The Relationships Among Participants’ Characteristics, Perceptions, Nature of Involvement, and Outcomes in Strategic Community of Practice Programs in a Large Electric Utility Company

DISSERTATION

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Abstract

Despite increasing investment in building, supporting, and managing communities of practice (CoPs) that meet the strategic business needs of the organization, the literature indicates that little is known about strategic CoPs in organizational work settings. The purpose of this study was to investigate the relationships among participants’ characteristics, perceptions, nature of involvement, and outcomes in CoPs which are highly structured for strategic purposes.

Two strategic CoPs in an electric utility company that provides services in the United States were selected for this study. Multiple regression analyses of an online survey showed that participants’ perceptions were related to the nature of involvement in CoP. Level of involvement in CoP was shown to be related to participant outcomes, and time of involvement was shown to be related to learning from the CoP. Results of a qualitative content analysis of interviews with CoP leaders, coaches, and members assisted in interpreting the results of the quantitative data analysis and identified four CoP outcomes: gaining job-related information, solving problems at work, experiencing changes in affect, and communicating across the organization. Implications for future research and practice of CoPs in the HRD field were provided.
Dedicated to

Carol, who has been a lighthouse in the dark sea during my study,

and Charlie, who bolstered my courage to step to the music which “I hear.”
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Chapter 1: Introduction

In the knowledge-based economy, the meaning of labor is not limited to one of the requisites of production. Knowledge workers, the key drivers of the knowledge-based economy where knowledge is the central resource (Drucker, 2008), contribute to the organization’s competitive advantage. Tacit knowledge, embodied in humans, cannot be easily explained and delivered, while knowledge that is expressed in an abstract form can be easily codified, communicated, and copied (De Long & Fahey, 2000). Therefore, tacit knowledge, which is based on personal experience, contributes to an organization’s competitive advantage much more than explicit knowledge, which is documented and easily mimicked (Noe, 2008).

Many organizations have focused on the delivery of well-organized explicit knowledge through training programs to improve their employee’s job-related knowledge and skills. Training has been understood as a series of events which aim to deliver knowledge and skills selected and organized by training function personnel to trainees.
who need it to do their work. Under such circumstances, the context in which the knowledge is used can be easily separated from the knowledge itself (Brown & Duguid, 1991).

The way in which tacit knowledge is learned is different from the way in which explicit knowledge is learned (De Long & Fahey, 2000). Tacit knowledge can be learned through direct interactions, such as discussions and observations. Tacit knowledge is shared among people who need a common body of knowledge to do their work. Sharing tacit knowledge requires relationships, whether one on one or one with a group, between the people who provide knowledge and the people who receive the knowledge. In other words, the process of sharing tacit knowledge is dependent on a human-to-human relationship rather than humans interacting with text or inanimate sources of information.

Organizations today recognize the importance of sharing knowledge to business success. Organizations have devoted much attention to their intangible assets such as tacit knowledge, work-related know-how, informal networking systems, and relationships that help workplace learning and development. Increasing organizational focus on soft knowledge (knowledge and skills embodied in individual workers as compared to the hard knowledge contained in books and manuals) has resulted in increased interest in the
type of learning that occurs among people in a social context. In this context, the concept of community of practice (CoP) has gained popularity among knowledge management professionals.

As technology continues to change rapidly and the knowledge required for success at work is updated quickly, it is much more important to meet employees’ information, learning, and development needs by providing knowledge that is up-to-date and sited at locations that are quickly and easily accessible. Human resource development (HRD) functions need to enable employees to take ownership in planning their learning because their learning needs arise in their work context and the work itself provides resources for learning. Employees most effectively learn and apply what they learn when they have an immediate need for knowledge in their work. In this context, social learning in communities of practice is instrumental in providing learning in today’s organizations.

The term community of practice was originally coined to refer to a small, loosely defined, self-initiated, informal group of people who share their understandings about their work, learn how to work, and build their identity as workers and community members (Lave & Wenger, 1991). Changes in the workplace brought different forms of community of practice, and gradually the term community of practice came to be used in
a variety of contexts with a range of different connotations. First, globalization along
with rapidly developing communication tools brought dispersion of work via
telecommuting and virtual teams. Virtual communities of practice (VCoPs) became a
dominant form of community of practice in today’s workplace. In VCoPs, large groups of
people are linked to each other online. They know of others’ presence only virtually,
through the use of information communication technology.

Knowledge sharing literature indicates that individuals’ knowledge sharing
behavior in VCoPs is related to their personal and community-related outcome
expectations, affects, social capital, and facilitating conditions. Research in knowledge
sharing shows that individuals who have higher levels of openness to experience, self-
efficacy, and expertise tend to have higher levels of knowledge sharing intentions or
knowledge sharing activities (Cabrera et al., 2006; Matzler et al., 2008). A few authors
have shown a relationship between perceived social pressure or support and knowledge
sharing intention (Bock et al., 2005; Cabrera et al., 2006).

According to social exchange theory (Befu, 1977; Cook & Emerson, 1978;
Homans, 1958, 1961), individuals who engage in social interaction determine their
behavior based on a subjective cost-benefit analysis. Therefore, knowledge exchange
between community members is dependent on each individual’s judgment of how much value one sees in participation in the community. Each individual may use different measures to judge the cost of community of practice participation, such as time and effort. Also, each individual may have different expectations of the benefits of participating in communities of practice, such as gaining useful knowledge for improving work and for career development.

As the concept of community of practice evolved from a small, compact, informal group based on in-person relationships to a large, loose, formal group based on online networking, professionals in the areas of workplace learning and knowledge management found more possibilities for using the community of practice concept to pursue collaborative learning, knowledge creation, and knowledge sharing in the workplace. Community of practice came to be understood as a tool for knowledge management and collaborative social learning in the workplace (Ardichvili, 2008).

As more organizations started to invest their resources to support, build, and manage communities of practice, another concept of community of practice has emerged: community of practice has become a formal, structured group that is designed, implemented, and managed to meet the strategic business needs of the organization.
Since the area of strategic community of practice has been led primarily by practitioners whose interests include sharing best practices to improve processes and emphasis on approaches used by the knowledge management function within organizations (APQC, 2001, 2005), there have been relatively few academic investigations of strategic communities of practice in organization work settings. Little is known about strategic communities of practice, especially what affects their viability and productivity, and what results they bring. Considering the fact that communities of practice with strategic purposes are highly structured to pursue specific goals, and members are not entirely volunteers in many cases, it is assumed that the determinants of participation in strategic communities of practice are different from the determinants of participation in self-initiated communities of practice which are not initially linked to the company’s strategy.

**Statement of the Problem**

As the value of community of practice attracts greater attention in organizations as a means of collaborative learning and knowledge sharing, more organizations invest their resources to build communities of practice that have strategic purposes and are aligned with business strategies that significantly contribute to an organization’s
performance. Although organizations invest in communities of practice with the assumption that once the communities are built, their value will sustain over time, the participation of community members, which is the primary source of community activities and a determinant of the viability and productivity of the community, is not stable. Little is known about strategic communities of practice in organizational work settings, especially about what affects their viability and productivity, and what results they bring.

If organizations increasingly invest in designing and supporting communities of practice that have strategic purposes, if well-established communities of practice do not always lead to the community members’ active participation over time, and if little empirical evidence about the outcomes of employees’ involvement in communities of practice exists, then more should be known about what affects individuals’ involvement in strategic communities of practice that are aligned with strategic imperatives, and about the outcomes of involvement in strategic communities of practice. Research to date has not focused on factors affecting individuals’ knowledge sharing activities in communities of practice that aim at specific strategies.
The purpose of this study is to investigate the relationships among participants’ characteristics, perceptions, nature of involvement, and outcomes in communities of practice which are highly structured for strategic, organizational purposes.

Research Questions

The following research questions guide this study.

1. What is the relationship between participants’ characteristics and the nature of their involvement in communities of practice?

2. What is the relationship between participants’ perceptions and the nature of their involvement in communities of practice?

3. What is the relationship between the nature of participants’ involvement in communities of practice and community of practice outcomes?

4. What are the relationships among participants’ characteristics, perceptions, the nature of involvement in communities of practice, and community of practice outcomes?

5. What outcomes did participants perceive that they achieved from their involvement in communities of practice?
Definition of Terms

The major terms for this study are defined as follows:

Community of Practice

Community of practice (CoP) refers to a group of people who seek better ways of working through the process of sharing their knowledge, experience, and insights on a common interest or a problem in a subject. In this study, community of practice refers to communities of practice in a large electric utility company in the United States. These communities of practice are designed to be aligned to the company’s business strategies.

Individuals Participating in Community of Practice Programs

Individuals participating in community of practice programs refer to employees of a large electric utility company who have been invited to participate by the Community of Practice Steering Team or by other community of practice members who have been invited by the Community of Practice Steering Team. Each community of practice has a community of practice roster and e-mail address list which are updated by CoP leaders.

Involvement in Community of Practice

Involvement in community of practice refers to each individual employee’s participation in community of practice activities, such as attending community of practice
meetings, making comments, and sharing information using a community of practice intranet site.

**Participant Outcomes**

Participant outcomes refer to outcomes that CoP participants perceive as a result of their involvement in a community of practice. Examples of participant outcomes include learning for work, implementation of individual learning, and work performance.

**Limitations of the Study**

First, the results of this study are limited to members of communities of practice in one large electric utility company in the United States. Therefore, the generalizability of the results of this study is limited to communities of practice which are aligned to strategic purposes of large companies in the United States.

Second, the measures used to determine the nature of involvement in communities of practice were self-rated, and participant outcomes were measured based on respondent perceptions.
Third, outcomes of community of practice are measured at an individual level only. There can also be group level and organizational level outcomes. Group and organizational level outcomes are beyond the scope of this study.

Fourth, this study gathered information during a short period of time. Although responses about participants’ characteristics and perceptions are assumed to remain stable over time, their involvement in communities of practice is not stable. The measure of a participant’s involvement in communities of practice may only represent his participation during a three month period while this study was performed. For the final data analyses, only responses with complete datasets were used.

Fifth, as described in chapter 3, there may have been negative effects on employees’ morale and their willingness to participate openly in the surveys and interviews due to a downsizing program announced by the organization during the study. The rates of employee participation in this study, as well as employees’ perspectives about the future may reflect their levels of concern about their employment and careers with the company. However, the survey and interview questions were designed to focus specifically on community of practice, and did not delve into organizational or employment issues.
Significance of the Study

The findings of this study will contribute to both the theory of and practice of HRD in several ways.

First, this study will contribute to the HRD literature in that it suggests a synthesized view of community of practice based on systems theory. It will contribute to the development of interventions that can aid community of practice design, participant recruitment, and facilitation, and may encourage participation in communities of practice.

Second, the findings of this study will include recommendations that will encourage employees’ involvement in community of practice, facilitate community of practice activities, and evaluate outcomes of communities of practice. Community of practice can be considered an intervention in the context of workplace learning because HRD professionals are responsible for promoting learning and performance in organizations.

Third, this study will provide empirical evidence that employees’ involvement in community of practice affects their learning and work. There is little empirical evidence that employees’ involvement in community of practice results in valuable outcomes for the individuals. So far, efforts to build and improve community of practice have been
driven by practice. More research is needed to develop empirical evidence that demonstrates the value of communities of practice.
Chapter 2: Review of Literature

This chapter consists of five sections. The first section reviews the definition and components of human resource development, and continues with a discussion about the application of systems theory to human resource development. The second section provides a definition of workplace learning and discusses types of workplace learning related to community of practice. The third section presents the concept of community of practice and its evolving concepts, followed by a discussion of strategic community of practice. The fourth section focuses on a community of practice system. A systems view of community of practice is presented. A community of practice system includes inputs, process, and outputs of community of practice. Finally, the conceptual framework of this study is discussed.
Human Resource Development

This section describes the definition and components of human resource development. Systems theory applied to human resource development is discussed.

Definition of Human Resource Development

Human resource development (HRD) is a relatively young field of study, one which has been driven by practice from the early stages of its development. The gap between the needs for developing human expertise and improving performance, on the one hand, and insufficient communication between practice and academia, on the other, has sometimes led HRD professionals to be dependent on trends rather than evidence found in the research. In the meantime, HRD professionals are interested in a wide variety of issues. Also, the environment related to developing human expertise is changing rapidly. In the field of HRD, the era of mass production has given way to the new world of pervasive customization. The role of HRD in the emerging knowledge society cannot be the same as it was in the industrial society. Therefore, it is not easy to define HRD. It is no wonder that a number of scholars have suggested a variety of definitions of HRD, and that the identity of HRD as an academic discipline is evolving (Swanson & Holton, 2009).
For some scholars, the goal of HRD is behavioral change (Nadler & Nadler, 1970). Others argue that the major goal of HRD is to improve human performance (Swanson, 1995), improve individual and organizational performance (Jacobs, 1988), increase learning capacity (Chalofsky, 1992), and develop work-based knowledge, expertise, productivity, and satisfaction (McLean & McLean, 2001). Swanson and Holton (2009) defined HRD as “a process of developing and unleashing expertise for the purpose of improving individual, team, work process, and organizational system performance” (p. 4). Although there is no consensus among HRD scholars about one definition of HRD, the variety of definitions of HRD in the literature show that the main concerns of HRD are learning and performance. The learning and performance paradigms are the most dominant paradigms of HRD (Swanson & Holton, 2009). Although there exists some tension between these two paradigms, it is undeniable that learning and performance are the two main strands in HRD.

**Components of Human Resource Development**

Although HRD scholars use various names for the components of HRD, they have agreed that there are at least two major HRD components: one is related to training, and the other one is related to organization development. Swanson and Holton (2009)
discuss two primary components of HRD: training and development, and organization development.

Training and development (T&D) is defined as “a process of systematically developing work-related knowledge and expertise for the purpose of improving performance” (Swanson & Holton, 2009, p. 226). T&D has assumed a prominent portion of HRD, and the training portion especially has received much attention. Training refers to “a planned effort by a company to facilitate employees’ learning of job related competencies” (Noe, 2008, p. 4). While training is more focused on present job requirements, development is focused on the long-term growth of expertise in people. The focus of development is not limited to learning for the current job (Swanson, 2002). It is related to interventions that help employees prepare for the future (Noe, 2008).

Similar to training and development, Jacobs and Washington (2003) defined employee development as “an integrated set of planned programs, provided over a period of time, to help assure that all individuals have the competence necessary to perform to their fullest potential in support of the organization’s goal” (p. 344). Employee development interventions include training and educational programs that provide the competencies needed to meet current work expectations.
Organization development (OD) is defined as “a systemwide application of behavioral science knowledge to the planned development, improvement, and reinforcement of the strategies, structures, and processes that lead to organization effectiveness” (Cummings & Worley, 2001, p. 1). Swanson and Holton (2009) provide a definition of organization development as follows: “Organization development is a process of systematically unleashing expertise for the purpose of improving performance” (p. 288). Jacobs (2007) defined organization development as human and structural processes to facilitate change among individuals, groups, and organizations. Although the method of facilitation of learning and development is one of the key dependent variables in various definitions of organization development (Egan, 2002), by its definition, organization development is more focused on problems in the existing condition or system than on the development of knowledge and learning. Therefore, the change process is the core of organization development. In addition to Lewin’s change model, which consists of unfreezing, moving, and refreezing, Cummings and Worley (2001) introduced a planned change model, which consists of eight steps. The first step is problem identification. Consultation with a behavioral science expert is the second step. Then, data are gathered, preliminary diagnosis is conducted, and feedback is provided to
key clients or groups. The final four steps include joint diagnosis of a problem, joint action planning, taking action, and data gathering after action.

Some HRD scholars discuss career development as the third component of HRD. McLagan (1989) argued that career development is one of the three areas of HRD practice. Career development is defined as “the process by which employees progress through a series of stages, each characterized by a different set of developmental tasks, activities, and relationships” (Noe, 2008, p. 415). Career development interventions include educational and experiential programs to match the needs of organizations and the interests of individuals (Jacobs, 2007). Because of recent changes in the workplace, individuals are now more responsible for their own career development. However, the contribution of career development to HRD is still recognized as essential by many organizations that provide career development programs for their employees.

As in Noe’s (2008) definition of HRD, “the integrated use of training and development, organizational development, and career development to improve individual, group, and organizational effectiveness” (p. 35), the three components of HRD discussed above act in an interrelated fashion, depending on the type of problems to be solved and the business needs to be considered.
HRD is an interdisciplinary field of study which is supported by multiple theories. Systems theory is one of the most important bodies of knowledge to HRD (Jacobs, 1989; Swanson & Holton, 2009; Weinberger, 1998). Jacobs (1989) argues that systems theory is about “a way to think about asking and answering questions” (p. 29), “serves as a general orientation for thinking about problems” (p. 31), and “provides the framework for developing specific practices found in most professions” (p. 31). Because the role of an HRD professional is to be an “organizational problem solver” (p. 29), systems theory is the most useful body of knowledge for HRD professionals (Jacobs, 1989).

General systems theory focuses on an integrated whole consisting of parts, connections among parts, and relationships among parts, the system, and the environment (Bertalanffy, 1968). A system can be defined as a collection of parts which affect each other and the whole. From the perspective of viewing organizations as systems, application of systems theory to HRD is inevitable because HRD practices require a holistic understanding of their objects, that is, the organization where the HRD practices occur.
Applying a systems approach to HRD is to understand that all things are systems which have inputs, processes, and outputs (Jacobs, 1990). Using a systems approach, HRD practitioners can derive a solution based on their holistic understanding of all aspects in and around the problem in the system. This enables HRD practitioners to analyze the problem and its context, and to find solutions which are harmonious with the broader context in which the problem is located. A systems approach is also useful to producers and consumers of knowledge in the HRD field because it can be used as a tool for the systematic analysis of what has been learned and where gaps may exist.

One example of the application of systems theory to HRD is “viewing structured on-the-job training (S-OJT) as a system” as demonstrated by Jacobs (2003). According to Jacobs (2003), “the systems view maintains that all natural and artificial entities are systems and that the behavior of systems is relatively predictable, which means that systems can be designed and managed with some confidence” (p. 30). Jacobs (2003) described an S-OJT system which shows components that are essential to the success of the system. These components are located in different places, such as training inputs, training process, training outcomes, and organizational context, according to their
relationship with other components and with the whole system.

Workplace Learning

This section consists of two parts. The first part reviews the definition of workplace learning, and discusses the relationship between HRD and workplace learning. The second part reviews types of workplace learning which are related to community of practice.

Definition of Workplace Learning

Training has been the largest portion of HRD knowledge and practice, and most HRD professionals have been focused on planned or formal training programs. However, the ways people actually learn how to work and how to improve performance are not always through structured training programs. In the 1990s, HRD scholars started to pay attention to unstructured, unplanned learning experiences in the workplace. Marsick and Watkins (1990) have identified three different types of learning in the workplace as formal learning, informal learning and incidental learning:

Formal learning is typically institutionally sponsored, classroom-based, and highly structured. Informal learning, a category that includes incidental learning,
may occur in institutions, but it is not typically classroom-based or highly structured, and control of learning rests primarily in the hands of the learner.

Incidental learning is defined as a byproduct of some other activity, such as task accomplishment, interpersonal interaction, sensing the organizational culture, trial-and-error experimentation, or even formal learning. (Marsick & Watkins, 1990, p. 12)

Increasing interest among HRD professionals in unstructured learning in the workplace has brought continuing discussion about workplace learning.

**Workplace learning** is “a specialized area within adult learning that focuses on how people learn in the workplace settings” (Rothwell, 2008, p. 40). Workplace learning can be defined as “the process used by individuals when engaged in training programs, education and development courses, or some type of experimental learning activity for the purpose of acquiring the competence necessary to meet current and future work requirements” (Jacobs & Park, 2009, p. 134). While the primary concern of HRD is to integrate training and development, organization development, and career development for the purpose of performance improvement through planned interventions, workplace
learning pursues performance improvement but with a focus on the worker as learner (Rowden, 2007).

*Types of Workplace Learning*

Jacobs and Park (2009) suggested three dimensions to identify types of workplace learning: the location of the learning, the degree of planning, and the role of trainer or facilitator. First, depending on the location of the learning, workplace learning can be categorized into on the job learning and off the job learning. Second, the distinction between structured learning and unstructured learning is made based on the degree of planning. The degree of planning refers to “the extent to which a systems approach was used to ensure that the intended learning outcomes were made explicit or presumed” (Jacobs & Park, p. 145). Third, the role of trainer or facilitator, that is “the extent to which others are involved during the learning process” (Jacobs & Park, p. 145), is a criterion used to classify workplace learning into learning that is related to either a passive role or an active role of the trainer or facilitator.

Based on the above three dimensions, Jacobs and Park (2009) classified eight different types of workplace learning. The first is structured learning that occurs off the job, where a trainer or facilitator plays a passive role as in self-directed learning. The
second is structured learning that occurs off the job, where a trainer or facilitator plays an active role, such as in web-based training and the corporate university. The third is structured learning that occurs on the job, where a trainer or facilitator plays a passive role. This category includes action learning. The fourth is structured on the job learning where a trainer or facilitator has an active role. Structured on-the-job training, formal mentoring, and formal coaching are examples of this type of workplace learning. There are also four types of workplace learning where learning is unstructured. One category is unstructured off the job learning, where a trainer or facilitator plays a passive role. Another category is unstructured off the job learning, where a trainer or facilitator plays an active role. Another category is unstructured on the job learning, where a trainer or facilitator plays an active role. The last category is unstructured, on the job learning where a trainer or facilitator plays a passive role. This category includes casual coaching, ad hoc mentoring, and community of practice. This type of workplace learning is defined as “learning [that] occurs at the actual work setting without the use of a systems approach, and with limited involvement of a trainer or facilitator” (Jacobs & Park, 2009, p. 144).
Community of Practice

This section consists of three parts. The first part reviews the concept of community of practice. The second part describes the evolving concept of community of practice. Finally, community of practice literature which is focused on the link between community of practice and a company’s business strategy will be discussed.

Community of Practice Concept

The definition of and theoretical basis for community of practice are presented in this section.

Definition of Community of Practice

Communities of practice (CoPs) refer to “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” (Wenger et al., 2002, p. 4). According to Lave and Wenger (1991), community of practice is “an activity system about which participants share understandings concerning what they are doing and what that means in their lives and for their communities” (p. 98). Orr’s (1996) study of photocopier repairmen’s informal learning is evidence that this type of learning exists in the workplace. The photocopier repairmen learned from each other informally through
their interactions with each other. Their informal discussions took place every day at work, during meals, during coffee breaks, and while driving to customer sites. They had a large amount of talk about a variety of topics. Finding solutions by talking is different from following directive documentation. Learning-in-working was necessary to the technicians and it was not by formal documentation but in narratives through which they learned how to solve problems and work effectively.

*Theoretical Basis for Community of Practice*

The term community of practice (CoP) was coined by Lave and Wenger (1991) as a theory of learning. They derived the concept of the community of practice from their ethnographic studies of apprenticeship. Findings from the studies uncovered the fact that learning occurs mostly in broad relationships with other learners, rather than through master-apprentice relationships. As knowledge is embedded in communities, participation in communities is a way to learn. Lave and Wenger argue that legitimate peripheral participation is an analytic approach to learning, rather than a type of training or teaching method. The concept of legitimate peripheral participation refers to the process in which newcomers participate in the communities partially, then move gradually to the center, and finally become full participants.
These learning phenomena found in communities of practice are related to the situatedness of knowledge. According to situated cognition theory, knowledge is a part of “production of the activity, context, and culture in which it is developed and used” (Brown et al., 1989, p. 32). Therefore learning is also inevitably situated. Lave and Wenger (1991) stated: “even so-called general knowledge only has power in specific circumstances” (p. 33). As learning is a social practice of acquiring situated knowledge, it is affected by the social, historical, and cultural contexts.

Furthermore, Lave and Wenger (1991) found that participation in community of practice fostered situated learning. They claimed that a community of practice creates a learning curriculum, which has “learning resources in everyday practice viewed from the perspective of learners” (p. 97). According to them, learning curriculum is distinguished from teaching curriculum by situatedness. Learning occurs through participation in the community’s learning curriculum.

Wenger (1998) further discussed social theory of learning as the nature of community of practice. According to Wenger, learning in communities of practice means social participation. He claimed “participation here refers not just to local events of engagement in certain activities with certain people, but to a more encompassing process
of being active participants in the practices of social communities and constructing identities in relation to these communities” (p. 4).

Wenger (1998) stated that community of practice is an element of the framework of the social theory of learning. While deriving social perspectives on learning from his theory, Wenger discussed how to design learning. He stated that learning cannot be designed, however social processes, such as organizations or instruction can be designed. He proposed that because a community of practice is identified as a community of practice not by its form but by its contents, “[communities of practice] cannot be legislated into existence or defined by decree” (Wenger, 1998, p. 299). He concluded that community of practice and social aspects of learning need to be recognized and supported.

Characteristics of Community of Practice

According to Wenger and his colleagues (2002), there are many forms of community of practice. Whether they are large or small, long-lived or short, having homogeneous or heterogeneous composition, or having boundaries with or across business units and organization boundaries, all communities of practice have common elements. Wenger and his colleagues presented three structural elements of community of
practice: “a domain of knowledge, which defines a set of issues; a community of people who care about this domain; and the shared practice that they are developing to be effective in their domain” (p. 27). These three elements function together to create a social structure where knowledge is shared and developed.

Wenger and his colleagues (2002) presented the characteristics of community of practice by comparing it with other structures in organizations. First, the purpose of community of practice is “to create, expand, and exchange knowledge, and to develop individual capabilities.” Communities of practice differ from formal departments, which have the purpose of delivering a product or a service. Second, members of communities of practice are self-selected based on their expertise or passion for a topic, while operational team members are assigned by management. Third, the boundaries of community of practice are fuzzy, while formal departments, operational teams, and project teams have clear boundaries. Fourth, “passion, commitment, and identification with the group and its expertise” (Wenger et al., 2002, p. 42) are catalysts for unity of a community of practice, while a project’s goals hold project team members together. Fifth, communities of practice differ from informal networks, which “never really start or end” and “exist as long as people keep in touch or remember each other” (Wenger et al., p.
Communities of practice evolve, and vanish when there are no more relevant topics, value, or interests in collaborative learning.

Stages of Community Development

Wenger and his colleagues (2002) proposed that a community of practice has a natural cycle of birth to death, as if it were a living organism. They presented five stages of community development: potential, coalescing, maturing, stewardship, and transformation. Wenger and his colleagues (2002) stated:

[Communities of practice] start as loose networks that hold the potential of becoming more connected and thus a more important part of the organization. As members build connections, they coalesce into a community. Once formed, the community often grows in both membership and the depth of knowledge members share. When mature, communities go through cycles of high and low activity, just like other living things. During this stage, communities often take active stewardship of the knowledge and practices they share and consciously develop them. (p. 68)

Wenger and his colleagues (2002) identified challenges in each stage and discussed how communities of practice can pass through developmental tensions in each stage.
Evolving Concept of Community of Practice

The term community of practice was first suggested to refer to an informal group of people who have close contact in their work (Lave & Wenger, 1991). This original concept of community of practice has been expanded during the last decade due to the recent development of Internet-based networking technologies and challenges in the knowledge management field (Hildreth & Kimble, 2004).

First, the nature of the relationships among community members has changed because of the use of online networking, which enables larger groups of individuals to connect to the community virtually. Community members have one-to-many relationships, which strengthen anonymity and lessen the sense of group identity, reciprocity, and emotional bond with other community members.

Second, the focus of community of practice has been moved from learning-orientation to knowledge-orientation. As virtual communities of practice (VCoPs) began to use asynchronous communications, such as discussion boards in a website, this reservoir of knowledge attracted knowledge management professionals to a new possibility of community of practice as a knowledge creation and knowledge sharing tool (Gourlay, 2001). Knowledge management professionals, who once believed that the use
of state-of-the-art information technology will lead to the success of knowledge management systems, realized that in many cases the cause of failure is not in technology but in human factors (Cabrera et al., 2006; Davenport et al, 1998; Gourlay, 2001; Wang & Noe, 2008). Therefore, the changing concept of community of practice, which became more formal and easier to observe and manage, is good news to many knowledge management professionals. Cox (2005) pointed out that the concept of community of practice described by Wenger and colleagues (2002) differs from early literature. Wenger and colleagues (2002) show a managerial approach to community of practice, in which they viewed communities of practice as objects of management. In this context, communities of practice came to be understood as a vehicle for knowledge sharing.

Knowledge sharing is “the act of making knowledge available to others within the organization” (Ipe, 2003, p. 341). According to Kang and colleagues (2007), human resources can contribute to strategic management because knowledge embodied in people is the core of a company’s foundation. Thus, knowledge sharing is a means to contribute to a company’s competitive advantage (Wang & Noe, 2008).

As communities of practice were researched in the knowledge sharing context, various social and psychological theories began to be applied. The theory of reasoned
action, social exchange theory, and social capital theory are the most popular theories used to study knowledge sharing (Wang & Noe, 2008).

The theory of reasoned action (Ajzen & Fishbein, 1980) explains that if an individual has a positive attitude toward a behavior, and if he thinks that significant others want him to perform a behavior, his intention to perform the behavior will be high and he will actually perform the behavior. Bock and colleagues’ (2005) study employed the theory of reasoned action, supplemented by their theoretical frame through interviews with chief knowledge officers or chief information officers. The results of a survey of Korean employees from 27 organizations across 16 industries showed the relationships among organizational climate, subjective norm, attitude toward knowledge sharing, and intention to share knowledge.

The theory of planned behavior (Ajzen, 1985) is an extension of the theory of reasoned action. It explains that if an individual has a positive attitude toward a behavior, if he thinks that other people who are significant to him want him to perform the behavior, and if he believes that he has the ability to perform the behavior, his intention to perform the behavior will be high, and he will actually perform the behavior. Lin’s (2006) study of intention to participate in virtual communities employed the extended
theory of planned behavior as its theoretical framework. The results of a survey of
Taiwanese community members showed the relationships among perceived usefulness of
virtual communities, perceived ease of use, perceived trust, facilitating conditions,
attitudes toward virtual communities, perceived behavioral control, and intention to
participate in virtual communities.

In some knowledge sharing research, multiple theories have been employed concurrently. Social exchange theory and social capital theory have been used concurrently in knowledge sharing research. Social exchange theory explains that all human behaviors are determined by the use of subjective cost-benefit analysis (Homans, 1958, 1961). Social capital theory (Nahapiet & Ghoshal, 1998) can be employed to explain knowledge sharing behaviors in that resources embedded within human networks determine the context of knowledge sharing. Wasko and Faraj’s (2005) study about electronic networks of practice employed social exchange theory and social capital theory. The results of the study showed positive links from individual’s centrality and reputation to helpfulness of knowledge, and positive links from centrality, reputation, and tenure in the field to volume of contribution. Kankanhalli and colleagues (2005) also employed social exchange theory and social capital theory for their study about the usage
of electronic knowledge repositories. They reported that knowledge self-efficacy and enjoyment of helping others have an impact on usage of electronic knowledge repositories.

Social capital theory has often been used with other theories. In Chiu and colleagues’ (2006) study proposing an integrative model for motivations of knowledge sharing in virtual communities, social capital theory and social cognition theory were employed for the model. The results of the study showed that community-related outcome expectations were related to both quantity and quality of knowledge sharing, and social capital (social interaction ties, reciprocity, and identification) increased quantity of knowledge sharing. In Chow and Chan’s (2008) study of organizational knowledge sharing, social capital theory and theory of reasoned action were used. The results of a survey of managers in Hong Kong showed the relationships among social network, shared goals, attitudes toward knowledge sharing, perceived norms about knowledge sharing, and intention to share knowledge.

Wang and Noe (2008) found that 78 knowledge sharing research studies completed from 1994 to 2008 fell into four categories with the following themes: individual related factors, contextual factors, interpersonal and team-related factors, and
cross-cultural issues. Their review included knowledge sharing behaviors that occurred either face-to-face, through online networks, or in knowledge management systems. The findings related to community of practice can be summarized as follows: First, it was found that perceived benefits are positively related to knowledge sharing, while perceived costs are negatively related to knowledge sharing in several community and network studies. Second, individuals who are more confident of the usefulness of the knowledge that they share with others had higher levels of intention to share knowledge in online communities. Third, individuals’ relationships with the knowledge receiver and the number of ties an individual has with others are related to their knowledge sharing in virtual communities. Fourth, the relationship between the norm of reciprocity and knowledge sharing in virtual communities is not always significant. These conflicting results can be explained by the characteristics of virtual communities, where “one’s giving is reciprocated by a third party rather than [by] receiver” (p. 20). Fifth, almost all knowledge sharing studies about communities were using an online setting, that is, virtual communities.
Strategic Community of Practice

As more organizations started to pay attention to the human factors in knowledge management, existing informal communities were encouraged to become known in their organizations, and to demonstrate their value to the organizations. Furthermore, organizations started to support and monitor communities of practice. Organizations’ strong interests in this new tool of knowledge management finally resulted in a new form of community of practice, which is intentionally designed by the organization. This new form of community of practice is a formal, structured group that is designed, implemented, and managed to meet the strategic business needs of the organization. This type of community of practice is referred to as a strategic community of practice (Dubé et al., 2006).

A few global companies and the American Productivity and Quality Center (APQC) have led this change. These pioneer organizations have interests in sharing best practices to improve efficiency, and their focus is on the proliferation of knowledge management within their organizations.

Storck and Hill (2000) presented the concept of strategic communities, which are similar to communities of practice. They compared strategic communities with
communities of practice as follows: “[strategic communities] are created by management to address broad strategic objectives, and they are focused around achieving specific goals” (p.65). Their case study of Xerox’s Transition Alliance showed how the company has responded to global IT transition using the strategic community.

Saint-Onge and Wallace (2003) identified three types of communities of practice: informal, supported, and structured. They defined an informal community of practice as “grass-roots structures, loosely organized, and formed by people who have a common need to discuss topics related to their work” (p. 35). A supported community of practice “[has] sponsorship at some level within the organization and a more purposeful focus on developing new knowledge that furthers their capabilities within their practice” (p. 38). A structured community of practice is one that is “highly motivated, aligned with strategic imperatives that significantly contribute to an organization’s performance” (p.38). Based on their definitions, strategic communities of practice can be referred to as “communities of practice that have been purposefully built to meet a strategic objective, the most highly structured type of community of practice” (Saint-Onge & Wallace, 2003, p.40).

The American Productivity and Quality Center (APQC) conducted a series of community of practice benchmarking studies (APQC 2001, 2005). As a result of these
studies. APQC (2005) suggested the APQC CoP framework, which includes a CoP design process. The APQC CoP design process consists of four elements: strategic positioning, CoP planning, design and launch, and sustain and evolve. Strategic positioning consists of three steps: a link to key business strategies, the formation of a core group to manage and deploy the CoP strategy, and a model for funding it. The concept of strategic positioning is understood as an initiative for a strategic community of practice.

In academia, there has been little discussion about this emerging form of strategic community of practice. Dubé and colleagues (2006) reviewed virtual community of practice literature and found 21 structuring characteristics. The orientation of virtual community of practice includes a strategic virtual community of practice and an operational virtual community of practice.

A strategic VCoP is created to support the overall mission and orientation of the organization; such VCoPs are created to shape the organization’s response to an important environmental change or to define new products or segment markets.

… A strategic VCoP, [is] more likely to encounter high level of uncertainty and
fuzziness, faces more challenges, particularly at its initiation. (Dubé et al., 2006, p. 75)

Community of Practice System

This section consists of two parts. The first part discusses a basis for viewing community of practice as a system. The second part demonstrates the community of practice system, more specifically, community of practice inputs, process, outcomes, and the organizational context surrounding the community of practice system.

Viewing Community of Practice as a System

As discussed in the prior section, community of practice is a social learning system where participants share knowledge through interactions (Lave & Wenger, 1991; Wenger, 2000). Among the forms of community of practice, strategic communities of practice which are planned to align to the business strategy of the organization are most suitable to apply a systems approach. Applying a systems approach to strategic communities of practice will help ensure that all aspects in and around the system are considered in designing and managing the community system.
Community of Practice Inputs

Community of practice inputs include the individuals involved and the organization to which the individuals belong.

The first input is individual differences such as personality traits and self-efficacy. The knowledge sharing literature shows that among the Big Five personality traits, openness to experience is related to knowledge sharing. In a study by Matzler and his colleagues (2008), openness to experience, conscientiousness, and agreeableness were related to knowledge sharing within the teams in an engineering company. In a study by Cabrera and his colleagues (2006), openness to experience and role breadth self-efficacy were the most important determinants of knowledge sharing among Spanish workers in a large multinational company.

Second, expertise is an input of a community of practice system. In a qualitative study by Hew and Hara (2007), unfamiliarity with the online community subject matter is one of the most frequent barriers to knowledge sharing in an online environment. In a study by Wasko and Faraj (2005), tenure in the field, a proxy for expertise, was related to the volume of contributions to electronic networks of practice in a national legal
professional association in the United States. However, a relationship between self-rated expertise and contribution to the online group was not found.

Third, expectations about community of practice are another input. Expectations include both the expected demands of time and effort to participate in a community of practice, and the expected benefits of participation in the community of practice.

According to social exchange theory, an individual’s involvement in social interaction behaviors is determined by his subjective cost-benefit analysis (Befu, 1977; Cook & Emerson, 1978; Homans, 1958, 1961), and information is one of six classes of resources that are transacted in an interpersonal situation (Foa & Foa, 1980). Similarly, Triandis (1977) proposed that a person’s expectations, that is, the subjective probability that certain consequences will follow a behavior, affect interpersonal behavior. In a study of a virtual community among computer programming and IT professionals in Taiwan by Chiu and colleagues (2006), community-related outcome expectations played an important role in both the quantity and quality of knowledge sharing, while no relationship was found between personal outcome expectations and knowledge sharing activities. Similar results were found in a study of general knowledge sharing behavior in the workplace by Bock and colleagues (2005). They discussed their results in relation to
the strong collectivist culture of Korean organizations: “at least in the Korean context, favorable individual attitudes toward knowledge sharing are influenced by relational motivators rather than by expectations of extrinsic rewards” (p.98). In a qualitative study by Hew and Hara (2007), it was found that lack of time is the most frequent barrier to knowledge sharing in the online environment.

Fourth, social capital, including trust, social norms, and reciprocity, is another community of practice input. A few studies reported that social capital is related to knowledge sharing in the communities of practice. In a study by Wasko and Faraj (2005), an individual’s centrality in networks of practice is linked to helpfulness of knowledge and volume of contribution, while reciprocity was negatively related to volume of contribution. In a study by Chiu and colleagues (2006), it was found that social interaction ties and reciprocity increased the quantity of knowledge sharing and affected knowledge quality via trust, while trust did not have significant impacts on the quantity of knowledge sharing. In a qualitative study by Hew and Hara (2007), the most common motivators of knowledge sharing included reciprocity and altruism.

Organizational inputs include organization culture and management support. The first organizational input to be considered here is organizational culture. Based on a
review of management theory, strategic management, information and decision sciences, organizational communication, and organizational behavior, Ipe (2003) proposed four factors that influence knowledge sharing: the nature of knowledge, motivation to share, opportunities to share, and the culture of the work environment. Organizational cultures and subcultures affect knowledge sharing because they include assumptions about what knowledge is important (De Long & Fahey, 2000; Ipe, 2003). Ardichvili (2008) also suggested a supportive corporate culture as one of the enablers of knowledge sharing in virtual communities of practice.

The second organizational input is management support. Millen and his colleagues (2002) found that organization support, in terms of recognition, funding, time, support roles, and communication infrastructure, is needed to promote communities of practice. Cabrera and colleagues (2006) found that perceptions of support from colleagues and supervisors toward knowledge sharing are important determinants of knowledge sharing.

**Community of Practice Process**

According to early community of practice literature (Lave & Wenger, 1991; Wenger, 1998), a community of practice is a platform structure where learning occurs.
On the one hand, learning can be understood as a process of absorbing and digesting new knowledge. On the other hand, learning also means the results of the learning process. Learning in the community of practice is related to many activities, which have been represented as participation in the community of practice. Individuals’ activities in communities of practice are interactions, which can be distinguished into two different characteristics. One is information or knowledge exchange, and the other is networking (Zboralski et al., 2006). The phenomena of information exchange are often referred to as knowledge sharing behavior. People who have knowledge and are willing to share participate in communities of practice. They externalize their intrinsic knowledge, organize existing knowledge, or provide a location for knowledge needed by others. People who have a need for knowledge seek knowledge from the resources offered by the community of practice. Achieved knowledge is practiced and learned collectively (Mittendorff et al., 2006). Thus, a knowledge base of the community of practice is accumulated, and contributes to the creation of new knowledge.

**Community of Practice Outputs**

Outcomes of community of practice activities can be classified into two categories: individual and organizational outcomes (Allee, 2000; Fontaine & Millen,
Fontaine and Millen (2004) introduced individual benefits of community of practice, including skills and know how, personal productivity, job satisfaction, personal reputation, and a sense of belonging, and organization benefits, including operational efficiency, cost savings, level of service or sales, speed of service or product, and employee retention.

Individual outcomes can be classified into short-term, mid-term, and long-term outcomes. Learning is a short-term community of practice outcome, which is a product of learning and knowledge sharing activities. Knowledge that individuals achieve is implemented in their work. This learning transfer is a mid-term outcome. Implemented knowledge, ideas, and best practices bring success to projects in the long run.

Individuals’ participation in communities of practice also results in some emotional outcomes. Individuals’ interactions with other community members in the field build their identities as professionals in the field. They feel a stronger sense of belonging to their profession, their community, and their organizations. In a study of Korean IT workers by Chang and colleagues (2009), it was found that participation in communities of practice is related to a sense of belonging to the organization, role comprehension, organizational commitment, and intention to remain in the organization.
Organizational outcomes include retention of organizational knowledge, process improvement, innovation, and organizational culture. Knowledge that is embedded in individuals is dispersed across the organization, documented, and built into the organization’s database. Through this process, even when experienced individuals leave the organization, their knowledge, experience, and insight about work remain as the organization’s property. Individuals who achieved knowledge through participation in communities of practice try new ideas and reflect the knowledge they have gained in their work practices. They find possibilities for process improvement and innovation as well as challenges in their work. When an organization supports its employee’s knowledge sharing and networking, organizational culture changes gradually so that the value of trust and collaboration are promoted in the organization.

These outcomes of community of practice provide feedback to community of practice inputs. The more benefits individual participants and the organization see in communities of practice, the more resources will be invested in the communities of practice.
Finally, as a system, a community of practice exists within the larger context of
the organization. A community of practice influences other systems in the organization as
well as being influenced by other systems. In today’s time of global economic challenge,
one critical issue is to determine priorities of resource investment in many organizations.
HRD and knowledge management professionals may need to demonstrate the value of
community of practice initiatives to ensure the organization’s support for communities of
practice. HRD and knowledge management professionals are responsible for the
accountability of communities of practice. If the value of communities of practice were
not assessed properly, resources for community of practice, especially time and funding,
could be reduced or eliminated. Because lack of time is the most important barrier to
employees’ knowledge sharing, it is important to find ways to ensure that employees
have enough time to participate in communities of practice.
Conceptual Framework of the Study

This section presents a conceptual framework of the study: the relationships among participant characteristics, perceptions, nature of involvement, and outcomes in a community of practice programs in a large electric utility company.

The prior section discussed a community of practice system based on a synthesis of community of practice and knowledge sharing literature. There are many studies of virtual communities of practice, or general knowledge sharing behaviors in online environments. However, as discussed in the second section of this chapter, the area of strategic community of practice has occurred through practice, with little research of strategic communities of practice. To build a conceptual framework for this study, it was assumed that strategic communities of practice are highly structured to pursue specific goals, members are not entirely volunteers in many cases, and their motivation to be involved in the community of practice could be more related to their judgment of capability, availability, usefulness, and organizational atmosphere than to their intrinsic motivation, such as the enjoyment of helping others.

Figure 2.1. presents the conceptual framework of the study. A community of practice process is related to two layers of relationships: the relationship with community
of practice inputs, and the relationship with community of practice outputs. In the first layer, there are six independent variables: openness to experience, problem solving self-efficacy, experience with the topic, expected demands, expected outcomes, and knowledge-sharing culture. Level of involvement and time of involvement in community of practice are dependent variables. In the second layer, level and time of involvement are independent variables, while learning from the community of practice and learning transfer are dependent variables.

The construct participants’ characteristics includes two non-community-of-practice individual differences: openness to experience, and problem solving self-efficacy. In contrast, the participants’ perceptions construct includes variables that are directly related to community of practice or knowledge sharing. Experience with the topic is a variable that is related to capability in the community of practice topic. Expected demands and expected outcomes are related to individuals’ judgments of their availability and the usefulness of being involved in the community of practice. Knowledge-sharing culture is a part of organizational culture, which can be a barrier to or a catalyst for participants’ involvement in the community of practice.
The participant outcomes construct includes two variables: learning from the community of practice, and learning transfer. Learning from the community of practice is related to short-term outcomes, while learning transfer is about outcomes of implementation of the learning. Long-term outcomes, such as success in projects, are not included in the conceptual framework.
Participant Characteristics
- Openness to experience
- Problem solving self-efficacy

Participant Perceptions
- Experience with the topic
- Expected demands
- Expected outcomes
- Knowledge-sharing culture

Nature of Participant Involvement in Community of Practice
- Level of involvement
- Time of involvement

Participant Outcomes
- Learning from the community of practice
- Learning transfer

Figure 2. 1. Conceptual Framework of the Study
Chapter 3: Method

This chapter describes the methodology used to address the research questions in this study. This chapter is divided into seven sections. The first section describes the research setting. The second section describes the research design of this study. The third section describes the selection of respondents. The fourth section illustrates the operational definitions of the variables for the study. The fifth section discusses the instruments for this study. The sixth section describes data collection procedures. Finally, how data were analyzed is explained.

Research Setting

This study focuses on communities of practice that are aligned to the business strategy of the organization. Participant criteria for this study were as follows:

1. Communities of practice which are planned, designed, launched, and facilitated by the organization
2. Community members interact face-to-face, online, or using any computer-mediated communication technologies
3. Community members’ interaction is visible, such as discussions in electronic bulletin boards, conference calls recorded, etc.
Participating communities of practice were recruited locally and globally. First, a local chapter of the American Society for Training and Development (ASTD) was contacted. A memo that contains a message briefly introducing the research agenda was distributed at the group’s networking meeting, posted on the ASTD website, and sent to ASTD members via email. Second, an invitation letter to participate in the study that contains a brief introduction to the study and participation criteria was posted on discussion boards of five social networking groups where the members share their interests in community of practice, human resource development, training, or knowledge management. Third, an invitation letter was sent to the Community of Practice Yahoo Group. Six responses out of eleven were from the United States, and other responses were from Portugal, France, Australia, and South Africa. Eight responses were from professionals in the private sector who either have experience in community of practice or are considering implementing a community of practice initiative in their organizations. After further discussions about communities of practice in their organizations with the respondents, two communities of practice in a large electric utility company in the United States were selected based on the participation criteria.

The selected company is a large electric utility company in the United States, established in the 1900s. Its headquarters is located in a city in the Midwest, and it has more than 21,000 employees who serve 5.2 million customers in eleven states. The company ranks among the nation’s largest generators of electricity, and it owns the nation’s largest electricity transmission system.
The participating communities of practice are planned, designed, and launched by a Community of Practice Steering Team, executive sponsors, and a Community of Practice Support Group within the company. The company established its community of practice model based on the APQC (American Productivity and Quality Center) CoP framework. Once a community of practice is launched by the design team and an executive sponsor, each community of practice is led by a CoP leader who is supported by the executive sponsor and a CoP coach. As of January 2010, each community of practice had more than 70 members whose names are listed in their respective community of practice rosters. Because community of practice members join the group voluntarily and leave freely, the sizes of the communities of practice change over time.

A community of practice in the Generation business unit, focused on power generation topics, was launched during the summer 2008. The purpose of the Generation Community of Practice is to provide an opportunity to improve the skills and expertise of employees who carry out performance work at power generation plants. Members of the Generation Community of Practice meet online bimonthly and face-to-face once a year. They share knowledge using intranet sites that are applications of Microsoft SharePoint and Wiki.

A community of practice in the Transmission business unit, focused on electricity transmission topics, was launched during the summer 2009. Its goals are to establish a forum for the exchange of robust technical knowledge at the front-line level, to provide opportunities to develop and disseminate best practices, and to create a forum to discuss technical problems that field crews need help to solve. The Transmission Community of
Practice has monthly online meetings using Adobe Connect software, and shares knowledge using an intranet site using Microsoft SharePoint. Each meeting is recorded and the records are shared on the intranet site.

Research Design

This study aims to investigate the relationships among variables relating to community of practice activities, such as inputs (participant characteristics and perceptions), process (nature of involvement in CoP), and outputs (participant outcomes). To achieve its goal, this study combined a quantitative approach and a qualitative approach. The qualitative approach provides explanations of the quantitative results and helps further understanding of the research subjects.

A mixed method design, specifically an explanatory design using primarily a quantitative approach, is used for this study. According to Creswell and Plano-Clark (2007), there are situations when mixed method is the preferred approach:

- When only one approach to results is inadequate by itself…when a quantitative design can be enhanced by qualitative data or when a qualitative design can be enhanced by quantitative data…when the quantitative results are inadequate to provide explanations of outcomes and the problem can be understood by using qualitative data to enrich and explain the quantitative results in the words of participants…when there is a need to first explore qualitatively. (pp. 32-34)

The reason for using a mixed design in this study is to enable the explanation of the quantitative results. Although the community of practice and knowledge sharing
literature suggested a framework for this study, due to little prior research about strategic community of practice in organization work settings, there was a chance of finding unanticipated results from the quantitative data. Therefore, there was a need to use qualitative data for further interpretation of quantitative data as well as rich description of the strategic communities of practice which will help explain the quantitative results.

As shown in Figure 3.1, an explanatory design is a two-phase mixed methods design, where greater weight is given to the quantitative study (Creswell & Plano-Clark, 2007). The purpose of an explanatory design is to use qualitative data to help explain significant, non-significant, or surprising results of initial quantitative data analysis or to build upon quantitative results. Quantitative data are gathered and analyzed first, and then qualitative data are gathered and analyzed to find patterns in the data that will assist in explaining and interpreting the findings, especially unexpected results found in the quantitative data analysis. The interpretation of the entire analysis is displayed at its conclusion (Creswell, 2009).

Source: Creswell & Plano-Clark (2007)
Figure 3.1. Explanatory Design
Correlational Research

A correlational research design was used in this study. As the treatment (participation in CoPs) had already occurred, and the subjects (CoPs participants) have self-selected their levels of the independent variables (participant characteristics, perceptions, and the nature of involvement in CoP), using an experimental design method was not a consideration. Because this study investigates how variables change together, and relates more than two variable measures from the same group of subjects, the type of research method used in this study is correlational research (Ary et al., 2006).

As a process in the HRD system, a community of practice is related to two layers of relationships: the relationship between the input factors (participant characteristics and perceptions) and the community of practice process (the nature of involvement in community of practice), and the relationship between the community of practice process and the output factors (outcomes of participant’s involvement in community of practice). First, input and process variables are measured to determine how well the process variance in variables can be predicted from the scores of the input variables. How well we can predict the level of a community of practice member’s involvement in the community of practice based on his expectations about the anticipated demands on his time and effort to participate in the community of practice, is an example. Second, output variables are measured to determine how well the output variance in variables can be predicted from the scores of the process variables. How well we can predict a participant’s learning from the community of practice based on the level of his involvement in community of practice, is an example. In the survey, community of
practice participants are asked to look back at their involvement in the community of practice during one selected month and reflect on the outcomes of their community of practice participation.

**Qualitative Content Analysis**

A qualitative content analysis was used to analyze data obtained from interviews of the leaders, coaches, and members of the two communities of practice. According to Scheufele (2008), qualitative content analysis is different from quantitative content analysis in that qualitative content analysis works inductively by classifying the text material and assigning labels to them while quantitative content analysis decomposes the text material into parts and assigns numeric codes to the parts. According to Merriam (2009), the most common type of qualitative research is “a basic qualitative study,” which is performed when the researcher is interested in “how people interpret their experiences, how they construct their worlds, and what meaning they attribute to their experiences” (p.23). Ruona (2005) also described qualitative content analysis as the major qualitative data analysis technique: “qualitative data analysis is a process that entails sensing themes, constant comparison, recursiveness, inductive and deductive thinking, and interpretation to generate meaning” (p.236). This study followed qualitative data analysis procedures described by both Ruona (2005) and Merriam (2009).

**Respondent Selection**

Participants in this study are members of the company’s Generation Community of Practice and Transmission Community of Practice. All community of practice
members were invited to participate in an online survey. For the Transmission Community of Practice, an expanded list of potential participants was used to identify all potential community of practice participants. The list expansion was based on CoP leaders’ and coaches’ opinions which indicated the likelihood that there are a number of CoP participants who are not listed in the CoP roster.

The survey respondents were asked to participate in the follow-up interview. Among those who consented to the interview, three people per community of practice were selected based on their responses to the survey and their geographical locations.

For this research, probability sampling may not be the best method because the purpose of this qualitative portion of the study is not to generalize results from the sample to the population. Rather, purposive or purposeful sampling may be best because “purposeful sampling is based on the assumption that the investigator wants to discover, understand, and gain insight and therefore must select a sample from which the most can be learned” (Merriam, 2009, p. 77).

Considering the fact that the employees in the company work tight schedules and in many cases they work in remote locations rather than in an office where they can easily participate in an interview, it may be unrealistic to expect to gain consent from all participants. This is the reason for the use of self-nomination by the survey respondents to identify a pool of participants from which to select subjects for interview.

From the pool of participants who self-nominated, potential interviewees were selected based on two characteristics of interest in the study. First, among the volunteers for the interview, the potential interviewees should have showed the highest level of
involvement in their community of practice. Second, the interview volunteers’ geographical location was considered so the interview subjects include those from a variety of work locations.

CoP leaders and CoP coaches were also interviewed for additional information to assist in the interpretation of the company’s community of practice member’s interview results. Interviews were both in person and by telephone, due to the wide geographical dispersion of the company’s employees.

Operationalization of Variables

As shown in the conceptual framework, the researcher designed five categories of variables. The variables in each category are operationalized as follows:

**Participant Characteristics**

Participant characteristics refer to distinctive features that identify each individual CoP participant. In this study, this construct will be measured by using two variables which have been reported in the literature as traits related to knowledge sharing behaviors.

**Openness to Experience**

This variable refers to the tendency to be interested in gaining new experiences in general. In this study, openness to experience is operationally defined as the sum of the self-reported scores of five selected items adapted from the inventory of openness to experience contained in the Big Five Inventory (BFI) (John & Srivastava, 1999). A five-
point summated rating scale ranging from “strongly disagree =1” to “strongly agree=5” is utilized to measure openness to experience.

*Problem Solving Self-Efficacy*

This variable refers to the level of each CoP participant’s confidence in solving problems at work. In this study, problem solving self-efficacy is operationally defined as the sum of the self-reported scores of eight items adapted from Parker (1998). A five-point summated rating scale ranging from “not at all confident =1” to “very confident=5” is utilized to measure problem solving self-efficacy.

*Participant Perceptions*

Participant perceptions refer to a CoP participant’s beliefs about conditions that are related to his community of practice activities. This construct will be measured by the following variables.

*Experience with the Topic*

This variable refers to the extent to which a CoP participant has work experience related to the community of practice topic. In this study, experience with the topic is operationally defined as the sum of the self-reported scores of two items about the CoP participant’s work experience related to the community of practice topic. Each respondent was asked to select a category indicating the number of years of experience in dealing with the community of practice topic, ranging from less than three years to more than twenty years, and answer whether they have experience as a leader of a group or a team in the topic area of work.
Expected Demands

This variable refers to the level of anticipated demands on CoP participant’s time and effort to participate in the community of practice. In this study expected demands are operationally defined as the sum of the self-reported scores of five items adapted and modified from Kankanhalli et al. (2005). A five-point summated rating scale ranging from “strongly disagree =1” to “strongly agree =5” is utilized to measure anticipated demands on the CoP participant’s time and effort to participate in the community of practice. The reliability coefficient for this domain scale is .85 (Kankanhalli et al., 2005).

Expected Outcomes

This variable refers to the extent to which a CoP participant expects to gain from his involvement in the community of practice. In this study, expected outcomes are operationally defined as the sum of the self-reported scores of five items adapted and modified from Zboralski (2009). A five-point summated rating scale ranging from “strongly disagree =1” to “strongly agree =5” is utilized to measure expected outcomes from the community of practice.

Knowledge-Sharing Culture

This variable refers to the extent to which a CoP participant believes that his work area, which represents his company, has a culture that is conducive to employees’ knowledge sharing. In this study, Knowledge-sharing culture is operationally defined as the sum of the self-reported scores of five items developed based on the literature of knowledge sharing culture. A five-point summated rating scale ranging from “strongly disagree =1” to “strongly agree =5” is utilized to measure knowledge-sharing culture.
Nature of Participant Involvement in Community of Practice

Nature of participant involvement in community of practice refers to a community of practice participant’s level of effort invested in community of practice participation, as expressed by the level of involvement and the time utilized for community of practice participation.

Level of Involvement

This variable refers to how often a CoP participant is involved in community of practice activities, such as attending meetings and interacting with other members in the meetings or on the community intranet site. In this study, level of involvement is operationally defined as the sum of the self-reported scores of five (for the Generation Community of Practice) or six (for the Transmission Community of Practice) items developed based on discussions with subject matter experts in the company. Each respondent was asked to select a category corresponding to the number of times involved in community of practice activities, ranging from 1 to 10. Level of involvement is a weighted score based on the level of active behavior: (Reviewing meeting record =1; preparing presentation=2; attending meeting=3; Sharing information on the intranet site, meeting with others to discuss, collaborating with peers =4; making comments in the meeting=5; making a presentation=6.)

Time of Involvement

This variable refers to how much time a CoP participant spends to be involved in community of practice activities, such as attending meetings and interacting with other members in the meetings or on the community intranet site. In this study, time of
involvement is operationally defined as the sum of the self-reported scores of six (for the Generation Community of Practice) or seven (for the Transmission Community of Practice) items developed based on discussions with subject matter experts in the company. Each respondent was asked to select a category indicating the number of minutes he spent for each community of practice activity, ranging from less than 5 minutes to more than two hours depending on the activity.

Participant Outcomes

Participant outcomes refer to the value that a CoP participant perceives to gain as a result of his participation in the community of practice. This construct will be measured by the following variables.

Learning from the Community of Practice

This variable refers to learning that is perceived by a CoP participant as an outcome of his involvement in the community of practice. In this study, learning from the community of practice is operationally defined as the sum of the self-reported response on seven yes/no type items developed based on Fontaine & Millen (2004) and the discussions with the subject matter experts in the company.

Learning Transfer

This variable refers to the extent to which a CoP participant implemented or encouraged colleagues to implement the information he learned from his involvement in community of practice. In this study, learning transfer is operationally defined as the sum of the self-reported response on eight yes/no type items developed based on discussions with the subject matter experts in the company.
Demographic Variables

Education level, role and tenure are demographic variables in this study.

Education Level

This variable refers to the respondent’s self-reported highest educational level, which is categorized into five groups: high school graduate, associate’s degree, bachelor’s, master’s, and doctorate.

Role

This variable refers to the respondent’s self-reported role in the company, in one of four categories: manage a group; manage projects; team member; and other.

Tenure

This variable refers to the respondent’s self-reported total number of years employed in the company.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Scale of Measure</th>
<th>Level of Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dependent Variables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participant Outcomes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learning from the CoP</td>
<td>Nominal</td>
<td>Yes/No</td>
</tr>
<tr>
<td>Learning transfer</td>
<td>Nominal</td>
<td>Yes/No</td>
</tr>
<tr>
<td><strong>Independent Variables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participant Characteristics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Openness to experience</td>
<td>Interval</td>
<td>1-5</td>
</tr>
<tr>
<td>Problem solving self-efficacy</td>
<td>Interval</td>
<td>1-5</td>
</tr>
<tr>
<td><strong>Participant Perceptions</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experience with the topic</td>
<td>Ordinal</td>
<td>Less than 3 years/ 3-7 years/ 7-12 years/ 12-20 years/ more than 20 years</td>
</tr>
<tr>
<td>Expected demands</td>
<td>Interval</td>
<td>1-5</td>
</tr>
<tr>
<td>Expected outcomes</td>
<td>Interval</td>
<td>1-5</td>
</tr>
<tr>
<td>Knowledge-sharing culture</td>
<td>Interval</td>
<td>1-5</td>
</tr>
<tr>
<td><strong>Nature of Participant Involvement in Community of Practice</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level of involvement</td>
<td>Ordinal</td>
<td>1/ 2/ 3-5/ 5-7/ 7-10/ more than 10</td>
</tr>
<tr>
<td>Time of involvement</td>
<td>Ordinal</td>
<td>Less than 5 minutes/ 5-10 minutes/ 10-20 minutes …more than 1 hour</td>
</tr>
<tr>
<td><strong>Demographic Variables</strong></td>
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<td></td>
</tr>
<tr>
<td>Education level</td>
<td>Ordinal</td>
<td></td>
</tr>
<tr>
<td>Role</td>
<td>Nominal</td>
<td>Manage a group/</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Manage projects/</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Team member/ Other</td>
</tr>
<tr>
<td>Tenure</td>
<td>Interval</td>
<td></td>
</tr>
</tbody>
</table>

Table 3. 1. Variables and Scale of Measurement

Instrumentation

Instruments for this study were designed and developed by the researcher with the assistance of her academic advisor and dissertation committee members. This section describes the instruments for this study. A primary questionnaire and a follow-up
questionnaire were designed for online survey. Two interview protocols for each CoP were designed for in-person or telephone interviews. Discussions about how to establish validity and reliability of the instruments follow.

Questionnaire for Online Survey

A primary questionnaire was developed based on existing measures and a review of community of practice and knowledge sharing literature. The questionnaires for both the Generation Community of Practice and the Transmission Community of Practice consist of five sections and a demographic section. The questionnaire for the Transmission Community of Practice consists of a screening question to determine the respondents’ participation in the community of practice, followed by five sections and a demographic section. The first section focused on participants’ expectations, that is, expected demands and expected outcomes. The second section sought to identify the nature of participant involvement in the community of practice in terms of level and time of involvement. In the third section, questions developed based on community of practice literature are used to assess participant outcomes, such as learning from the community of practice and learning transfer. The fourth section focused on knowledge-sharing culture and experience with the topic. The fifth section sought to identify participant characteristics, such as openness to experience and problem solving self-efficacy. Education level, role, and tenure were used as items to identify respondents’ demographic information. These questions were followed by questions about whether the respondent was willing to participate in a follow-up interview, and if so, the respondent’s email address and work location were requested.
A second questionnaire was developed as a follow-up instrument using two sections of the primary questionnaire: the nature of participant involvement in the community of practice, and participant outcomes. Again, the survey respondents were asked to participate in a follow-up interview. The reason for using a follow-up survey was based on the assumptions that the nature of participants’ involvement in CoP, and their perceived outcomes, may change over time. Thus, the follow-up questionnaire only focused on re-measurement of variables which correspond to these two constructs. The researcher planned to match each respondent’s responses to the primary survey and follow-up survey using each employee’s User ID.

**Validity**

The questionnaire was developed based on an extensive review of the literature on various areas including HRD, organizational behavior, industrial and organizational psychology, social psychology, and knowledge management. To ensure that the items measure what they claim to measure, a panel of experts was used to compare the items logically to the domain to be measured. The panel of experts consisted of two professors, a practitioner, and two doctoral students. The panel members were asked to review the appropriateness of the items as well as the format of the instrument.

In addition, cognitive interviews of three practitioners in the related field were conducted to identify and correct problems with the survey questions. Cognitive interviewing is defined as “the administration of draft survey questions while collecting additional verbal information about the survey responses, which is used to evaluate the quality of the response or to help determine whether the question is generating the
information that its author intends” (Beatty & Willis, 2007, p. 287). Three members of the company’s Community of Practice Steering Team participated in the cognitive interviewing. The survey questionnaire was administered to a group of participants, and verbal information relevant to survey responses was collected. As the interviewer, the researcher asked questions, such as “tell me what you are thinking” and “how are you coming up with your answer to this?” The researcher facilitated participants’ verbalization of their thought processes with minimum intervention.

Reliability

To ensure the reliability of the questionnaire, internal consistency was assessed using the data from the actual study. Cronbach’s alpha coefficient was employed to measure internal consistency of the items. The fourth item for openness to experience and the second item for experience with the topic were excluded from the final analysis because they lowered the correlation coefficients. Table 3.2 shows the correlation coefficients for the survey responses.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Correlation Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Openness to Experience</td>
<td>.793</td>
</tr>
<tr>
<td>Problem Solving Self-Efficacy</td>
<td>.896</td>
</tr>
<tr>
<td>Experience with the Topic</td>
<td>.756</td>
</tr>
<tr>
<td>Expected Demands</td>
<td>.753</td>
</tr>
<tr>
<td>Expected Outcomes</td>
<td>.743</td>
</tr>
<tr>
<td>Knowledge-Sharing Culture</td>
<td>.884</td>
</tr>
<tr>
<td>Learning from the CoP</td>
<td>.796</td>
</tr>
<tr>
<td>Learning Transfer</td>
<td>.853</td>
</tr>
</tbody>
</table>

Table 3.2. Cronbach’s Alpha Coefficients for the survey responses (N= 60)
Interview Protocol

A set of semi-structured protocols for interviews was developed to gain a deeper understanding of the phenomena surrounding a community of practice program. As the purpose of the qualitative portion is not to confirm the results of the survey but to extend and provide more in-depth understanding and description of survey data, the use of a less structured interview format was chosen. The interview protocol for community of practice members consists of three sections. The first section consists of questions about participants’ perceptions and asked the community of practice members to describe what they do before, during, and after community of practice meetings to ensure the respondents’ high level of involvement in community of practice and to facilitate their recall of community of practice experience. The second section asks about outcomes of community of practice. The third section contains one question about overall feelings, thoughts, and concerns about the community of practice. The interview protocol for CoP leaders and CoP coaches uses this same structure except for an additional question about their preparation for their role in the community of practice. Fewer questions are needed because the broader questions about their roles in the community of practice and their challenges and concerns about the community of practice are used for the CoP leaders and CoP coaches.

Validity

Criteria other than the conservative criteria of reliability and validity are needed to ensure trustworthiness of a qualitative approach (Lincoln & Guba, 1985; Ritchie &
In naturalistic inquiry, credibility and transferability criteria are counterparts of internal validity and external validity (Lincoln & Guba, 1985).

In order to rule out validity threats in qualitative research suggested by Maxwell (2005), this study employed four techniques to increase the credibility of the study. First, rich data were collected. All the interviews were recorded and verbatim transcripts of the interviews were generated by professional transcriptionists who were retained through a transcription service company. Second, respondent validation was employed. The transcripts were shared with the respondents and feedback was received from one respondent, who suggested minor corrections and changes. Third, the transcripts, categories, and subcategories were reviewed by a graduate student who is an English native speaker to ensure the categories are correctly labeled and correspond to the transcripts. Fourth, quasi-statistics were developed to identify “simple numerical results that can be readily derived from the data” (Maxwell, 2005, p. 113). Table 3.3 shows categories of interview topics and their frequencies.

<table>
<thead>
<tr>
<th>Categories</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gaining job-related information</td>
<td>21</td>
</tr>
<tr>
<td>Solving problems at work</td>
<td>17</td>
</tr>
<tr>
<td>Experiencing changes in affect</td>
<td>9</td>
</tr>
<tr>
<td>Communicating across the organization</td>
<td>9</td>
</tr>
</tbody>
</table>

Table 3.3. Frequencies of Interview Topics by Categories
Reliability

Reliability is concerned with whether repeated study will bring out similar results. In qualitative research, the concept of replication is believed to be unrealistic, thus efforts to ensure reliability have not been actively made (Ritchie & Lewis, 2003). According to Lincoln and Guba (1985), who suggested the concepts of dependability and confirmability as counterparts of reliability, demonstration of validity is sufficient because reliability is a needed condition for validity. Triangulation was suggested as a way to establish both validity and reliability. In addition, stepwise replication and inquiry audit were suggested as techniques to ensure the reliability of a qualitative study.

In this study, qualitative results were compared to quantitative results in the process of interpreting results of the study. However, triangulation was not performed because the purpose of the qualitative portion is not to compare the two databases or to determine convergence, differences, or combinations, but to assist in the interpretation of the quantitative results.

Data Collection

The following process for data collection was used for both primary and follow-up surveys. The CoP coaches of the two communities of practice were contacted. An email including a letter by an executive sponsor inviting the community of practice members to an online survey was sent. Follow-up emails were sent three times during the time that the survey was open to encourage CoP members’ responses to the survey until the due date.
Among survey participants who showed the intention to participate in the follow-up interview, interview subjects were selected based on criteria discussed in the previous section. CoP leaders and CoP coaches were also asked to participate in interviews. Before the interviews, the interview questions were sent to the respondents for their information. Respondents were also informed and their consent to having the interview recorded was obtained.

Data Analysis

After gathering responses to the online surveys, the data were coded and analyzed using PASW (formerly SPSS). The researcher planned to match each respondent’s responses to the primary survey and follow-up survey using each employee’s User ID. However, the process was altered due to low response rate ranging from 18% to 41%, no User ID provided, no involvement in CoP, or no CoP activity during the survey month. During the data collection period, the organization announced a significant downsizing, including the possibility of layoffs and involuntary retirements of employees. It is possible that the impact of this announcement had a negative effect on employees’ willingness to participate in the surveys. Only those responses with complete datasets were used.

Research questions 1 and 2 sought to identify the input-process relationship. A correlation analysis and multiple regression analyses were conducted to investigate the relationships. The regression model regressed the level of involvement in community of practice and the time of involvement on six independent variables, that is, openness to
experience, problem solving self-efficacy, experience in dealing with the community of practice topic, effort, expected outcomes, and general knowledge sharing culture.

Research question 3 sought to identify the process-output relationship. Multiple regression analyses were conducted to investigate the relationships. The model regressed the learning for the project and learning transfer on the level of involvement and the time of involvement in community of practice.

Research question 4 sought to identify the entire input-process-output relationship. Multiple regression analyses were conducted. The regression model regressed learning from community of practice and learning transfer on eight independent variables, that is, openness to experience, problem solving self-efficacy, experience with the topic, expected demands, expected outcomes, knowledge-sharing culture, level of involvement in community of practice, and time of involvement in community of practice.

Research question 5 seeks further understanding about participant perceptions about outcomes of community of practice, and a qualitative approach was used to analyze the interviews. Because the researcher’s native language is not English, recorded interviews were transcribed by professional transcriptionists who were retained through a transcription service company. A graduate student who is a native English speaker reviewed the transcripts. The transcripts were shared with the respondents and feedback was received from one respondent. Then the transcripts were analyzed in five phases using techniques described in Ruona (2005) and Merriam (2009). First, the researcher organized and formatted the transcriptions by creating a table for each interview using
Microsoft Word software. Second, speakers’ ID number and question number were entered, the narratives were read until the researcher felt familiar with them, and notes were taken. Third, a preliminary list of themes was created after the initial analysis of four interviews, and revised as the analysis of interviews continued. The initial coding system was created based on the list of themes, and the researcher’s theoretical perspective on the community of practice, which is viewing community of practice as a system (inputs, process, and outputs). The initial coding system was used to code two interviews, and revised as coding was continued. The transcripts and the revised coding system were reviewed by a graduate student who has experience in categorization of interview data for feedback. All interviews were analyzed and coded. Fourth, the frequencies of each category counted as shown in Table 3.3. The differences, similarities, and patterns in the narratives were identified. The researcher reread transcripts and examined them to determine whether the emerged categories or themes were connected with the statements. Finally, the data were synthesized and stated as results.

The results of the quantitative and qualitative portions of this study are combined to answer the research questions. After the findings from the quantitative data analysis were interpreted, major findings from the qualitative data that provide supplementary explanations or suggest different approaches to understanding the phenomena were provided.
Chapter 4: Results

This chapter presents the results of the study, and it is divided into three sections. The first section presents the demographic information of the respondents. The second section presents the descriptive statistics of the survey data. The third section presents the results of the five research questions.

Demographic Information

Among 255 potential CoP participants who were invited to the Transmission CoP survey, 105 (41.18%) responded to the first survey and 61 (23.92%) responded to the second survey. In the Generation group, 22 (32.84%) out of 67 people who were listed in the CoP’s roster responded to the first survey and 12 (17.91%) responded to the second survey. Among 151 who responded that they were involved in one of the two CoPs, 123 were involved in at least one CoP activity. Among 123 responses, only those with complete datasets were used. This decreased the number of cases to 60, which include responses to the first survey only. Due to small sample sizes, there is a high probability that actual relationships among variables are not revealed. Therefore, a significance level of \( p < .10 \) was used for data analysis.

Among the 60 responses, 59 reported demographic information. The majority (60.0%) of respondents has a bachelor’s degree, and approximately 23% have a master’s degree.
degree. Approximately 13% have associate’s degrees, and one respondent has a high school diploma. More than half of the respondents have management roles, either as a group manager (38.3%), or as a project manager (15.0%). Thirty percent are team members, and 15% identified their role as “other.” The respondents represented a range of years in the company ($SD=11.68$), with the average years being 21.76.

<table>
<thead>
<tr>
<th>Education Level</th>
<th>N</th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>High school graduate</td>
<td>1</td>
<td>1</td>
<td>1.7</td>
</tr>
<tr>
<td>Associate’s degree</td>
<td>8</td>
<td>13.3</td>
<td></td>
</tr>
<tr>
<td>Bachelor’s</td>
<td>36</td>
<td>60.0</td>
<td></td>
</tr>
<tr>
<td>Master’s</td>
<td>14</td>
<td>23.3</td>
<td></td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Role</th>
<th>N</th>
<th>Freq.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manage a group</td>
<td>23</td>
<td>38.3</td>
<td></td>
</tr>
<tr>
<td>Manage projects</td>
<td>9</td>
<td>15.0</td>
<td></td>
</tr>
<tr>
<td>Team member</td>
<td>18</td>
<td>30.0</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>9</td>
<td>15.0</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Tenure</th>
<th>n</th>
<th>M</th>
<th>SD</th>
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</thead>
<tbody>
<tr>
<td>Tenure</td>
<td>58</td>
<td>21.76</td>
<td>11.68</td>
</tr>
</tbody>
</table>

Table 4.1. Demographic Information of the Respondents

Descriptive Statistics

Table 4.2 presents the descriptive statistics for the independent and dependent variables of the study. Openness to experience, problem solving self-efficacy, expected demands, expected outcomes, and knowledge-sharing culture were measured using five-point Likert scales. Most respondents have high levels of openness to experience ($M = 4.05, SD = 0.46$) and problem solving self-efficacy ($M = 4.17, SD = 0.57$). Their average response to experience with the topic was approximately the middle of the scale ($M = 3.02$). When the respondents began to be involved in the CoP, they expected that the CoP
would require their time to some extent ($M = 2.98$), and the outcomes of involvement in the CoP would be above average ($M = 3.63$). Most respondents perceived that their work area has a culture that is conducive to employees’ knowledge sharing ($M = 4.02$).

Experience with the topic, level of involvement in the CoP, and time of involvement in the CoP were calculated scores. Experience with the topic represented how long the respondents had been involved in the topic area in general and how long they had led a group or a team within the topic area. The level of involvement in the CoP was a calculated score which represents whether the respondent participated in certain CoP activities (attending CoP meetings, making presentations during the CoP meetings, making comments during the meetings, meeting with others to discuss CoP topics, preparing a presentation for the meeting, reviewing the recorded meeting, sharing information from the CoP intranet site, and/or collaborating with their co-workers on the CoP topic) and how often they had been involved in these activities. The responses were multiplied by the weights which were given to each activity based on the level of engagement. Time of involvement was calculated by adding all responses to how much time the respondents spent to be involved in the above-mentioned CoP activities. The level of involvement in the CoP ranged from 0 to 5, while the time of involvement in the CoP ranged from 0 to 3.75.

Learning from the CoP and learning transfer were calculated by summing the number of agreements to the statements. The respondents’ reported outcomes were approximately the middle of the scale. The perceived participant outcomes indicated
higher variability in both learning from the CoP ($SD = 2.26$) and learning transfer ($SD = 2.74$).

<table>
<thead>
<tr>
<th>Variable</th>
<th>$n$</th>
<th>$M$</th>
<th>$SD$</th>
<th>min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Independent Variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Openness to Experience</td>
<td>60</td>
<td>4.05</td>
<td>0.46</td>
<td>3.00</td>
<td>5.00</td>
</tr>
<tr>
<td>Problem Solving Self-Efficacy</td>
<td>60</td>
<td>4.17</td>
<td>0.57</td>
<td>3.00</td>
<td>5.00</td>
</tr>
<tr>
<td>Experience with the Topic</td>
<td>60</td>
<td>3.02</td>
<td>1.39</td>
<td>0.50</td>
<td>5.00</td>
</tr>
<tr>
<td>Expected Demands</td>
<td>60</td>
<td>2.98</td>
<td>0.58</td>
<td>1.80</td>
<td>4.80</td>
</tr>
<tr>
<td>Expected Outcomes</td>
<td>60</td>
<td>3.63</td>
<td>0.50</td>
<td>2.00</td>
<td>4.40</td>
</tr>
<tr>
<td>Knowledge-Sharing Culture</td>
<td>60</td>
<td>4.02</td>
<td>0.71</td>
<td>1.00</td>
<td>5.00</td>
</tr>
<tr>
<td>Level of Involvement</td>
<td>60</td>
<td>1.39</td>
<td>1.33</td>
<td>0.00</td>
<td>5.00</td>
</tr>
<tr>
<td>Time of Involvement</td>
<td>60</td>
<td>0.92</td>
<td>0.85</td>
<td>0.00</td>
<td>3.75</td>
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<tr>
<td>Learning from the CoP</td>
<td>60</td>
<td>3.53</td>
<td>2.26</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Learning Transfer</td>
<td>60</td>
<td>3.35</td>
<td>2.74</td>
<td>0</td>
<td>8</td>
</tr>
</tbody>
</table>

Table 4.2. Descriptive Statistics of the Independent and Dependent Variables

Research Questions 1-5

This section presents the results of research questions 1 through 5.

Research Question 1

To answer research question 1, a correlation analysis was performed. As shown in Table 4.3, learning from the CoP had a moderate positive correlation with time of involvement in CoP ($r = .355$), a moderate negative correlation with expected demands ($r = -.421$), a substantial positive correlation with level of involvement in CoP ($r = .501$), and a strong positive correlation with expected outcomes ($r = .709$) and learning transfer ($r = .774$). Learning transfer had a moderate positive correlation with time of involvement in CoP ($r = .337$), a moderate positive correlation with time of involvement in CoP ($r = .337$), level of involvement in CoP ($r = .461$), a negative correlation with expected
<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
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</thead>
<tbody>
<tr>
<td>1. Learning from the CoP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Learning Transfer</td>
<td>.774**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Openness to Experience</td>
<td>.250</td>
<td>.176</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Problem Solving Self-Efficacy</td>
<td>.190</td>
<td>.167</td>
<td>.644**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Experience with the Topic</td>
<td>-.116</td>
<td>-.146</td>
<td>-.006</td>
<td>.186</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Expected Demands</td>
<td>-.421**</td>
<td>-.485**</td>
<td>-.084</td>
<td>-.027</td>
<td>.103</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Expected Outcomes</td>
<td>.709**</td>
<td>.588**</td>
<td>.084</td>
<td>.103</td>
<td>-.109</td>
<td>-.389**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Knowledge-Sharing Culture</td>
<td>.196</td>
<td>.234</td>
<td>.239</td>
<td>.125</td>
<td>.169</td>
<td>-.141</td>
<td>.176</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Level of Involvement in CoP</td>
<td>.501**</td>
<td>.461**</td>
<td>.294*</td>
<td>.338**</td>
<td>-.004</td>
<td>-.214</td>
<td>.470**</td>
<td>.277*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Time of Involvement in CoP</td>
<td>.355**</td>
<td>.337**</td>
<td>.204</td>
<td>.235</td>
<td>.009</td>
<td>-.080</td>
<td>.382**</td>
<td>.291*</td>
<td>.899**</td>
<td></td>
</tr>
</tbody>
</table>

**p<.001. *p<.005.

Table 4.3. Intercorrelations Between Variables
demands ($r = -0.485$), and a substantial positive correlation with expected outcomes ($r = 0.588$). Openness to experience had a moderate positive correlation with level of involvement in CoP ($r = 0.294$), and a strong positive correlation with problem solving self-efficacy ($r = 0.644$). Problem solving self-efficacy had a moderate positive correlation with level of involvement in CoP ($r = 0.338$). Expected demands had a moderate negative correlation with expected outcomes ($r = -0.389$). Expected outcomes had a moderate positive correlation with time of involvement in CoP ($r = 0.382$), and level of involvement in CoP ($r = 0.470$). Knowledge-sharing culture had a moderate correlation with level of involvement in CoP ($r = 0.277$), and time of involvement in CoP ($r = 0.291$). Level of involvement in CoP had a strong positive correlation with time of involvement in CoP ($r = 0.899$).

Next, two multiple regression models that regress the nature of participant involvement in CoP on participant characteristics and participant perceptions were used. Multicollinearity, which occurs when independent variables correlate with each other at high levels, or when an independent variable is a nearly linear combination of other independent variables, can bring misleading regression results (Keith, 2006). In this study, VIF values were in the range of 1.11 to 1.87 in the outputs of the multiple regression analysis. A value of VIF greater than 10 indicates multicollinearity (Stevens, 2002), therefore in this regression analysis multicollinearity is not a problem in this study. Multivariate normality was tested using normal probability plots in PASW 18. Both sets of variables showed a nearly 45-degree line slope, and there were no normality violations.
As shown in Table 4.4, neither openness to experience nor problem solving self-efficacy was related to level of involvement in CoPs or time of involvement in CoPs.

These results appear to contradict the interview results, which show that individuals’ confidence in their knowledge affects their involvement in the CoP. Chris, a CoP leader, said, “The other challenge is getting people who really have a good answer to be confident that they have a good answer or that their answer’s valuable, then to put it out there.” Thus, the results showed that participant characteristics may be related to the nature of participant involvement in communities of practice, however, these relationships were not found in the survey results.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Nature of participant involvement in CoP</th>
<th>Level of involvement in CoPs</th>
<th>Time of involvement in CoPs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>SE B</td>
</tr>
<tr>
<td>Constant</td>
<td></td>
<td>-6.639</td>
<td>2.196</td>
</tr>
<tr>
<td>Openness to experience</td>
<td></td>
<td>.189</td>
<td>.439</td>
</tr>
<tr>
<td>Problem solving self-efficacy</td>
<td></td>
<td>.555</td>
<td>.355</td>
</tr>
<tr>
<td>Experience with the topic</td>
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<td>-.028</td>
<td>.115</td>
</tr>
<tr>
<td>Expected demands</td>
<td></td>
<td>-.041</td>
<td>.282</td>
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<tr>
<td>Expected outcomes</td>
<td></td>
<td>1.076</td>
<td>.332</td>
</tr>
<tr>
<td>Knowledge-sharing culture</td>
<td></td>
<td>.309</td>
<td>.227</td>
</tr>
<tr>
<td>$R^2$</td>
<td></td>
<td>.263</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td></td>
<td>4.502***</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td></td>
<td>60</td>
<td></td>
</tr>
</tbody>
</table>

*p< .10.  *p< .05.  **p< .01.  ***p< .001.

Table 4.4. Regression Analysis for Variables Predicting Nature of Participant Involvement in CoP
Research Question 2

To answer research question 2, multiple regression analyses were performed. Table 4.4 shows that expected outcomes was the only variable that was significantly related to level of involvement in CoPs ($\beta = .401; p < .01$) and time of involvement ($\beta = .361; p < .01$). These results are supported by interview results. All the respondents who were selected due to their active participation in the CoP responded that they had high positive expectations about the result of their participation in the CoP. The respondents stressed that individuals’ attitudes toward the value of CoP are determinants of individuals’ participation in CoPs. Active pursuit of better and more efficient ways of doing work, and acceptance of potential changes as a result of their interaction within the CoP drive individuals to participate in CoPs. Even though the expectations that individuals have motivate them to participate in CoPs at the beginning, seeing the actual value of CoPs is important so that individuals put higher priority on participation in CoPs and continue their participation. Gary said:

If they can’t see there’s real value [in CoPs], and of course if you don’t participate how do you figure out the value? It’s always that kind of which comes first, the chicken or the egg there because as they can see from value outcome that it may move up on their priority list and their scheduling to participate in it… So they just have to see that comes out.

The survey results showed that expected demands were not related to the nature of participant involvement in communities of practice. These results contradict interview results. Time is a big issue for all CoP members, leaders, and coaches. Gary stated:
Well, I think one of the big barriers we have is just the time. They – you know, everybody’s so busy that they really don’t have time to sit down and to really go through that and pay a lot of attention to what’s going on in the SharePoint site [the CoP’s intranet site] and everything.

The survey results showed that experience with the topic was not related to the nature of participant involvement in communities of practice. These results may be interpreted based on findings from interviews. In the interviews, a concern among some CoP members about whether all the experts actively participate in the CoP was revealed. Matt, a CoP member, commented:

As far as who would be looking at it [the CoP’s intranet site], if the whole subject matter expert idea hasn’t really taken root that well yet, and I think if it did then there would be probably more people looking at it more often because the subject matter experts, if they actually had people coming to them asking them questions because they’re the subject matter experts, then they’d be forced to be in there and looking at it, which would be a good thing. But I don’t think that’s really happening yet.

The survey results showed that knowledge-sharing culture was not related to the nature of participant involvement in communities of practice. These results contradict interview results. A few comments indicated that a pro-sharing or pro-implementing organizational culture supports participation in CoP and implementation of what has been learned from the CoP. Matt said:
For the actual implementation [of what I learned from the CoP], I think everybody’s pretty much a supporter because they – everybody here I think sees the value in what we’re doing, maybe not in participating in the meetings but that’s why we just have one person go and summarize it, summarize the meeting and spread it on to everybody else because not everybody wants to sit through that long of a meeting.

Thus, the survey results showed that expected outcomes was positively related to both the level of involvement and time of involvement in communities of practice, however, experience with the topic, expected demands, and knowledge-sharing culture were not related to the nature of participant involvement in communities of practice. The interview results contradicted or supported the survey results, suggesting relationships among participant perceptions and nature of involvement in CoP.

*Research Question 3*

Research question 3 sought to identify the relationship between the nature of participant involvement in CoPs and participant outcomes. As shown in Table 4.5, level of involvement in CoPs was highly related to learning from the CoP ($\beta = .949, p < .001$) and learning transfer ($\beta = .825, p < .01$). Although level of involvement and time of involvement were correlated ($r = .899, p < .01$) as shown in Table 4.3, time of involvement was negatively related to learning from the CoP ($\beta = -.498, p < .10$).

Interview results support the negative relationship between time of involvement in CoPs and learning. In the interviews, it was found that due to a demanding work schedule
many work groups send only a few representatives to CoP meetings, and those representatives communicate the information from the CoP meeting to the other members of their groups. In many cases, supervisors attend CoP meetings to monitor the meetings, deliver information to their group members, and answer questions in the meetings. Although the supervisors spend a lot of time participating in CoPs, they usually do not actively participate in discussions in the meetings and they learn less. Hank, a core member, who has been involved in the CoP since its inception, stated:

Some meetings it’s just been a matter of calling, and there’s no activity before.

Usually there’s little or no activity afterwards. It’s just a matter of sitting in on the call, maybe being available to answer any questions that might come up. For the most part, most of the calls that we’ve had, I would say that would be my role.

Thus, the results show that level of involvement in CoPs was positively related to both learning from the CoP and learning transfer, however, time of involvement in CoPs was negatively related to learning from the CoP.
Research Question 4

Research question 4 sought to identify the relationships among participants’ characteristics, perceptions, the nature of involvement in communities of practice, and participant outcomes. As shown in Table 4.6, learning from the CoP can be explained by expected outcomes ($\beta = .551$, $p < .001$) and level of involvement ($\beta = .439$, $p < .10$).

Learning transfer can be explained by expected outcomes ($\beta = .359$, $p < .01$) and expected demands ($\beta = -.254$, $p < .05$). Thus, the results show that expected outcomes and level of involvement in the CoP were positively related to participant outcomes and that expected demands were negatively related to learning transfer.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Learning from the CoP</th>
<th>Learning Transfer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>SE B</td>
</tr>
<tr>
<td>Constant</td>
<td>-6.837</td>
<td>3.213</td>
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<tr>
<td>Openness to experience</td>
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<td>.596</td>
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<tr>
<td>Problem solving self-efficacy</td>
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<td>.493</td>
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<tr>
<td>Experience with the topic</td>
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<td>.156</td>
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<tr>
<td>Expected demands</td>
<td>-.454</td>
<td>.395</td>
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<tr>
<td>Expected outcomes</td>
<td>2.506</td>
<td>.491</td>
</tr>
<tr>
<td>Knowledge-sharing culture</td>
<td>.061</td>
<td>.316</td>
</tr>
<tr>
<td>Level of involvement</td>
<td>.743</td>
<td>.396</td>
</tr>
<tr>
<td>Time of involvement</td>
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<td>.579</td>
</tr>
<tr>
<td>$R^2$</td>
<td></td>
<td>.530</td>
</tr>
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<td>9.332***</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>60</td>
<td></td>
</tr>
</tbody>
</table>

* $p < .10$.  † $p < .05$.  ** $p < .01$.  *** $p < .001$.

Table 4.6. Regression Analysis for Variables Predicting Participant Outcomes - Full Model
Research Question 5

Research question 5 sought to identify outcomes of communities of practice.

Interview data from eleven participant interviews were analyzed to obtain a deeper understanding about the CoP participants’ perceptions about what they have gained from their participation in the CoP. Four themes were identified: gaining job-related information, solving problems at work, experiencing changes in affect, and communicating across the organization. Table 4.7 identifies the respondents. All employee names used in this study are fictitious.

<table>
<thead>
<tr>
<th>Roles in CoP</th>
<th>Names</th>
</tr>
</thead>
<tbody>
<tr>
<td>CoP leaders</td>
<td>Alex, Chris, Dick</td>
</tr>
<tr>
<td>CoP coaches</td>
<td>Jon, Kim</td>
</tr>
<tr>
<td>CoP members</td>
<td>Ed, Gary, Hank, Lee, Matt, Tony</td>
</tr>
</tbody>
</table>

Table 4. 7. Respondents to Interviews

Gaining Job-Related Information

Through sharing knowledge in the community, individuals gained job-related information, which they use either immediately in the present time or in the future. Each presentation introduces new processes, tools, best practices, problems, or errors in CoP meetings. CoP participants also learned where available resources are and who the experts are. Dick stated:

[In this last CoP call], we had somebody cover some settings comparison software. And some people had probably never even known that it existed. But it was put out there as a good presentation, and this is something that should be used
for all P&C field personnel, and I am sure that there’re probably certain groups that they weren’t even knew that this is even available.

Ed said:

Yesterday, on the call, one of the presenters said to several people, “If you’re interested in doing this, give me a call and I’ll come down there and do it with you.” They’re using an instrument that’s worth sounded like about a quarter million dollars. And the plants don’t have that instrument. It’s some kind of laser thing to measure coal fineness. And some of the plants use other equipment, other ways to measure that, and they were interested, so they’re setting up. There’ll be several, I’m sure, that make use of that in the coming weeks.

CoP participants gained knowledge about who the experts are, which enables them to establish good networking. Dick said:

And a lot of this [CoP meeting] is just hearing the ideas from some of the different groups, whether they be from [places where the company has business operations]. We get a better feel for what some of the technical experts, where they are at, and who they are. As certain people speak up, they may be some go-to people, who say “hey, I heard you talk about this. I know somebody who needs some help on this.” Yes, it really provides a good network for the P&C group.

Solving Problems at Work

Job-related information shared in communities of practice brings out further CoP outcomes, such as solving existing problems, finding a new problem, and even finding
that the problem is not a problem anymore because the solution they are looking for already exists somewhere in the organization.

In some cases, individuals who presented their existing problems in CoP meetings to listen to others’ comments learned information that led to solving the problems. Tony said:

Well, the email I got [from a CoP attendant who listened to my presentation about the problem] suggested we take on our next outage, pull some of the valves that go into the feed water heaters and take a bore scope and go in and look and kind of inspect, see what the condition of the tube shield plate is. And so we took those suggestions and went out in the plant and actually did it and took some pictures and verified that all of that was in good shape. Because that’s something that we hadn’t addressed in the past. We talked about it, but we never really did it.

Not only existing problems but also potential problems can be found and solved through conversations in CoP. Matt stated:

There have been several situations where people have brought up issues that they’re dealing with, and we have dealt with similar issues. And maybe they came up with a different solution than we did or a different alternative. And maybe it’s better or maybe it’s not as good, but I would say that there has been instances where we’ve had a problem off and on, and somebody in the meeting has mentioned a problem that they had. And you link the two together and say, “Hey, I think this might be the same problem. We need to look at this. Maybe there’s something systematic here that’s going on.” And in several cases it has. And it
was something that was possibly a designer that would have caused a continuing
problem everywhere it was implemented. And we get it fixed in one place and
identify it as a continuing problem, then we can get engineering and everybody to
look at it and make a permanent fix.

In a CoP meeting, Gary found that what his team was looking for was already
implemented somewhere in the organization:

Well, I guess one that does come to mind is a little less technical, but some
knowledge I learned about the – we had a new – they got a new drawing
management system that was going in place. And we did a presentation on it. And
through that presentation I, to my surprise, I learned that the system was already
being used and had been being used for three months and didn’t – we didn’t know
that to be a fact. Communications fell down or something didn’t occur. I don’t
know… It was presented on the call as a topic, and then when I asked questions
about it thinking “okay, this is the system I’m looking at. It’s going to come in the
future, etc. We’re going to get some training.” [And the answer was] “Don’t ask
about training. Well, there is none particularly scheduled. It’s about just getting
some PowerPoints and such, some online stuff, and that it’s already been
implemented.”

**Experiencing Changes in Affect**

Individuals who participate in CoPs also experienced outcomes in terms of
changes in affect. Lee, who presented in a recent CoP meeting, made comments that
show how participation in the CoP results in learning positive affect. He said, “Oh, in my
case [outcomes of CoP is] probably really nothing because I was invited expert. I had my little piece to give them, and I gave it to them.” Although he said he didn’t gain any outcomes from the CoP, he seemed to be satisfied because he could share with people in the CoP. Lee also seems to have enjoyed the feeling of being introduced to this new group as an expert. He said:

   Oh, yeah, I know most of the people on that community. I guess it was nice for them to get to hear that I had something to say. I’m rather new to this particular group of people. I haven’t been in this part of the company for long. So I guess one nice outcome is I got a chance to be seen as an expert, even if it was for 30 seconds.

   Hank also stated how he enjoyed the feeling that providing his help to other employees is recognized and that the CoP meeting in which his team presented was good so it attracted more people. He said:

   We actually had one of the presenters come in and say I was talking to a couple of people at a plant, and they were asking if they could get an invite. So I was kind of lifted up by that.

   Tony, a newer employee who recently presented in a CoP meeting, remarked about his pleasant surprise when he felt that there are people who are interested in what he is doing. He said:

   Oh, I was a little surprised that we actually had – that people were interested in us. They emailed me. Some of them – emailed me some of the problems that they’ve experienced and some of the things they’ve found. That really surprised me. I
didn’t expect it to go much further than the phone call. I actually had some guy send me some pictures of some things that they found. So that kind of surprised me. In a good way.

Tony’s comments show how excited he was when he was actually a part of this group of “a lot of guys” from many plants and some of the engineers who work in the headquarters. Tony said:

I had – that was my first conference call really with the community of practice, and they had asked me – well, I had some questions and as far as – we had been dealing with some issues at the plant with our feed water heater, so I kind of laid out the scenario. And we had a lot of guys coming in. And there was actually some – I believe some of the engineers from [a city where the company’s headquarters are located] were on the phone, and some of the guys from the other plant, they really helped out. And it was just a real good experience for me.

Tony also stated:

For somebody like myself new to the company, it’s pretty helpful. That’s why I have some issues that maybe I don’t understand, I can – I feel free to ask, and I feel like I’ll get a good, honest response back, so I really think it’s a good thing.

*Communicating Across the Organization*

Respondents stressed communication across the organization as one of the values they see in their CoPs. More specifically, a CoP is a communication channel between East and West regional operations of the company, among field workers and corporate engineering, and among newer workers and experienced workers.
The respondents from both CoPs stressed that the CoPs provide a communication channel between East and West regions of the company. Dick, a CoP leader, commented:

We got the East and the West [the company has East and West geographical regions of business]. And there’s a little bit of differences in standards between the two. And I think that one of the best outcomes is when we start to sharing these practices with both groups participating in the CoP conference call, you start hearing some of their obstacles and their differences, and the way we may be doing things differently. And I think we have come to some conclusions that there have been always best practices out there between the two groups, and there’s one on some differential checks and so forth: the West tried some methodologies that we used in the East and eventually adopted those. So there HAS BEEN some valuable outcomes, you know, through this CoP.

Gary stated:

I think it’s a value in that it brings together for the collaboration of the P&C groups across the company that very seldom are able to openly communicate with each other, very specific, high-level incidents, so that [we] can share knowledge and gain experience on other practices and come up with maybe some practices that can save time in their job that they may not have been aware of.

Ed stated:

One of the things about improving performance is to change the culture. And the culture is to make people talk to each other and learn from each other. And this seemed like a good tool to that. Our people are spread out in I think 16 plants in
various regions and so forth, so a lot of them don’t get a chance to talk to each other and we were split East and West, as you know. The West people didn’t know very much about the East, and the East didn’t know very about the West. So getting people to talk was an important part of working on heat rate improvement. The leader and coach of the Transmission CoP commented that they believe the CoP helps field workers and corporate engineering communicate with each other. Alex stated:

I think it’s a good way for engineering and field to have that communication. If engineering is coming up with things, which they have recently in the past few months, some of the topics and the calls, they’ve come up with ways to, for instance, track prints that go out to the field. How does engineering know when the field receives prints? And when they’re working on them, when are they going to send back any changes? Instead of paying somebody to go to each area and tell you how that works, we presented that on the CoP call. And it’s called DS Track. That was a couple meetings ago. And it’s a way for that engineering to get all that information out to the specific areas and to the right people because they’re going directly to the supervisors. So I see it as a good thing as being a gateway for communication.

Jon stated:

It [the CoP]’s been almost a year now. And it’s become a part of the culture of the P&C community. And it’s been recognized for value outside of those that are actually in P&C in the field because engineering wants to take part. And it’s
become a format for sharing information between the two sides. We expected it to be just the community of P&C technicians and their supervisors in field operations. But as word got around and the reputation of it got around, engineering saw that as a format, an opportunity for them to partner. So we’ve had some information communication gaps between engineering and the field, and it has helped to provide a bridge for those two.

For newer workers, CoP is a place where they can ask questions freely and listen to more experienced workers’ comments. Tony, who has worked for the company for less than a year, stated:

I hadn’t been involved a whole lot with it because I hadn’t been a member very long. But it seemed like a real good way to share information and kind of present some of the problems that maybe you were experiencing here at the plant and get somebody – someone with more experience to shed some light on it… For somebody like myself new to the company, it’s pretty helpful. That’s why I have some issues that maybe I don’t understand, I can – I feel free to ask, and I feel like I’ll get a good, honest response back, so I really think it’s a good thing.

Ed explained how newer workers like Tony are involved in the CoP and what that means to them:

We have a lot of new people. Well, we have a position we call heat rate champion in the plant, and that’s the person that’s responsible for everything that concerns heat rate. It’s kind of like your clearinghouse for anything that comes through. And he’s supposed to be aware of what’s going on heat-rate-wise in his plant.
And what they tend to do is put new engineers in that position because there’s an opportunity to learn a lot. You learn a lot about different parts of the plant and all. So the newer engineers are looking for information, and that’s one of their reasons [to participate in the CoP]. We had a call yesterday and there were a lot of newer people on that call. They’re trying to find out what’s going on and who’s who.
Chapter 5: Summary, Discussion, and Implications

This chapter consists of three sections. The first section summarizes the results of the study. The second section discusses the findings of the study. Finally, implications of the study for HRD research and practice are provided in the third section.

Summary of Results

This study investigated the relationships among participant characteristics, their perceptions, the nature of their involvement, and outcomes in communities of practice programs. The results of the study are summarized as follows:

- Based on survey and interview results, problem solving self-efficacy may be related to the nature of participant involvement in communities of practice, however the survey results did not show a relationship between participant characteristics and nature of involvement in communities of practice.

- Expected outcomes were positively related to level and time of involvement in communities of practice, however, experience with the topic, expected demands, and knowledge-sharing culture were not related to the nature of involvement in communities of practice. Interview results suggested relationships between participant perceptions and nature of involvement in communities of practice.
• Level of involvement in communities of practice was highly related to both learning from the community of practice and learning transfer, however, time of involvement in communities of practice was negatively related to learning from the community of practice. These results were supported by interview results.

• In the full model, expected outcomes were positively related to both learning from the CoP and learning transfer, however, expected demands were negatively related to learning transfer. Level of involvement in communities of practice was positively related to learning from the communities of practice.

• Through sharing knowledge in the community of practice, participants gained job-related information, which in some cases resulted in solving problems at work. Community of practice participants also experienced outcomes in terms of changes in affect, which include satisfaction in sharing knowledge with other people and the feeling of being acknowledged as an expert. Respondents stressed communication across the organization as one of the values they see in their communities of practice.

Discussion

The results showed that participant perceptions and the nature of involvement in CoP are related. Additionally, the nature of involvement in CoP and participant outcomes were related. Participant perceptions and participant outcomes were related. The following discussion highlights possible interpretations of these results.
Relationships Among Participant Characteristics, Nature of Their Involvement in Community of Practice, and Participant Outcomes

The study showed no relationship between participant characteristics and nature of involvement in CoP, or between participant characteristics and participant outcomes.

The participant characteristic of openness to experience was reported to have a relationship with knowledge sharing (Cabrera et al., 2006; Matzler et al., 2008). However, this study did not show that openness to experience was actually related to the nature of participant involvement in CoP. One interpretation of this result may be that the two CoPs in this study are strategically designed by the company and participation in the CoPs is strongly encouraged by management. Considering these circumstances, individuals’ personalities may have less relationship to their participation in the CoPs.

The participant characteristic of problem solving self-efficacy refers to the level of each CoP participant’s confidence in solving problems at work. In this study no relationship was found between problem solving self-efficacy and nature of participant involvement in CoP. This result appears to contradict the knowledge sharing literature, which shows that role breadth self-efficacy is one of the most important determinants of knowledge sharing among workers (Cabrera et al., 2006). However, in an interview a respondent supported the literature, stating that individuals’ confidence in their knowledge and skills is a necessary condition for active participation in CoPs.
Relationships Among Participant Perceptions, Nature of Their Involvement in Community of Practice, and Participant Outcomes

This study showed that participant perceptions were related to both nature of participant involvement in CoP and participant outcomes.

The participants’ perceptions of expected outcomes and nature of participant involvement in CoP were related. This relationship is supported by some interviews which revealed that when individuals see value in CoPs at the beginning, they are motivated to participate in the CoPs. However, as the interviews revealed, once they have been involved in the CoP and see what they really gain from the CoP, how much actual benefit they have gained from the CoP may impact how much they will continue to be involved in the CoP. These results may be partially explained by social exchange theory. Social exchange theory posits that individuals judge potential demands and outcomes of a behavior to determine whether or not to perform that behavior. This study showed that individuals were more highly involved in CoPs when their expected outcomes of participation in CoP was high. The relationship between expected outcomes and participant outcomes found in this study indicates that there may be some CoP participants who are more optimistic about systematic or organizational efforts to achieve knowledge sharing and learning. Optimistic participants may be more receptive to the outcomes, and value even small gains in the outcomes.

The participants’ perceptions of expected demands and learning transfer were negatively related, although expected demands was not related to nature of participant involvement in CoP. This means that those who have higher levels of anticipated
demands on their time and effort to participate in CoP showed no difference in terms of level and time of involvement in CoP and learning from the CoP. According to the interviews, many survey respondents are required to attend CoP meetings as representatives of their groups. Therefore, even if they anticipate that their involvement in CoPs requires a high investment of time, they attend CoP meetings because they are required to attend. Once they attend CoP meetings, regardless of their initial expected demands, their activity level in the meetings is determined by other factors. Specifically, respondents stated that they participate more actively if the topic discussed in the meeting is closely related to their work. The negative relationship between expected demands and learning transfer shows that participants who have higher expected demands were shown to be less likely to implement or encourage colleagues to implement the information they learned from their involvement in CoP. These results show that strong encouragement from the organization to participate in the CoP may not have an impact on encouraging participants to use what they have learned from the CoP. For those who have tight work schedules, time is a big issue, especially finding time for implementation.

The participant perception of experience with the topic was not related to either the nature of involvement in CoP or to participant outcomes. This means that an individual who has worked in the field longer and has held a leadership role in the field longer compared to other CoP members does not necessarily participate in CoP activities more or spend more time in CoP activities. This result can be explained by the findings from interviews with core CoP members, “go-to people,” and supervisors. In many cases, their participation in the CoPs is not very active. They attend CoP meetings to see
whether there are any discussions dealing with their particular subjects of interest to which they can respond. The more active participants, who make presentations and follow-up the discussions by implementing new ideas, may not be in leadership roles in their work group. Another explanation is that not enough subject matter experts actually participate in the CoPs, as suspected by some respondents. When the respondents mentioned experts, they may have been thinking of someone who actually has been dealing with the specific area of work for several years. Their concern about the absence of subject matter experts participating in the CoPs may be a reflection of their opinions that the level of expertise available in the CoP meetings is inadequate. Therefore, the measure used in this study for the variable, experience with the topic, which measured the participants’ experience in terms of the broader range of all the topics presented and discussed in the CoPs, was inadequate to accurately measure in depth individuals’ experience with the subject matter. A better measure would have been a cognitive measurement tool applied to all participants. This was beyond the scope of the study.

The participants’ perceptions of knowledge-sharing culture were not related to either the nature of involvement in CoP or to participant outcomes. This result appears to contradict the knowledge sharing literature, which discusses the influence of knowledge-sharing culture (part of organizational culture) on knowledge sharing. The interview results support this point in that CoP participants recognized that organizational culture can be either a catalyst or a barrier for CoP participants’ implementation of what they learned from the CoP. However, the survey results did not show the relationship between knowledge-sharing culture and learning transfer.
Relationship between Nature of Involvement in Community of Practice and Participant Outcomes

This study showed that the level of involvement in CoP was related to both learning from the CoP and learning transfer. These results were amplified by the interview data. Numerous comments from participants support the finding that a high level of involvement in CoP generally results in greater outcomes in terms of learning from the CoP and learning transfer. Time of involvement in CoP was negatively related to learning from the CoP, however no relationship was found between time of involvement and learning transfer. These results suggest that CoP participants who devoted more time to the CoP may be those who participate in the CoP either to monitor CoP meetings and deliver the information to their group or to provide tips and comments to other participants, rather than to learn from others. These results also indicate that the quality of participation in CoP is more important and produces greater participant outcomes than does the quantity of participation. These results are supported by the conclusions of a previous study (Chang et al., 2009) that intensity of CoP participation is significantly related to learning from the CoP.

Implications

By employing both quantitative and qualitative research methods, this study provides a deeper understanding of the factors that impact the success of a strategic community of practice in achieving outcomes. This section presents implications for HRD research and practice from this study.

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Implications for HRD Theory and Research

Some relationships that were proposed in the original conceptual framework in Figure 2.1 have not been supported by the results of the study. A revised conceptual framework, which better reflects the results of the study, is presented in Figure 5.1. The results of this study suggest that the participant characteristic problem solving self-efficacy may be related to nature of participant involvement in CoP. The relationships among participant perceptions, nature of participant involvement in CoP, and participant outcomes are identified as shown in the conceptual framework. The results of this study also indicate that there is a feedback relationship between participant outcomes and participant perceptions.

There are four implications of the results for HRD theory and research. First, more research is needed to investigate strategic CoP and the relationships among variables proposed in this study. HRD is primarily concerned with CoPs as interventions, which are specifically structured to support the implementation of management strategy. However, research about strategic CoPs is rare. More research is needed to define the distinctive nature of strategic CoPs and to determine the essential factors for design, support, and implementation of successful strategic CoPs. More needs to be known about the strategic format, structure, purpose, and application of CoPs. In addition, the specific methods and technology to be used, including for example, wikis, blogs, discussion boards, conference calls, face-to-face meetings, meeting size, scope, and format, must be evaluated. Research is also needed to determine the impact of diversity on CoP effectiveness. More research is needed concerning individuals who
Figure 5.1. The Revised Conceptual Framework
initially join the CoP and then drop out, who have been invited to the CoP and never join the group, and who become CoP members but participate infrequently. More needs to be known about the CoP life cycle based on a longitudinal study.

Second, more accurate measures, other than self-report, of the nature of involvement in CoP and experience with the topic need to be developed. Level and time of involvement in CoP can be measured through the use of existing data and technology, such as system log-ins, system access, number of postings, time spent posting and revising comments, and time spent making comments and presentations in CoP meetings. Also, more research needs to be performed to determine how to evaluate the quality of information shared in CoPs. Experience with the topic can be measured using a cognitive assessment tool. Using accurate measures of quantity and quality of participation can help identify important variables and relationships that contribute to HRD practitioners’ design and implementation of CoPs.

Third, HRD research is needed to determine whether support interventions such as coaching, training, and mentoring for CoP leaders and facilitators contribute to the effectiveness of CoPs. HRD has traditionally been involved in providing job-specific training. Because CoP leadership and facilitation responsibilities are usually additional assignments outside the scope of specific job requirements, more needs to be known about how HRD interventions can support CoP leadership and facilitation.

Finally, future CoP research should focus on ongoing situations in an organization. CoPs have been used as a vehicle for workplace learning during relatively brief and recent time and little is known about how to create successful CoPs. However,
more organizations around the world have interests in using CoPs to enhance employee’s workplace learning and knowledge sharing. CoP practitioners need more information about how to design, support, and implement effective CoPs, while HRD researchers are interested in generating new knowledge. This situation provides an excellent opportunity for partnership research techniques to be applied to CoP, which inductively derive research problems from HRD practice (Jacobs, 1996). HRD researchers should go into the context where CoP practice occurs, discover research problems, and provide solutions to CoP practice. This process can be more challenging than a deductive approach to research, where research problems are identified first followed by the identification of a research setting, because the HRD researcher needs to find a way to correlate her research plan with existing conditions. However, partnership research for CoP research will provide a better picture of what is actually occurring in the CoPs, what problems we have, and how we can solve those problems as collaborating partners of HRD research and practice. In this way, CoP research will more closely align with the needs of CoP practice.

**Implications for HRD Practice**

This study contributes to HRD practice by providing information concerning the critical factors to consider in implementing better strategic CoPs. There are four implications of the results for HRD practice.

First, HRD practitioners should provide resources for CoP programs. Employees’ time is one of the most important resources required for the viability of CoPs, yet employee time and availability may be among the most limited of resources. HRD
practitioners should find a way to ensure release time for CoP leaders, facilitators, and members to participate in CoPs. Employees’ time is a valuable resource. Therefore, HRD practitioners should be able to demonstrate that the CoPs are achieving their strategic purposes.

Second, HRD practitioners should identify subject matter experts and find a way to ensure their involvement in CoPs. How to develop a strategy to enhance involvement of the subject matter experts is an important concern for HRD practitioners. For a strategic CoP, the expertise of CoP participants is a critical condition for achieving its goals, including solving problems and improving work efficiency, which are beyond learning itself. As the CoPs mature, more actual subject matter experts than representatives of groups should be involved in the CoPs. Although including as many subject matter experts as possible is important to enhance the effectiveness of the CoP, there may still need to be a subgroup of the CoP whose primary task is information sharing through question and answer sessions. Therefore, designing a few diversified subgroups can be a good strategy, if CoP participants’ level of experience varies.

Third, HRD practitioners should communicate expected value in CoP to employees by publicizing examples of CoP outcomes. Individuals’ positive expectations about CoP outcomes are a critical condition for active participation, learning, and learning transfer. Because learning from CoP and learning transfer are individual outcomes, these outcomes can only be recognized by the CoP participant himself or a few colleagues, if not communicated. Success stories should be more actively communicated within and outside of the CoP so CoP participants will have more positive expectations.
about the outcomes of their involvement in the CoP. This will also attract potential CoP participants to join the group. HRD practitioners should communicate the value of CoPs to current and potential CoP members, and especially to supervisors who have critical roles in encouraging and supporting individual employees’ participation in CoPs.

Fourth, HRD practitioners should consider designing ways to encourage transfer of learning. Learning transfer may be impeded by various barriers, including lack of time, the culture of the work area and organization, lack of motivation, or lack of rewards. Using HR interventions that can support CoP participants’ implementation of what they learned from their CoPs, such as recognition, rewards, performance support, and performance evaluation tools can ensure maximum application to the job.
References


Chang, J., Chang, W., & Jacobs, R. (2009). Relationship between participation in communities of practice and organizational socialization in the early careers of


Appendix A: Survey Questionnaire For Members of Transmission CoP
P&C Best Practices Community of Practice Survey

Dear [Name of the Company] P&C Best Practices Community of Practice member,

We are pleased to invite you to respond to this web-based survey conducted by The Ohio State University.

The purpose of this survey is to analyze [name of the company] employees’ community of practice activities.

It will take approximately 10-15 minutes to respond to this questionnaire. All responses will be kept confidential and only aggregate data will be reported in the study results. Your participation is voluntary. You may skip any question you do not wish to answer. You may be contacted for an interview at a later date.

Your participation is important and will contribute to our knowledge of workplace learning. Please complete this survey by March 15, 2010.

If you have any questions or concerns about the survey, please contact Dr. Ronald Jacobs or Joohee Chang. E-mail and telephone contact information is shown below.

We thank you in advance for your participation!

Ronald L. Jacobs, Ph.D.
The Ohio State University
614-292-0589
rjacobs@ehe.osu.edu

Joohee Chang
The Ohio State University
614-678-0252
chang.735@buckeyemail.osu.edu
P&C Best Practices Community of Practice Survey

1. Have you ever been involved in P&C Best Practices Community of Practice meetings or discussions?
   ○ Yes    ○ No
P&C Best Practices Community of Practice Survey
Part 1

1. Reflecting on your thoughts when you began participating in the P&C Best Practices Community of Practice, respond to the following statements about the expected outcomes of your involvement in the community of practice.

<table>
<thead>
<tr>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Community of practice activities should help me improve my job performance.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Discussions with community of practice members should answer my questions related to my work.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Interaction with community of practice members should help me improve my career prospects.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Involvement in community of practice should make my work easier.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Interaction with other community of practice members should improve my contact with colleagues.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Reflecting on your thoughts when you began participating in the P&C Best Practices Community of Practice, respond to the following statements about the implications of participating in the community of practice activities.

<table>
<thead>
<tr>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Participating in the community of practice meetings will require too much time.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Commenting during the community of practice meeting will require too much effort.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Posting my comments on the discussion board in the SharePoint site will not interfere with my work day.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Sharing my knowledge will often require additional follow-up time.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Submitting a posting or a file will often result in my spending more time responding requests for assistance.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
P&C Best Practices Community of Practice Survey
Part 2

Respond to the following questions about your community of practice activities during February 2010 only.

1. Did you attend the community of practice meeting during February 2010?
   ○ Yes ○ No

   If your answer to this question is YES, respond to the following questions.
   If your answer to this question is No, skip questions 2 and 3, and GO TO QUESTION 4.

2. How long did you stay online for the February 2010 community of practice meeting?
   ○ less than 15 minutes ○ 15-30 minutes ○ 30-45 minutes
   ○ 45 minutes – 1 hour ○ more than 1 hour ○ the entire meeting

3. Did you make a presentation during the February 2010 community of practice meeting?
   ○ Yes ○ No

   If your answer to this question is YES, respond to the following questions.
   If your answer to this question is No, skip question 4, and GO TO QUESTION 5.

4. How much time did you spend making a presentation during the February 2010 community of practice meeting?
   ○ less than 20 minutes ○ 20-30 minutes ○ 30-40 minutes
   ○ 40-50 minutes ○ 50 minutes – 1 hour ○ more than 1 hour

5. Respond to the following questions about your activities during the February 2010 community of practice meeting.

<table>
<thead>
<tr>
<th>Have you been involved in:</th>
<th>How many times have you been involved in:</th>
<th>How much time did you spend:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Making a comment during the meeting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>○ Yes ○ No</td>
<td>○ 1 ○ 2 ○ 3-5 ○ 5-7 ○ 7-10 ○ more than 10</td>
<td>○ less than 5 minutes ○ 5-10 minutes ○ 10-20 minutes ○ 20-30 minutes ○ 30-45 minutes ○ 45 minutes – 1 hour ○ more than 1 hour</td>
</tr>
<tr>
<td>2. Meeting with others to discuss community of practice topics after the meeting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>○ Yes ○ No</td>
<td>○ 1 ○ 2 ○ 3-5 ○ 5-7 ○ 7-10 ○ more than 10</td>
<td>○ less than 5 minutes ○ 5-10 minutes ○ 10-20 minutes ○ 20-30 minutes ○ 30-45 minutes ○ 45 minutes – 1 hour ○ more than 1 hour</td>
</tr>
</tbody>
</table>
6. Respond to the following questions about your community of practice activities related to the February 2010 community of meeting.

<table>
<thead>
<tr>
<th>Have you been involved in:</th>
<th>How many times have you been involved in:</th>
<th>How much time did you spend:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Preparing presentation for the meeting</td>
<td>○ Yes ○ No</td>
<td>○ 1 ○ 2 ○ 3-5 ○ 5-7 ○ 7-10 ○ more than 10</td>
</tr>
<tr>
<td>2. Reviewing the recorded meeting</td>
<td>○ Yes ○ No</td>
<td>○ 1 ○ 2 ○ 3-5 ○ 5-7 ○ 7-10 ○ more than 10</td>
</tr>
<tr>
<td>3. Sharing information from the SharePoint site with your team</td>
<td>○ Yes ○ No</td>
<td>○ 1 ○ 2 ○ 3-5 ○ 5-7 ○ 7-10 ○ more than 10</td>
</tr>
<tr>
<td>4. Collaborating with your co-workers on community of practice topics</td>
<td>○ Yes ○ No</td>
<td>○ 1 ○ 2 ○ 3-5 ○ 5-7 ○ 7-10 ○ more than 10</td>
</tr>
</tbody>
</table>
P&C Best Practices Community of Practice Survey
Part 3

1. Respond to the following statements about what you have gained so far from your involvement in the community of practice activities.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree=1, Disagree=2, Neither agree nor disagree=3, Agree=4, Strongly agree=5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. My know-how on the topics discussed has increased.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>2. I learned about other resources available in the company.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>3. My problem solving ability has improved.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>4. I have better ideas about how to perform my work.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>5. I learned to identify experts in the company.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>6. I learned to talk about my work more easily.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>7. I have gained new insights about my work.</td>
<td>1 2 3 4 5</td>
</tr>
</tbody>
</table>

2. Respond to the following statements about how you have used the information you learned from the community of practice activities in your job.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I have implemented a best practice identified in the community of practice.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. I have referred to community of practice members’ comments that pertain to specific practices as I’ve performed my job.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. I have referred to documents posted on the community of practice SharePoint site.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. I have attempted better ways to solve a problem after the discussions by community of practice members on the topic.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. I encouraged my colleagues to implement a best practice identified in the community of practice</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>6. I encouraged my colleagues to implement a best practice identified in the community of practice.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>7. I suggested a specific action to my colleagues when they worked with issues that have been discussed in the community of practice.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>8. I encouraged my colleagues to refer to documents posted on the community of practice SharePoint site.</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>
1. Respond to the following statements about the general culture in your work area.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Rating</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employees often share their knowledge to improve work processes and outcomes.</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Employees with expert knowledge are willing to help others in this company.</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Our company places great value on sharing best practices among employees.</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Management encourages me to share my knowledge, ideas, and experience with other employees.</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Sharing knowledge, ideas, and experiences among employees is important in my division.</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

2. Respond to the following question about your work experience in your work area.

How many years have you been involved in protection and control?
- less than 3 years
- 3-7 years
- 7-12 minutes
- 12-20 years
- more than 20 years

3. Have you ever led a group or a team tasked with protection and control responsibilities?
- Yes
- No

If your answer to this question is YES, respond to question 4.
If your answer to this question is NO, skip question 4, and CLICK NEXT BUTTON on the bottom of this screen.

4. Respond to the following question about your experience in your work area.

How many years have you led a group or a team tasked with protection and control?
- less than 3 years
- 3-7 years
- 7-12 minutes
- 12-20 years
- more than 20 years
P&C Best Practices Community of Practice Survey
Part 5

1. Respond to the following statements about your general interests in gaining new experiences.

<table>
<thead>
<tr>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>I come up with new ideas.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I am curious about many different things.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I am inventive.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I prefer work that is routine.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I like to reflect, play with ideas.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

2. Respond to the following questions about your confidence in general problem solving at work.

<table>
<thead>
<tr>
<th>How confident are you at work about…</th>
<th>not at all confident</th>
<th>very confident</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analyzing a problem to find a solution.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>Representing your work area in meetings with senior management.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>Designing new procedures in your area of specialization.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>Making suggestions to management about ways to improve the work processes of your section.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>Contributing to discussions about the company’s strategy.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>Contacting people outside the company to discuss problems.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>Presenting information to a group of colleagues.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>Networking with individuals on other teams, regions, or departments to discuss doing things differently.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
</tbody>
</table>
P&C Best Practices Community of Practice Survey
Demographics

1. Please state your highest completed level of education.
   ○ High school graduate  ○ Associate’s degree  ○ Bachelor’s  ○ Master’s  ○ Doctorate

2. What is your role in the company on the team?
   ○ Manage a group  ○ Manage projects  ○ Team member
   ○ Other (please specify)________________

3. How long have you worked for [name of the company]?
   Number of years in [name of the company]: _______

4. Please insert your system log-on user ID. You user ID is required for STATISTICAL ANALYSIS ONLY. Specific responses will be kept confidential.
   User ID: __________

5. Would you be willing to be contacted about a possible interview about your experiences in the community of practice?
   ○ Yes  ○ No

6. If you answered Yes to question 5, please provide your email address and work location below:
   Your email address: ____________________
   Your work location (City, State):____________________

<< Prev  Done >>
Appendix B: Follow-Up Survey Questionnaire For Members of Transmission CoP
P&C Best Practices Community of Practice Follow-Up Survey

Dear [Name of the Company] P&C Best Practices Community of Practice member,

We are pleased to invite you to respond to this web-based survey conducted by The Ohio State University.

The purpose of this survey is to analyze [name of the company] employees’ community of practice activities.

It will take approximately 5-10 minutes to respond to this questionnaire. All responses will be kept confidential and only aggregate data will be reported in the study results. Your participation is voluntary. You may skip any question you do not wish to answer. You may be contacted for an interview at a later date.

Your participation is important and will contribute to our knowledge of workplace learning. Please complete this survey by April 22, 2010.

If you have any questions or concerns about the survey, please contact Dr. Ronald Jacobs or Joohee Chang. E-mail and telephone contact information is shown below.

We thank you in advance for your participation!

Ronald L. Jacobs, Ph.D.
The Ohio State University
614-292-0589
rjacobs@ehe.osu.edu

Joohee Chang
The Ohio State University
614-678-0252
chang.735@buckeyemail.osu.edu
P&C Best Practices Community of Practice Follow-Up Survey

1. Have you ever been involved in P&C Best Practices Community of Practice meetings or discussions?
   ○ Yes  ○ No
Respond to the following questions about your community of practice activities during March 2010 only.

1. Did you attend the community of practice meeting during March 2010?
   ○ Yes ○ No

If your answer to this question is YES, respond to the following questions.  
If your answer to this question is No, skip questions 2 and 3, and GO TO QUESTION 4.

2. How long did you stay online for the March 2010 community of practice meeting?
   ○ less than 15 minutes  ○ 15-30 minutes  ○ 30-45 minutes
   ○ 45 minutes – 1 hour  ○ more than 1 hour  ○ the entire meeting

3. Did you make a presentation during the March 2010 community of practice meeting?
   ○ Yes ○ No

If your answer to this question is YES, respond to the following questions.  
If your answer to this question is No, skip question 4, and GO TO QUESTION 5.

4. How much time did you spend making a presentation during the March 2010 community of practice meeting?
   ○ less than 20 minutes  ○ 20-30 minutes  ○ 30-40 minutes
   ○ 40-50 minutes  ○ 50 minutes – 1 hour  ○ more than 1 hour

5. Respond to the following questions about your activities during the March 2010 community of practice meeting.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Have you been involved in:</th>
<th>How many times have you been involved in:</th>
<th>How much time did you spend:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Making a comment during the meeting</td>
<td>○ Yes  ○ No</td>
<td>○ 1  ○ 2  ○ 3-5  ○ 5-7  ○ 7-10  ○ more than 10</td>
<td>○ less than 5 minutes  ○ 5-10 minutes  ○ 10-20 minutes  ○ 20-30 minutes  ○ 30-45 minutes</td>
</tr>
<tr>
<td>2. Meeting with others to discuss community of practice topics after the meeting</td>
<td>○ Yes  ○ No</td>
<td>○ 1  ○ 2  ○ 3-5  ○ 5-7  ○ 7-10  ○ more than 10</td>
<td>○ less than 5 minutes  ○ 5-10 minutes  ○ 10-20 minutes  ○ 20-30 minutes  ○ 30-45 minutes</td>
</tr>
</tbody>
</table>

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P&C Best Practices Community of Practice Follow-Up Survey
Part 1 (cont’d)

6. Respond to the following questions about your community of practice activities related to the March 2010 community of meeting.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Have you been involved in:</th>
<th>How many times have you been involved in:</th>
<th>How much time did you spend:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Preparing presentation for the meeting</td>
<td>○ Yes</td>
<td>○ 1 ○ 2 ○ 3-5 ○ 5-7 ○ 7-10 ○ more than 10</td>
<td>○ less than 15 minutes ○ 15-30 minutes ○ 30-45 minutes ○ 45 minutes – 1 hour ○ 1-2 hour ○ more than 2 hours</td>
</tr>
<tr>
<td>2. Reviewing the recorded meeting</td>
<td>○ Yes</td>
<td>○ 1 ○ 2 ○ 3-5 ○ 5-7 ○ 7-10 ○ more than 10</td>
<td>○ less than 15 minutes ○ 15-30 minutes ○ 30-45 minutes ○ 45 minutes – 1 hour ○ 1-2 hour ○ more than 2 hours</td>
</tr>
<tr>
<td>3. Sharing information from the SharePoint site with your team</td>
<td>○ Yes</td>
<td>○ 1 ○ 2 ○ 3-5 ○ 5-7 ○ 7-10 ○ more than 10</td>
<td>○ less than 15 minutes ○ 15-30 minutes ○ 30-45 minutes ○ 45 minutes – 1 hour ○ 1-2 hour ○ more than 2 hours</td>
</tr>
<tr>
<td>4. Collaborating with your co-workers on community of practice topics</td>
<td>○ Yes</td>
<td>○ 1 ○ 2 ○ 3-5 ○ 5-7 ○ 7-10 ○ more than 10</td>
<td>○ less than 15 minutes ○ 15-30 minutes ○ 30-45 minutes ○ 45 minutes – 1 hour ○ 1-2 hour ○ more than 2 hours</td>
</tr>
</tbody>
</table>
P&C Best Practices Community of Practice Follow-Up Survey
Part 2

1. Respond to the following statements about what you have gained so far from your involvement in the community of practice activities.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree=1, Disagree=2, Neither agree nor disagree=3, Agree=4, Strongly agree=5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. My know-how on the topics discussed has increased.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>2. I learned about other resources available in the company.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>3. My problem solving ability has improved.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>4. I have better ideas about how to perform my work.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>5. I learned to identify experts in the company.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>6. I learned to talk about my work more easily.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>7. I have gained new insights about my work.</td>
<td>1 2 3 4 5</td>
</tr>
</tbody>
</table>

2. Respond to the following statements about how you have used the information you learned from the community of practice activities in your job.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I have implemented a best practice identified in the community of practice.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>2. I have referred to community of practice members’ comments that pertain to specific practices as I’ve performed my job.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>3. I have referred to documents posted on the community of practice SharePoint site.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>4. I have attempted better ways to solve a problem after the discussions by community of practice members on the topic.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>5. I encouraged my colleagues to implement a best practice identified in the community of practice.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>6. I encouraged my colleagues to implement a best practice identified in the community of practice.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>7. I suggested a specific action to my colleagues when they worked with issues that have been discussed in the community of practice.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>8. I encouraged my colleagues to refer to documents posted on the community of practice SharePoint site.</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>
P&C Best Practices Community of Practice Follow-Up Survey
Contact Information

1. Please insert your system log-on user ID. You user ID is required for STATISTICAL ANALYSIS ONLY. Specific responses will be kept confidential.

User ID: __________

2. Would you be willing to be contacted about a possible interview about your experiences in the community of practice?
   ○ Yes  ○ No

3. If you answered Yes to question 5, please provide your email address and work location below:
   Your email address: ____________________
   Your work location (City, State): ______________________
Appendix C: Survey Questionnaire For Members of Generation CoP
Heat Rate Community of Practice Survey

Dear [Name of the Company] Heat Rate Community of Practice member,

We are pleased to invite you to respond to this web-based survey conducted by The Ohio State University.

The purpose of this survey is to analyze [name of the company] employees’ community of practice activities.

It will take approximately 10-15 minutes to respond to this questionnaire. All responses will be kept confidential and only aggregate data will be reported in the study results. Your participation is voluntary. You may skip any question you do not wish to answer. You may be contacted for an interview at a later date.

Your participation is important and will contribute to our knowledge of workplace learning. Please complete this survey by March 15, 2010.

If you have any questions or concerns about the survey, please contact Dr. Ronald Jacobs or Joohee Chang. E-mail and telephone contact information is shown below.

We thank you in advance for your participation!

Ronald L. Jacobs, Ph.D.
The Ohio State University
614-292-0589
rjacobs@ehe.osu.edu

Joohee Chang
The Ohio State University
614-678-0252
chang.735@buckeyemail.osu.edu

Next >>
Heat Rate Community of Practice Survey
Part 1

1. Reflecting on your thoughts when you began participating in the Heat Rate Community of Practice, respond to the following statements about the expected outcomes of your involvement in the community of practice.

| Strongly disagree=1, Disagree=2, Neither agree nor disagree=3, Agree=4, Strongly agree=5 |
|---|---|---|---|---|---|
| 1. Community of practice activities should help me improve my job performance. | 1 2 3 4 5 |
| 2. Discussions with community of practice members should answer my questions related to my work. | 1 2 3 4 5 |
| 3. Interaction with community of practice members should help me improve my career prospects. | 1 2 3 4 5 |
| 4. Involvement in community of practice should make my work easier. | 1 2 3 4 5 |
| 5. Interaction with other community of practice members should improve my contact with colleagues. | 1 2 3 4 5 |

2. Reflecting on your thoughts when you began participating in the Heat Rate Community of Practice, respond to the following statements about the implications of participating in the community of practice activities.

| Strongly disagree=1, Disagree=2, Neither agree nor disagree=3, Agree=4, Strongly agree=5 |
|---|---|---|---|---|---|
| 1. Participating in the community of practice meetings will require too much time. | 1 2 3 4 5 |
| 2. Commenting during the community of practice meeting will require too much effort. | 1 2 3 4 5 |
| 3. Posting my comments on the discussion board in the SharePoint site will not interfere with my work day. | 1 2 3 4 5 |
| 4. Sharing my knowledge will often require additional follow-up time. | 1 2 3 4 5 |
| 5. Submitting a posting or a file will often result in my spending more time responding requests for assistance. | 1 2 3 4 5 |
Heat Rate Community of Practice Survey
Part 2

Respond to the following questions about your community of practice activities during February 2010 only.

1. Did you attend the community of practice meeting during February 2010?
   ○ Yes   ○ No

If your answer to this question is YES, respond to the following questions.
If your answer to this question is No, skip questions 2 and 3, and GO TO QUESTION 4.

2. How long did you stay online for the February 2010 community of practice meeting?
   ○ less than 15 minutes   ○ 15-30 minutes   ○ 30-45 minutes
   ○ 45 minutes – 1 hour   ○ more than 1 hour   ○ the entire meeting

3. Did you make a presentation during the February 2010 community of practice meeting?
   ○ Yes   ○ No

If your answer to this question is YES, respond to the following questions.
If your answer to this question is No, skip question 4, and GO TO QUESTION 5.

4. How much time did you spend making a presentation during the February 2010 community of practice meeting?
   ○ less than 20 minutes   ○ 20-30 minutes   ○ 30-40 minutes
   ○ 40-50 minutes   ○ 50 minutes – 1 hour   ○ more than 1 hour

5. Respond to the following questions about your activities during the February 2010 community of practice meeting.

<table>
<thead>
<tr>
<th>Have you been involved in:</th>
<th>How many times have you been involved in:</th>
<th>How much time did you spend:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Making a comment during the meeting</td>
<td>○ Yes   ○ No</td>
<td>○ 1   ○ 2   ○ 3-5   ○ 5-7   ○ 7-10   ○ more than 10</td>
</tr>
<tr>
<td>2. Meeting with others to discuss community of practice topics after the meeting</td>
<td>○ Yes   ○ No</td>
<td>○ 1   ○ 2   ○ 3-5   ○ 5-7   ○ 7-10   ○ more than 10</td>
</tr>
</tbody>
</table>
Heat Rate Community of Practice Survey
Part 2 (cont’d)

6. Respond to the following questions about your community of practice activities related to the February 2010 community of meeting.

<table>
<thead>
<tr>
<th>Have you been involved in:</th>
<th>How many times have you been involved in:</th>
<th>How much time did you spend:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Preparing presentation for the meeting</td>
<td>○ Yes ○ No ○ 1 ○ 2 ○ 3-5 ○ 5-7 ○ 7-10 ○ more than 10</td>
<td>○ less than 15 minutes ○ 15-30 minutes ○ 30-45 minutes ○ 45 minutes – 1 hour ○ 1-2 hour ○ more than 2 hours</td>
</tr>
<tr>
<td>2. Sharing information from the SharePoint site with your team</td>
<td>○ Yes ○ No ○ 1 ○ 2 ○ 3-5 ○ 5-7 ○ 7-10 ○ more than 10</td>
<td>○ less than 15 minutes ○ 15-30 minutes ○ 30-45 minutes ○ 45 minutes – 1 hour ○ 1-2 hour ○ more than 2 hours</td>
</tr>
<tr>
<td>3. Collaborating with your co-workers on community of practice topics</td>
<td>○ Yes ○ No ○ 1 ○ 2 ○ 3-5 ○ 5-7 ○ 7-10 ○ more than 10</td>
<td>○ less than 15 minutes ○ 15-30 minutes ○ 30-45 minutes ○ 45 minutes – 1 hour ○ 1-2 hour ○ more than 2 hours</td>
</tr>
</tbody>
</table>
Heat Rate Community of Practice Survey
Part 3

1. Respond to the following statements about what you have gained so far from your involvement in the community of practice activities.

<table>
<thead>
<tr>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. My know-how on the topics discussed has increased.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. I learned about other resources available in the company.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. My problem solving ability has improved.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. I have better ideas about how to perform my work.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. I learned to identify experts in the company.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. I learned to talk about my work more easily.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. I have gained new insights about my work.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


2. Respond to the following statements about how you have used the information you learned from the community of practice activities in your job.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I have implemented a best practice identified in the community of practice.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>2. I have referred to community of practice members’ comments that pertain to specific practices as I’ve performed my job.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>3. I have referred to documents posted on the community of practice SharePoint site.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>4. I have attempted better ways to solve a problem after the discussions by community of practice members on the topic.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>5. I encouraged my colleagues to implement a best practice identified in the community of practice.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>6. I encouraged my colleagues to implement a best practice identified in the community of practice.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>7. I suggested a specific action to my colleagues when they worked with issues that have been discussed in the community of practice.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>8. I encouraged my colleagues to refer to documents posted on the community of practice SharePoint site.</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>
Heat Rate Community of Practice Survey
Part 4

1. Respond to the following statements about the general culture in your work area.

<table>
<thead>
<tr>
<th>Strongly disagree=1, Disagree=2, Neither agree nor disagree=3, Agree=4, Strongly agree=5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Employees often share their knowledge to improve work processes and outcomes. 1 2 3 4 5</td>
</tr>
<tr>
<td>2. Employees with expert knowledge are willing to help others in this company. 1 2 3 4 5</td>
</tr>
<tr>
<td>3. Our company places great value on sharing best practices among employees. 1 2 3 4 5</td>
</tr>
<tr>
<td>4. Management encourages me to share my knowledge, ideas, and experience with other employees. 1 2 3 4 5</td>
</tr>
<tr>
<td>5. Sharing knowledge, ideas, and experiences among employees is important in my division. 1 2 3 4 5</td>
</tr>
</tbody>
</table>

2. Respond to the following question about your work experience in your work area.

How many years have you been involved in heat rate?
○ less than 3 years  ○ 3-7 years  ○ 7-12 minutes  ○ 12-20 years  ○ more than 20 years

3. Have you ever led a group or a team tasked with heat rate responsibilities?
○ Yes  ○ No

If your answer to this question is YES, respond to question 4.
If your answer to this question is No, skip question 4, and CLICK NEXT BUTTON on the bottom of this screen.

4. Respond to the following question about your experience in your work area.

How many years have you led a group or a team tasked with heat rate?
○ less than 3 years  ○ 3-7 years  ○ 7-12 minutes  ○ 12-20 years  ○ more than 20 years
Heat Rate Community of Practice Survey
Part 5

1. Respond to the following statements about your general interests in gaining new experiences.

<table>
<thead>
<tr>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I come up with new ideas.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. I am curious about many different things.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. I am inventive.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. I prefer work that is routine.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. I like to reflect, play with ideas.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Respond to the following questions about your confidence in general problem solving at work.

<table>
<thead>
<tr>
<th>How confident are you at work about…</th>
<th>not at all confident</th>
<th>very confident</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Analyzing a problem to find a solution.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Representing your work area in meetings with senior management.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Designing new procedures in your area of specialization.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Making suggestions to management about ways to improve the work processes of your section.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Contributing to discussions about the company’s strategy.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Contacting people outside the company to discuss problems.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Presenting information to a group of colleagues.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Networking with individuals on other teams, regions, or departments to discuss doing things differently.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Heat Rate Community of Practice Survey

Demographics

1. Please state your highest completed level of education.
   ○ High school graduate  ○ Associate’s degree  ○ Bachelor’s  ○ Master’s  ○ Doctorate

2. What is your role in the company on the team?
   ○ Manage a group  ○ Manage projects  ○ Team member  ○ Other (please specify)_____________  

3. How long have you worked for [name of the company]?
   Number of years in [name of the company]: _______

4. Please insert your system log-on user ID. You user ID is required for STATISTICAL ANALYSIS ONLY. Specific responses will be kept confidential.
   User ID: __________

5. Would you be willing to be contacted about a possible interview about your experiences in the community of practice?
   ○ Yes  ○ No

6. If you answered Yes to question 5, please provide your email address and work location below:
   Your email address: ____________________
   Your work location (City, State): ____________________

<< Prev  Done >>
Appendix D: Follow-Up Survey Questionnaire For Members of Generation CoP
Heat Rate Community of Practice Follow-Up Survey

Dear [Name of the Company] P&C Best Practices Community of Practice member,

We are pleased to invite you to respond to this web-based survey conducted by The Ohio State University.

The purpose of this survey is to analyze [name of the company] employees’ community of practice activities.

It will take approximately 5-10 minutes to respond to this questionnaire. All responses will be kept confidential and only aggregate data will be reported in the study results. Your participation is voluntary. You may skip any question you do not wish to answer. You may be contacted for an interview at a later date.

Your participation is important and will contribute to our knowledge of workplace learning. Please complete this survey by May 28, 2010.

If you have any questions or concerns about the survey, please contact Dr. Ronald Jacobs or Joohee Chang. E-mail and telephone contact information is shown below.

We thank you in advance for your participation!

Ronald L. Jacobs, Ph.D.
The Ohio State University
614-292-0589
rjacobs@ehe.osu.edu

Joohee Chang
The Ohio State University
614-678-0252
chang.735@buckeyemail.osu.edu

Next >>
Heat Rate Community of Practice Follow-Up Survey
Part 1

Respond to the following questions about your community of practice activities during May 2010 only.

1. Did you attend the community of practice meeting during May 2010?
   ○ Yes ○ No

If your answer to this question is YES, respond to the following questions. If your answer to this question is No, skip questions 2 and 3, and GO TO QUESTION 4.

2. How long did you stay online for the May 2010 community of practice meeting?
   ○ less than 15 minutes ○ 15-30 minutes ○ 30-45 minutes
   ○ 45 minutes – 1 hour ○ more than 1 hour ○ the entire meeting

3. Did you make a presentation during the May 2010 community of practice meeting?
   ○ Yes ○ No

If your answer to this question is YES, respond to the following questions. If your answer to this question is No, skip question 4, and GO TO QUESTION 5.

4. How much time did you spend making a presentation during the March 2010 community of practice meeting?
   ○ less than 20 minutes ○ 20-30 minutes ○ 30-40 minutes
   ○ 40-50 minutes ○ 50 minutes – 1 hour ○ more than 1 hour

5. Respond to the following questions about your activities during the May 2010 community of practice meeting.

<table>
<thead>
<tr>
<th>Have you been involved in:</th>
<th>How many times have you been involved in:</th>
<th>How much time did you spend:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Making a comment during the meeting</td>
<td>○ Yes ○ No</td>
<td>○ 1 ○ 2 ○ 3-5 ○ 5-7 ○ 7-10 ○ more than 10</td>
</tr>
<tr>
<td>2. Meeting with others to discuss community of practice topics after the meeting</td>
<td>○ Yes ○ No</td>
<td>○ 1 ○ 2 ○ 3-5 ○ 5-7 ○ 7-10 ○ more than 10</td>
</tr>
</tbody>
</table>

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Heat Rate Community of Practice Follow-Up Survey  
Part 1 (cont’d)

6. Respond to the following questions about your community of practice activities related to the May 2010 community of meeting.

<table>
<thead>
<tr>
<th>Have you been involved in:</th>
<th>How many times have you been involved in:</th>
<th>How much time did you spend:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Preparing presentation for the meeting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>○ Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>○ No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>○ 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>○ 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>○ 3-5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>○ 5-7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>○ 7-10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>○ more than 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>○ less than 15 minutes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>○ 15-30 minutes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>○ 30-45 minutes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>○ 45 minutes – 1 hour</td>
<td></td>
<td></td>
</tr>
<tr>
<td>○ 1-2 hour</td>
<td></td>
<td></td>
</tr>
<tr>
<td>○ more than 2 hours</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| 2. Sharing information from the SharePoint site with your team |
| ○ Yes |
| ○ No |
| ○ 1 |
| ○ 2 |
| ○ 3-5 |
| ○ 5-7 |
| ○ 7-10 |
| ○ more than 10 |
| ○ less than 15 minutes |
| ○ 15-30 minutes |
| ○ 30-45 minutes |
| ○ 45 minutes – 1 hour |
| ○ 1-2 hour |
| ○ more than 2 hours |

| 3. Collaborating with your co-workers on community of practice topics |
| ○ Yes |
| ○ No |
| ○ 1 |
| ○ 2 |
| ○ 3-5 |
| ○ 5-7 |
| ○ 7-10 |
| ○ more than 10 |
| ○ less than 15 minutes |
| ○ 15-30 minutes |
| ○ 30-45 minutes |
| ○ 45 minutes – 1 hour |
| ○ 1-2 hour |
| ○ more than 2 hours |
Heat Rate Community of Practice Follow-Up Survey
Part 2

1. Respond to the following statements about what you have gained so far from your involvement in the community of practice activities.

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>My know-how on the topics discussed has increased.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>I learned about other resources available in the company.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>My problem solving ability has improved.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>I have better ideas about how to perform my work.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>I learned to identify experts in the company.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>I learned to talk about my work more easily.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>I have gained new insights about my work.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Respond to the following statements about how you have used the information you learned from the community of practice activities in your job.

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>I have implemented a best practice identified in the community of practice.</td>
<td>Yes No</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>I have referred to community of practice members’ comments that pertain to specific practices as I’ve performed my job.</td>
<td>Yes No</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>I have referred to documents posted on the community of practice SharePoint site.</td>
<td>Yes No</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>I have attempted better ways to solve a problem after the discussions by community of practice members on the topic.</td>
<td>Yes No</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>I encouraged my colleagues to implement a best practice identified in the community of practice.</td>
<td>Yes No</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>I encouraged my colleagues to implement a best practice identified in the community of practice.</td>
<td>Yes No</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>I suggested a specific action to my colleagues when they worked with issues that have been discussed in the community of practice.</td>
<td>Yes No</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>I encouraged my colleagues to refer to documents posted on the community of practice SharePoint site.</td>
<td>Yes No</td>
<td></td>
</tr>
</tbody>
</table>
Heat Rate Community of Practice Follow-Up Survey
Contact Information

1. Please insert your system log-on user ID. You user ID is required for STATISTICAL ANALYSIS ONLY. Specific responses will be kept confidential.

User ID: __________

2. Would you be willing to be contacted about a possible interview about your experiences in the community of practice?
   ○ Yes  ○ No

3. If you answered Yes to question 5, please provide your email address and work location below:
   Your email address: ____________________
   Your work location (City, State): ____________________
Appendix E: Interview Protocol for CoP Members
Interview on Community of Practice

Dear [Name of the Company] Community of Practice Member,

We are pleased that you accepted our invitation to participate in this interview conducted by The Ohio State University. The purpose of this interview is to gain further understanding about your experience of and thoughts about community of practice. Your participation is important and will contribute to our knowledge of workplace learning.

Interviews will take approximately 30 minutes. You will be asked to share your experience and opinions about your community of practice activities. All responses will be kept confidential. We will not identify you in any way in any report based upon this interview. We will use an audio recorder during the interview. The recorded conversations will be transcribed for analysis. Your participation is voluntary. You may skip any question you do not wish to answer.

Telephone interviews may be conducted by calling you at your office telephone number or another number of your choice.

The interviews will begin April 26, 2010.

If you have any questions or concerns about the interview, please contact Joohee Chang.

We thank you in advance for your participation!

Ronald L. Jacobs, Ph.D.  
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rjacobs@ehe.osu.edu

Joohee Chang  
The Ohio State University  
614-678-0252  
chang.735@buckeyemail.osu.edu
Part I. Community of Practice Activities

1. How long have you been a member of the _______ Community of Practice?
2. How did you learn about the _______ Community of Practice?
3. In your first impression of the _______ Community of Practice, what value did you see in it?
4. What are some reasons why people become involved in the _______ Community of Practice?
5. Please describe your activities related to community of practice before, during, and after the meeting.

Part II. Outcomes of Participation in the Community of Practice

1. What valuable outcomes have you experienced from the _______ Community of Practice?
2. What did you learn from your participation in the community of practice that was not predicted or expected?
3. How have you implemented what you have learned in the _______ Community of Practice?
   3.1. What were supporters, enablers, or barriers for you to implement what you have learned?

Part III. Summary

1. What is your overall reaction to the community of practice surveys?
2. What additional reflections about your overall feelings, thoughts, or concerns about the _______ Community of Practice can you share with me?
Appendix F: Interview Protocol for CoP Leaders and Coaches
Interview on Community of Practice

Dear [Name of the Company] Community of Practice Leader/Coach,

We are pleased that you accepted our invitation to participate in this interview conducted by The Ohio State University. The purpose of this interview is to gain further understanding about your experience of and thoughts about community of practice. Your participation is important and will contribute to our knowledge of workplace learning.

Interviews will take approximately 30 minutes. You will be asked to share your experience and opinions about your community of practice activities. All responses will be kept confidential. We will not identify you in any way in any report based upon this interview. We will use an audio recorder during the interview. The recorded conversation will be transcribed for analysis. Your participation is voluntary. You may skip any question you do not wish to answer.

Telephone interviews may be conducted by calling you at your office telephone or another location of your choice.

The interviews will begin April 21, 2010.

If you have any questions or concerns about the interview, please contact Joohee Chang.

We thank you in advance for your participation!

Ronald L. Jacobs, Ph.D.  
The Ohio State University  
614-292-0589  
rjacobs@ehe.osu.edu

Joohee Chang  
The Ohio State University  
614-678-0252  
chang.735@buckeyemail.osu.edu
Part I. Background Information

1. What preparation have you had for your role in the _______ Community of Practice?

Part II. Community of Practice Activities

1. Please describe your role in the _______ Community of Practice.
2. What are the biggest challenges for you to lead the _______ Community of Practice?
3. Please describe your activities related to community of practice before, during, and after the meeting.

Part III. Outcomes of Participation in the Community of Practice

1. What valuable outcomes do you think the members have experienced from their involvement in the _______ Community of Practice?
2. What unanticipated outcomes have you observed from the _______ Community of Practice?

Part IV. Summary

1. What additional reflections about your overall feelings, thoughts, or concerns about the _______ Community of Practice can you share with me?