

When you progress through the survey, please follow the flow of questions and complete the survey even if some of the questions are not applicable to your case as this is also part of the research.

This survey will take approximately 20-25 minutes. If you are interrupted for any reason, please feel free to pause and come back to answer further questions. Provided you use the same computer at the same IP address, you may close the browser window and use the link in the email to access the survey again.

When you have completed the survey, click the DONE button to submit it. Please review the consent form on the next page.
Title of Research: Digital Communication, Communities, and Learning: A Case Study of Online Communities of Practice from a Communication Perspective

Researcher: Li Wang, Doctoral Candidate, School of Communication Studies, Ohio University

You are being asked to participate in research. For you to be able to decide whether you want to participate in this project, you should understand what the project is about, as well as the possible risks and benefits in order to make an informed decision. This process is known as informed consent. This form describes the purpose, procedures, possible benefits, and risks. It also explains how your personal information will be used and protected. Once you have read this form and your questions about the study are answered, you will be asked to sign it. This will allow your participation in this study. You should print a copy of this document to keep a record.

Explanation of Study

This research project is to study online communities of practice from a communication perspective, focusing on the daily interactive practices in which learning takes place. The emphasis will be placed on understanding how digital communication produce social interactions and is (re)produced in the process. The Communication Initiative (The CI), an organization with a mission in promoting knowledge sharing, learning and eventually social change and economic development around the globe is selected as the research site.

Risks and Discomforts

This study involves no more than minimal risk.

Benefits

This research project is expected to make a useful academic contribution to the field of organizational communication and provide additional pragmatic input to the growth and development of The CI network.
Confidentiality and Records

Any disclosed personal information will be used exclusively for this research project and be kept confidential. All data will be stored temporarily on a secured server of Survey Monkey and then downloaded to the researcher’s laptop. The researcher will remove any identifiable personal information from the data sheets and then release a clean copy of un-identifiable raw data to The Communication Initiative for its own research analysis. All data on the researcher’s laptop will be destroyed six months after this research project is completed.

Additionally, while every effort will be made to keep your study-related information confidential, there may be circumstances where this information must be shared with:
* Federal agencies, for example the Office of Human Research Protections, whose responsibility is to protect human subjects in research;
* Representatives of Ohio University (OU), including the Institutional Review Board, a committee that oversees the research at OU.

Contact Information
If you have any questions regarding this study, please contact Li Wang, at lw359500@ohio.edu or phone (740)707-5867.

If you have any questions regarding your rights as a research participant, please contact Jo Ellen Sherow, Director of Research Compliance, Ohio University, (740)593-0664.

Federal and university regulations require signed consent for participant in research involving human subjects. Please indicate your consent by typing in your name and date below and click on the “Next” button.
By clicking the “Next” button, you are agreeing that:
• you have read this consent form and have been given the opportunity to ask questions
• known risks to you have been explained to your satisfaction.
• you understand Ohio University has no policy or plan to pay for any injuries you might receive as a result of participating in this research protocol
• you are 18 years of age or older
• your participation in this research is given voluntarily
• you may change your mind and stop participation at any time without penalty or loss of any benefits to which you may otherwise be entitled.
Page 4 Demographics

The following information will be used for research purpose only. A few more demographic questions will be asked at the end of this survey.

**Are you subscribed to ____________?**

- ☒ ☐ The Drum Beat
- ☒ ☐ The Soul Beat
- ☒ ☐ Both

**How long have you been subscribed to the e-newsletters: Drum Beat and/or Soul Beat? Please give your best estimate and enter a positive number only.**

months

**In which country/region are you currently residing? (Please do not use abbreviations)**

**In which city/town/district are you currently residing? (Please do not use abbreviations)**

**With which organization are you associated? (Please do not use abbreviations)**

**What is your job position title? (Please do not use abbreviations)**
Page 5 Section 1: Communication Exchanges within The CI Network

This section asks about your communication experience within the Communication Initiative network. To answer the following questions, please consider the majority of your cases.

Have you contacted anyone who is identified as a contact person featured in an entry either on the Communication Initiative web site or in the e-newsletters: Drum Beat and/or Soul Beat?

- [ ] [ ] Yes
- [ ] [ ] No
- [ ] [ ] Can’t recall
If yes, approximately how many people have you contacted?

- None
- 1
- 2-10
- 11-20
- 21-50
- 51-100
- More than 100

What was the communication channel you used, or used most often, for the initial contact?

- Email
- Fax
- In person
- Letter
- Phone – Landline
- Phone – VoIP (Voice Over Internet Protocol)
- Video conference
- Other (please specify)

How often do you receive responses from people you have contacted?

- Always
- Frequently
- Occasionally
- Rarely
- Never
Did you engage in further communication exchanges after the initial contact?

- [ ] Yes
- [ ] No
- [ ] Can't recall
What communication channels did you use for further contacts? (If you employed more than one channel, please enter it in the text box under choice "Other, please specify")

Email  Fax  In person  Letter
Phone – Landline
Phone – VoIP (Voice Over Internet Protocol, e.g. Skype)
Video conference
Other

If you employed only one communication channel, please select that particular channel as your answer to the following questions, if you employed more than one communication channel, please make your choices to the following questions,

which one do you consider was the most convenient (in terms of accessibility)?

which one was the most preferred (as to your own preference)?

which one was the most effective (in terms of conveying accurate message)?

☐ ☐ Email
☐ ☐ Fax
☐ ☐ In person
☐ ☐ Letter
☐ ☐ Phone – Landline
☐ ☐ Phone – VoIP (Voice Over Internet Protocol, e.g. Skype)
☐ ☐ Video conference
☐ ☐ Other (please specify)
Have you been featured as a contact person in an entry on either the Communication Initiative web site or in the e-newsletters: Drum Beat and/or Soul Beat?

- [ ] [ ] Yes
- [ ] [ ] No
- [ ] [ ] Can't recall
If yes, approximately how many people have contacted you as a result?

- [ ] 1
- [ ] 2-10
- [ ] 11-20
- [ ] 21-50
- [ ] 51-100
- [ ] More than 100
For the communication exchanges within the Communication Initiative network, regardless of initiation,

What is the most popular nature of these interactions?

What is the second most popular nature of these interactions?

Debating principles
Discussing strategies
Seeking opinions
Seeking information
Sharing ideas
Sharing information
Seeking other contacts
Other

If you have chosen "other" option in the previous question, please specify here. (Optional)

Please tell me how much you agree or disagree with the following statement: These communication exchanges have contributed positively to your work.

- [ ] Strongly agree
- [ ] Agree
- [ ] Neither agree nor disagree
- [ ] Disagree
- [ ] Strongly disagree
Page 12 Section 2: Community and Learning

How would you describe yourself as a participant in the Communication Initiative network?

☐ ☐ Very Active – Initiate and lead discussions, collaborations, and/or other activities
☐ ☐ Active – Participate in discussions, collaborations, and/or other activities
☐ ☐ Somewhat active – Send in information
☐ ☐ Peripheral – Lurker

Regardless of your role, why are you motivated to be a participant in the Communication Initiative network? (More than one option may be checked)

☐ ☐ To be part of a work force that makes a difference
☐ ☐ To develop social network
☐ ☐ To enhance strategic thinking
☐ ☐ To find people who have common interest
☐ ☐ To get more information
☐ ☐ To learn knowledge that contributes to my work
☐ ☐ To share experience
☐ ☐ Other (please specify)

Is your involvement in the Communication Initiative network __________ ?

☐ ☐ Voluntary
☐ ☐ Required by job responsibility
☐ ☐ Both
How do you evaluate
the information you obtained from the Communication Initiative network?
the knowledge you learned from the Communication Initiative network?
the social network you developed through the Communication Initiative network?
Extremely Valuable
Valuable
Neutral
Little Value
No Value
Not applicable
Please tell me how much you agree or disagree with the following statement.

Strongly agree
Agree
Neither agree nor disagree
Disagree
Strongly disagree
Not applicable

You share common interests and goals with many other participants of the Communication Initiative network.

Connected with the Communication Initiative network (by visiting the web site, receiving e-newsletters and other publications, and communicating with other members) has become an important part of your job.

You feel emotionally attached to the Communication Initiative network.

The knowledge you obtained from visiting the Communication Initiative network web site is trustworthy.

The knowledge you obtained from receiving e-newsletters and other publications from Communication Initiative is trustworthy.

The knowledge you obtained from communicating with other participants of the Communication Initiative network is trustworthy.
Please tell me how much you agree or disagree with the following statement.

**Please tell me how much you agree or disagree with the following statement.**

Strongly agree
Agree
Neither agree nor disagree
Disagree
Strongly disagree

Digital communication channels, including emails, instant messengers, audio and video conferences, etc. have made your connection with the Communication Initiative network possible.

Digital communication channels including emails, instant messengers, audio and video conferences, etc. are adequate in accomplishing all communication tasks involved in the Communication Initiative network.

The leadership of the Communication Initiative network is informal.

The leadership of the Communication Initiative network is facilitative.

The leadership of the Communication Initiative network is supportive.
This section asks about your specific experience with the Communication Initiative web site.

**Have you visited the Communication Initiative web site?**

- [ ] [ ] Yes
- [x] [ ] No
For which of the following reasons have you visited the Communication Initiative web site? (More than one option may be checked)

- Academic work
- Consultant information
- Funding possibilities (awards, grants, scholarships)
- Networking with potentially helpful contacts
- News on development related issues
- Online links
- Policy ideas
- Program descriptions
- Request for proposal outlines
- Resource materials
- Strategic insights
- Training opportunities
- Vacancies for jobs
- Other (please specify)

How did you first learn about the Communication Initiative web site?

- Colleagues
- Events
- Friends
- Other web sites
- Publications
- Search engines
- Other (please specify)
Please rate the overall quality of the Communication Initiative web site.

- Excellent
- Good
- Average
- Poor
- Very poor
Please rate

Excellent
Good
Average
Poor
Very poor

the ease of navigation of the Communication Initiative web site

the overall look of the Communication Initiative web site

Did you find the information you were looking for on the Communication Initiative web site?

☐ ☐ ☐ Yes, I am completely satisfied with what I have found on the Communication Initiative web site.
☐ ☐ ☐ Yes, and the Communication Initiative web site points me to other sources for more information.
☐ ☐ ☐ No, but the Communication Initiative web site points me to other sources.
☐ ☐ ☐ No, I am disappointed and have not found anything on the Communication Initiative web site.

What information were you not able to find on the Communication Initiative web site? (Optional)
Please tell me how much you agree or disagree with each of the following statements.

Strongly agree
Agree
Neither agree nor disagree
Disagree
Strongly disagree

The Communication Initiative web site contains no grammatical or spelling errors.

The layout of the Communication Initiative web site is well-organized and clear.

The links on the Communication Initiative web site are current and working.

The Communication Initiative web site is always available online.

The content on the Communication Initiative web site is easy to understand.

The content of the Communication Initiative web site is up-to-date.

The content on the Communication Initiative web site is relevant to my needs.

The content on the Communication Initiative web site is useful to my needs.
Page 21 Section 3 Continued

Which sections of the Communication Initiative web site have you accessed? (Please choose the one that matches both row and column criteria from the drop-down menu)

Most Often
Second Often
Third Often

Theme Sites:
Special Focus:
Knowledge Sections:
Classified:
Other (please specify)

Which section of the Communication Initiative web site do you regard as the Most Useful, Most Well-Organized, and Most Up-to-Date?

Most Useful
Most Well-Organized
Most Up-to-Date

Theme Sites:
Special Focus:
Knowledge Sections:
Classified:
Other (please specify)
Would you recommend the Communication Initiative web site to others?

- Yes
- No
- Don’t know

Overall, how does the Communication Initiative web site compare to similar web sites you have visited?

- Excellent
- Good
- Average
- Poor
- Very poor
- Don’t know

If you have suggestions for improving the Communication Initiative web site, please enter them in the text box below.
(Optional)
Page 23 Section 4: The E-Newsletters: Drum Beat and/or Soul Beat

This section asks about your specific experience with the e-newsletters: Drum Beat and/or Soul Beat.

**Do you receive Drum Beat and/or Soul Beat?**

- [ ] Yes
- [ ] No
Do you

Always
Often
Sometimes
Seldom
Never

read Drum Beat and/or Soul Beat?

share part or all of the information you receive from Drum Beat and/or Soul Beat with others?

How often, on average,
do you seek more information through hyper-links provided in Drum Beat and/or Soul Beat?

do you contact people or organizations whose work is of interest to you and whose names and emails are listed as contacts in Drum Beat and/or Soul Beat?

Every issue
Every other issue
One in 5 issues
One in 10 issues
No more than one in 20 issues
Never
Please tell me how much you agree or disagree with each of the following statements.

Strongly agree
Agree
Neither agree nor disagree
Disagree
Strongly disagree

The content in Drum Beat and/or Soul Beat is clearly written and easy to understand.

Drum Beat and/or Soul Beat contains no grammatical or spelling errors.

The layout of Drum Beat and/or Soul Beat is well-organized.

The links in Drum Beat and/or Soul Beat are working.

The text size of Drum Beat and/or Soul Beat is easy to read.

The length of Drum Beat and/or Soul Beat is right.

If you have any suggestions for improving Drum Beat and/or Soul Beat, please enter them in the text box below. (Optional)
The following information will be used for research purpose only.

Are you ________?
☐ ☐ Female
☐ ☐ Male

What is your age?
☐ ☐ 18-25
☐ ☐ 26-35
☐ ☐ 36-45
☐ ☐ 46-55
☐ ☐ 56 or older

What is the highest level of education you have completed?
☐ ☐ Less than high school
☐ ☐ High school graduate/GED
☐ ☐ Some college
☐ ☐ 2-year college degree (Associate’s)
☐ ☐ 4-year college degree (BA, BS, etc.)
☐ ☐ Master’s degree
☐ ☐ Doctoral degree
☐ ☐ Professional degree (MD, JD, etc.)

Are you willing to participate in a 40-minute follow-up interview to elaborate on your experience with the Communication Initiative network?
☐ ☐ Yes
☐ ☐ No

If yes, please provide the following information for further contact:

Email
Phone
Skype
Thank you for participating in this survey. Your input is greatly appreciated!

Please click on the "done" button to submit the survey. You will be redirected to the Communication Initiative web site.
APPENDIX B: FOLLOW-UP INTERVIEW QUESTIONS

Please introduce yourself briefly. What do you do?

How did you find The CI network: The web site or newsletters? How are you involved in this network? Visit the web site; read newsletters; other activities? Why do you identify yourself as a somewhat active participant? Would you like to be more involved?

How does your involvement in The CI network relate to your own work? Can you provide one or two examples?

Would you describe The CI network as a community? Or it is more of a web site or a newsletter list? If you think The CI network is a community, do you find yourself identified with this community? Have you developed social relationships in the network? What makes you trust the information you get from the network? How would you evaluate the leadership of The CI network?

What do you think about The CI network in terms of its infrastructure, i.e. mainly online based and email based? How do you think about The Internet and digital communication? How are they benefit and/or limit the purpose of The CI network?

What would you recommend to The CI network in terms of further development?
APPENDIX C: IN-DEPTH INTERVIEW QUESTIONS

Could you please introduce yourself briefly? What organization are you associated with? What does this organization do? What do you do?

How long have you or your organization been working with The CI as a partner? How are you involved in The CI? Funding? Policy making? Or other activities? Could you please give some details?

From your standpoint, what is the purpose of The CI network? What strategies, policies, and/or events would you consider as the building blocks to the success of The CI network?

What do you think about The CI network in terms of its infrastructure, i.e. mainly online based and email based? How do you think about The Internet and digital technologies? How are they benefit and/or limit the purpose of The CI network?

Would you describe The CI network as a community? Or it is more of a web site or a newsletter list? Please elaborate your reasons. Further on this topic, what do you think about the issues of trust and leadership should be handled in The CI network?

What do you envision The CI network in 5 years and 10 years? Would you like to see anything specific in the future development of The CI?
APPENDIX D: IRB APPROVAL LETTER

A determination has been made that the following research study is exempt from IRB review because it involves:

Category 2. Research involving the use of educational tests, survey procedures, interview procedures or observation of public behavior.

Project Title: Digital Communication, Communities, and Learning: A Case Study of Online Communities of Practice from a Communication Perspective

Primary Investigator: Li Wang

Co-Investigator(s):

Advisor: Anita James

Department: Communication Studies

Robin Stack, CIP
Office of Research Compliance

Date: 06/09/2009

The approval remains in effect provided the study is conducted exactly as described in your application for review. Any additions or modifications to the project must be approved (as an amendment) prior to implementation.
APPENDIX E: IRB AMENDMENT APPROVAL LETTER

The amendment, detailed below, and submitted for the following research study has been approved by the Institutional Review Board at Ohio University.

Project: Digital Communication, Communities, and Learning: A Case Study of Online Communities of Practice from a Communication Perspective

Amendment: Survey questionnaires re-organized to move more important questions to the front. Some questions are changed to matrix format. Minor revision to informed consent statement.

Primary Investigator: Li Wang
Co-investigator(s):

Advisor: Anita James

Department: Communication Studies

Robin Stack, CIP
Office of Research Compliance

Date 06/17/2009