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Building a sustainable learning and development culture through communities of practice

John Atwood

BUILDING A SUSTAINABLE LEARNING AND DEVELOPMENT CULTURE THROUGH COMMUNITIES OF PRACTICE

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John Atwood

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JOHN ATWOOD

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Faculty Committee

Committee Chair, Christopher G. Worley, Ph.D.

Committee Member, Ann E. Feyerherm, Ph.D.

Linda Livingstone, Ph.D., Dean
The George L. Graziadio
School of Business and Management

Abstract

The world has become considerably smaller through the effects of technology, media, science, transportation, the Internet, and the spread of global commerce. There has been a great deal of discussion about how to manage knowledge and foster individual, group, and organizational learning. The purpose of this study was to investigate the practices and behaviors that led to the formation of communities of practice (CoPs) in a multinational corporation, their impact on distributed global offices, and their influence on a learning and development culture. The study addressed the following question: What impact do CoPs have on a multinational corporation's learning and development culture? Using a mixed methods research design, the study found that CoPs socialized learning throughout distributed offices, they contributed to localized learning-focused identity, and shifted the corporation's learning and development culture towards a blend of clan and adhocractic cultures.

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Chapter 1

Introduction

McLuhan's assertion in 1968 that we live in a "global village" has come of age (McLuhan & Fiore, 1997). The world has become considerably smaller through the effects of technology, media, science, transportation, the Internet, and the spread of global commerce. At the same time that the world has become smaller, the world's problems have grown larger in scope and complexity (McLuhan & Fiore, 1997). As global citizens, we have begun to discover mechanisms for participating in global stewardship, to provide the means to share knowledge globally, and to increase the collective capacity of both private and public organizations. There is much to learn from the experiences of multinational organizations that can be used to strengthen the capacity and build the collective intelligence of other organizations and society at large (Wenger & Snyder, 2004).

There has been a great deal of discussion about how to manage knowledge and foster individual, group, and organization learning and the knowledge bases on which learning operates (Adler & Cole, 1993; Argyis & Schon, 1978; Cook & Yanow, 1993; Cummings & Worley, 2009; Senge, 1990). Cummings and Worley (2009) defined learning organizations as those that have the "ability to learn how to change and improve themselves constantly" (p. 535). Wenger, McDermott, and Snyder (2002) saw the concept of learning organizations through the lens of Communities of Practice (CoPs) as an organizational framework that positioned learning as a social phenomenon. CoPs focus on knowledge-based social structures that connect people, establish relationships and ways of interacting, and create a common sense of identity (Wenger & Snyder, 2000).

By wielding the potential power of communities into organizations, multinational corporations can be the learning labs for global knowledge sharing. They can integrate the codification of knowledge, through tools and documentation, with the socialization of knowledge, through the creation of networks and communities that actively encourage participation from its members.

The field of CoPs has been developed and shaped by the works of Wenger and other researchers (Lave & Wenger, 1991; Wenger et al., 2002; Wenger & Snyder, 2000). In *Cultivating Communities of Practice,* Wenger et al. (2002) argued that the creation of CoPs provide the ideal vehicle for driving knowledge management strategies and building an organization's competitive advantage. They can drive strategy, generate new lines of business, solve problems, promote the spread of best practices, develop people's professional skills, and help companies recruit and retain talent (Wenger & Snyder, 2000). Communities, however, are neither easy to build nor easy to integrate into organizations. Wenger et al. (2002) described the delicate balance when creating a successful community:

> The most successful CoP thrives where the goals and needs of an organization intersect with the passions and aspirations of participants. If the domain of the community of a community fails to inspire its members, the community will flounder. If the topic lacks strategic relevance to the organization, the community will be marginalized and have limited influence. This intersection of personal meaning and strategic relevance is a potent source of energy and value. Domains that provide such a bridge are likely to inspire the kind of thought leadership and spirit of inquiry that are the hallmarks of vibrant CoP. (p. 32)

When an organization acknowledges the domain, it legitimizes the communities' existence and role in sharing knowledge and developing expertise and capabilities. Multinational corporations that have successfully experimented with CoPs see them as efficient, flexible, and tailored networks (Haas, Aulbur, & Thakar, 2000; Kohlacher &

Mukai, 2007; McDermott, 1999; Wenger & Snyder, 2000). They transfer knowledge from individual to individual, group to group, and region to region, around the globe.

This research study explored the role CoPs play in a multinational corporation's learning culture and its ability to encourage continual and sustainable employee development and organization change. With more and more companies going global, it is becoming increasingly important to identify mechanisms to share knowledge and learn across organization and geographic boundaries. It is crucial to understand the role that CoPs can play in shaping how knowledge is shared and made more accessible to the employee base. By blending both technical and social means, communities have the opportunity to positively impact a multinational organization's learning culture, build bridges across teams, organizational structures, and geographic boundaries, and contribute to the organization's strategy and development. This is a competitive advantage that should be understood at the multinational level. What we learn about the CoP framework at the multinational level has the potential to help address how to sustain and improve the health of the "global village" we all contribute towards (McLuhan & Fiore, 1997).

Research Purpose

The purpose of this study was to investigate the practices and behaviors that lead to CoP formation in a multinational corporation, their impact on distributed global offices, and their influence on a learning and development culture. The study addressed the following questions:

1. What behaviors and practices are used to establish CoPs?
2. What impact do CoPs have on distributed offices?

3. How do CoPs influence learning and development culture?

Knowledge gained from this study will be used to better understand the value CoPs bring to multinational corporations, their impact on a multinational corporation's learning and development culture, and how the CoP framework can be applied in other multinational organizations.

This study used the definition of CoPs developed by Wenger et al. (2002). They defined CoPs as "groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis" (Wenger et al., 2002, p. 4). The researcher looked at CoPs whose domain was primarily concerned with sharing technical knowledge and expertise and developing employee's technical skills. This research study first reviewed the process of creation and development of CoPs across multiple offices within a multinational corporation, and then sought to understand how the output of the communities influenced knowledge-sharing practices and enabled a learning and development culture.

Significance of Study

Friedman (2005) argued that workers need to develop the ability to "learn how to learn" to constantly absorb, and teach themselves, new ways of doing old things or new ways of doing new things. A multinational corporation's learning and development organization, typically located within a Human Resources function, is limited by the resources assigned to it, the time employees invest, and the application of knowledge learned in the typical classroom environment (Malloch, Cairns, Evans, & O'Connor, 2011). Organizations need to integrate fully social interaction, conversations in real-time, peer-to-peer learning, and the spread of both explicit and tacit knowledge. How do you

create that culture of continuous learning and foster the exchange of experiences on a global scale?

The creation of CoPs can enable more employees across a multinational corporation to give time to learning and development initiatives, beyond a centrally organized system, and consequently create more resources. Given the specialized content that employees need to learn in different functions and the distributed nature of multinational corporations, CoPs are mechanisms to invite the workforce to get more involved in their own development and to generate and distribute specific knowledge that can benefit peers and the organization's overall business (Wenger et al., 2002). Cultivating CoPs is a practical way to manage knowledge as an asset, just as systematically as corporations manage other assets. For individuals, learning takes place in the course of engaging in, and contributing to a community. For communities, the purpose of learning is to refine the practice. For organizations, the purpose of learning is to sustain interconnected CoPs. Wenger's Community of Practice model focused on networks and social interaction for sharing knowledge, and can be seen as a mechanism to help global workforces learn how to learn and foster continuous change (Wenger et al., 2002).

The first objective of this study was to identify the key behaviors and practices that contribute to CoP creation in a multinational corporation. The second objective was to identify CoP impact on the multinational's distributed offices. The third objective was to understand how these communities influenced a learning and development culture in the multinational corporation. By investigating CoP creation, impact, and cultural influence at the multinational corporation level, this research study can provide

recommendations to other multinationals on how to nurture the learning and development of its employees, and positively impact a multinational organization's continuous development.

Study Setting

The sample for this research study was drawn from a multinational corporation with a United States headquarters. This multinational corporation has more than 25,000 employees spread across 50 offices in more than 25 countries. Of these 25,000 employees, over 10,000 employees are software engineers. This study focused on the multinational's engineering organization and the learning and development organization that supports it. The learning and development organization, of 50 employees, is responsible for providing Software Engineers with the skills they need, when they need them. Their challenge is one of scale. The learning and development organization relies on partnerships with engineers, tapping into their subject matter expertise, to meet their changing demands. The creation of CoPs was a strategy employed by the learning and development organization to effectively scale resources, facilitate knowledge sharing within distributed offices, and encourage engineers to share the responsibility for learning and development opportunities. It is these CoPs that are a focus for this research study.

Over the period of approximately two years, 2011 and 2012, the corporation's learning and development strategy included the creation and development of CoPs. Software Engineers worked in partnership with learning and development Program Managers to form these communities. These communities were office-specific and located across the Asia Pacific, Europe, and North America regions. The domain of the CoPs was technical content that engineers needed to learn. The community identified

technical learning priorities, created content, distributed knowledge, and kept a pulse on the learning needs of their specific offices. Each CoP was formed based on the needs to share knowledge and the motivation of engineers to share it across their individual offices. Ownership, over time, shifted towards the Software Engineers and away from the Program Managers who became facilitators and a “pair of hands” (Schein, 1998).

Over this same time period, continuous changes to organization structure, decisions-making processes, and project distribution influenced shifts in the corporation’s culture. Since its incorporation, the multinational corporation has been recognized as a blend of technological expertise and innovation and a highly cohesive and committed workforce. With the centralization of decision-making and leadership to the company’s headquarters, engineering projects shifted, and the distributed offices lost some of their projects and some of their decision-making power. The multinational began focusing more on process controls, efficiency, outpacing the competition, and increasing market share, all criteria of hierarchy and market cultures (Cameron & Quinn, 2011). Given the growth of its employee base and the changing relationships between headquarters and distributed offices, this study aimed to look at how CoPs fit into the evolving culture of this multinational corporation and the changes impacting distributed offices.

Six CoPs were studied. Within each community, Software Engineers, Engineering Leadership, and learning and development Program Managers participated in semistructured interviews. These interviews were conducted to identify the behaviors and practices that led to community formation, the output of the communities, and the impact on learning and development culture.

Organization of the Study

Chapter 1 explored the role that knowledge sharing plays in the effectiveness and success of multinational corporations. This chapter outlined the significance of a knowledge management platform, CoPs, and the role they play in socializing learning, building collaboration points for a distributed employee base, and capitalizing on the subject matter expertise of its employees. Questions about the value of CoP exist, yet an investigation into community output and impact across a multinational corporation may yield insights into how learning and development groups can more effectively distribute knowledge and influence organization culture.

Chapter 2 provides a review of existing literature in various areas relating to community of practice, organization culture, and knowledge management theory. The literature review uncovers information that adds depth and focus to this research study. It also identifies knowledge gaps in the existing research, and demonstrates how this research study may potentially contribute to the field.

Chapter 3 presents an overview of the research methodology. It includes an outline of the research design, a description of the research sample, an explanation of the measurements employed, interview protocol guide, and an overview of the data analysis process. It also includes a summary of research limitations and a description of steps taken for the protection of human subjects.

Chapter 4 presents findings of the research study, and describes the data collection results. The first section presents qualitative data gathered during interviews with the research participants. The second section includes the identification of findings relating to community of practice value and impact on learning and development culture.

Chapter 5 provides an analysis of what the research findings may mean to multinational corporations is outlined and conclusions are drawn. Recommendations for multinational organizations are made along with recommendations to Organization Development practitioners. Possible limitations of the study are expressed, and suggestions for further research are offered.

Chapter 2

Literature Review

This chapter summarizes existing literature related to Communities of Practice (CoPs) and learning and development cultures within multinational corporations. The research is organized into three categories, including learning organizations, CoPs, and organization culture. This includes research on continuous organization change processes, CoPs' contribution to knowledge sharing and learning within organizations, and the relationship between organization culture and knowledge sharing within multinational corporations. The chapter supports the following research questions:

1. What behaviors and practices are used to establish CoPs?
2. What impact do CoPs have on distributed offices?
3. How do CoPs influence learning and development culture?

Learning Organizations

Peter Senge (1990) defined learning organizations as organizations "where people continually expand their capacity to create the results they desire" (p. 3) and where people are continually learning to see the whole together. In organizations where technological change is rapid and the competitive environment is high, organizations need to discover how to tap people's commitment and capacity to learn at all levels and focus on continuous change and improvement (Cummings & Worley, 2009; Senge, 1990; Wenger, 1998). Systemic thinking is the cornerstone of Senge's approach; it looks at organizations as a system of interrelationships. Senge argues that one of the key problems in organizations is that simplistic frameworks are used for complex systems. By adapting a systems viewpoint, organizations shift their thinking to the long-term view and adopt

core disciplines of personal mastery, mental models, shared vision, and team learning to truly learn and improve themselves constantly (Senge, 1990; Senge et al., 1999).

A learning organization is characterized by organization structures that emphasize teamwork, strong cross-functional relations, and networking across organization boundaries (McHugh, Groves, & Alker, 1998; Senge, 1990). This promotes information sharing, systems thinking, and empowerment. Within the learning organization intervention, there are two related change processes: organization learning (OL) and knowledge management (KM). Cummings and Worley (2009) defined OL as a change process that "enhances an organization's capability to acquire and develop new knowledge" (p. 538), and KM as a change process that "focuses on how that knowledge can be organized and used to improve performance" (p. 538). CoPs, which are the focus of this research study, are categorized as a KM intervention (Bjornson & Tingsoyr, 2008; Cummings & Worley, 2009; Wenger, 1998). CoPs are mechanisms that view knowledge through the skills, understanding, and relationships of organization's employees as well as through the tools, documents, and processes that embody aspects of knowledge (Wenger et al., 2002).

Organization learning. OL is characterized differently by researchers and used in a variety of ways to describe individual understanding, interpersonal communication, group decision making, and organization transformation (Argyris & Schon, 1978; Crossan, 1991; Thomas, Clark, & Gioia, 1993). According to Stata (1999), organizational learning differed from individual learning in two respects: first, it occurs through shared insight, knowledge, and shared models; second, it is based not only on the memory of the participants but also on "institutional mechanisms," such as policies, strategies, explicit

models, and defined processes. Some describe OL as individual learning that occurs within an organization context (Argyis & Schon, 1978; Senge, 1990). Others describe OL in terms of organization processes and structures, and learning is embedded in routines, policies, and organization culture (Adler & Cole, 1993; Cook & Yanow, 1993). Snyder (1996) proposed an integration of these perspectives and treats organization learning as a relative concept. The key to organizational learning may be in helping workers learn how to learn, learn how to analyze their own cultures, and how to evolve those cultures around their strengths (Schein, 1996). Groups may learn in different ways and may have to develop appropriate learning tools for each community.

Knowledge management. Buono and Poulfelt (2005) claimed that organizations are shifting from a first to second generation knowledge management strategy. In the first generation, attempts at knowledge management strategy were focused on their origin in information technology (Buono & Poulfelt, 2005). Knowledge was considered a possession, something that could be captured, and thus a technological issue on how to codify and spread knowledge. Knowledge was primarily viewed as explicit. By explicit, knowledge exists in codified forms, such as documents, manuals, and databases (Cummings & Worley, 2009). The second generation of knowledge management is characterized by knowing in action (Buono & Poulfelt, 2005). Knowledge is thought of as a socially embedded phenomenon, and solutions have to consider complex human systems, support structures, and communities (Wenger & Snyder, 2004). Wenger and Synder (2004) argued that the most distinctive and valuable knowledge in organizations is “difficult or impossible to codify and is tightly associated with a professional’s personal identity” (p. 4). Developing and disseminating that knowledge depends more on

informal learning through conversations, story telling, mentorship, and lessons learned through experiences. This informal learning is dependent not on technology, but on social interaction and collegial relationships (Wenger & Snyder, 2004).

Alavi and Leidner (2001) believed that no single or optimal knowledge management solution can be developed. Instead, a variety of approaches and systems need to be created and employed to access, organize, and distribute knowledge. KM is not a monolithic process, but a "dynamic and continuous phenomenon" (Bjornson & Tingsoyr, 2008, p. 3).

Communities of Practice

Knowledge and learning are thus social in nature (Brown & Duguid, 1991; Wenger, 1998). CoP definitions consistently stress the role the community has in enabling and facilitating knowledge creation and sharing that allows its members to learn and develop (Andriessen, Soekijad, & Keasberry, 2002; Brown & Duguid, 1998; Magnusson & Davidsson, 2001; Marathe, 1999; Wenger & Snyder, 2000). Wenger (2002) coined the term "community of practice" and argued that CoPs provide the ideal vehicle for driving knowledge-management strategies and building lasting competitive advantage. Wenger et al. (2002) defined a community of practice (CoP) as a "group of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis" (p. 4).

Increasingly over the past couple of decades, organizations have begun to leverage CoPs as an organizational change mechanism to drive strategy, generate new business opportunities, solve problems, transfer best practices, develop employees'

professional skills, and recruit and retain top talent (Haas et al., 2000; Kohlacher & Mukai, 2007; McDermott, 1999; Wenger & Snyder, 2000). These communities can be made up of tens or even hundreds of people, but typically have a core of participants whose passion for the topic energizes the community and who provide leadership, both at an intellectual and social level (Wenger & Snyder, 2004). John Seely Brown, VP and Chief Scientist at Parc Xerox described communities as "peers in the execution of real work. What holds them together is a common sense of purpose and a real need to know what each other knows" (Allee, 2000, p. 5). Large communities are often divided by geographic region or by subject matter to encourage people to take part actively. The creation, development, and sustainability of CoPs, can provide organizations the ability to generate, organize, and distribute knowledge across functions and geographies.

CoPs can take on many forms, both in name and in style. Some of the multinationals that have successfully integrated different CoP types into their organizations include Hewlett Packard, the World Bank, and Chrysler (Haas et al., 2000; Kohlbacher & Mukai, 2007; Wenger & Snyder, 2000). At HP, CoPs are known as "learning communities," where no two learning communities operate the same. Their communities are geographically distributed, and the local communities emphasize face-to-face communication for sharing tacit knowledge and explicating it (Kohlbacher & Mukai, 2007). With regards to output, their communities have succeeded in standardizing the software sales and installation processes and establishing a consistent pricing scheme for HP salespeople. In an HP case study out of Japan, they concluded that "one size does not fit all," and their various learning communities are "as diverse as the situations that give rise to them" (Kohlbacher & Mukai, 2007, p. 17). At World Bank, CoPs are the

heart and soul of their knowledge management strategy (Wenger & Snyder, 2000). When it made the decision to provide monetary support to their communities, the World Bank saw a significant increase in the number of organization-wide communities—it is now over 100—and in the intensity of participation. The communities are contributing to the strategic direction of the company and its aim to become the "Knowledge Bank" (Wenger & Snyder, 2000). In the early 90's, Chrysler identified a knowledge gap, and engineers informally came together to exchange best practices, lessons learned, and share expertise across different organizations (Haas et al., 2000). Management soon recognized the value of these communities and they were branded as "Tech Clubs" (Haas et al., 2000).

CoP dimensions. CoPs do not replace formal organizational structures, such as teams and business units. Wenger & Snyder (2004) argued that the purpose of formal units, such as functional departments or cross-functional teams, is to deliver a product or service and take accountability for quality, cost, and customer service. CoPs can help to ensure that learning and innovation activities occur across formal structural boundaries. A key benefit of CoPs is the bridges they build across established organizational boundaries to increase the "collective knowledge, skills, and professional trust of those who serve in these formal units" (Wenger & Snyder, 2004, p. 5).

Wenger described three important dimensions of CoP: domain, community, and practice (Wenger et al., 2002). A Community's effectiveness as a social learning system depends on its strength in all three structural dimensions (Allee, 2000, Wenger & Snyder, 2004).

- Domain. A community of practice focuses on a specific "domain," which defines

its identity and what it cares about. People organize around domains of knowledge that gives members a sense of joint enterprise and brings them together. Passion for the domain is crucial. Member's passion for the domain is typically a deep part of their personal identity and a means to express their work.

- Community. The second element is the community itself and the quality of the relationships that bind its members. Optimally, the membership reflects the diversity of perspective and expertise relevant to leading-edge innovation efforts in the domain. Leadership by an effective “community coordinator” and core group is a key success factor. The feeling of community is essential. It provides a strong foundation for learning and collaboration among diverse members.
- Practice. Each community develops its practice by sharing and developing the knowledge of practitioners in its domain. Elements of a practice include its repertoire of tools, frameworks, methods, and stories as well as activities related to learning and innovation.

CoP formation. There are five stages of CoP development (Wenger, 1998). Communities are emergent, and their emergence comes through the process of activity, rather than being created to carry out a task (Brown & Duguid, 1991). Along with each stage, Verna Allee (2000) identified various activities that OD professionals can assist with, given their expertise in group development.

***Stage 1: Potential*.** There is a loose network of people with similar issues and needs. People need to find each other, discover common ground, and begin preparations for the formation of a community. During this phase, OD professionals can lend their expertise to assist with identifying benefits of the community’s creation, leading a

development strategy, and helping potential members find a common domain through interviews and focus groups.

Stage 2: Coalescing. Workers come together and launch a community. They find value in engaging in learning activities and designing a community. During this phase, OD professionals can facilitate dialogue between members to help build the community, document discussions, design infrastructure, and build organization support.

Stage 3: Maturing. The community takes charge of its practice and grows. Members set standards, define learning agendas, and facilitate community growth. They engage in activities, create artifacts, and develop community commitment and member relationships. OD professionals can be helpful when the community is maturing by codeveloping learning agendas, connecting the community to best practices, and cocreating frameworks or guidelines to help track development and success.

Stage 4: Active. The community is established and goes through cycles of activities. They need ways to sustain energy, renew interest, educate new members, and gain influence in the organization. The OD professional can be most helpful by working with the community on its sustainability, coaching them on organizational issues, connecting them with other communities for mutual learning and sharing. They can also build capacity of community members, enabling members to take on leadership roles as the community grows in membership and tasks.

Stage 5: Dispersing. The community has outlived its usefulness and people move on. The challenges are about letting go and defining a legacy. The OD professional, in this fifth stage, can aid in helping workers let go, facilitating story-telling, and preserving artifacts and maintain community history.

Communities are not born in their final state (Allee, 2000). They grow and evolve through an organic and emergent cycle of high and low activity. Many go through such radical changes that the reason for staying together has little relation to the reason they started in the first place (Wenger et al., 2002).

CoP benefits. CoPs are beneficial for individual members, for the community, and for the business (Allee, 2000; Wenger, 1998). They provide corporations with ways to connect people across geographical and organization boundaries. They are vehicles for spurring professional development, expanding employee knowledge, and helping to business results.

Individual benefits. Participation in CoPs helps develop individual skills and competencies, helps job performance, and provides challenges and opportunities to contribute to the organization (Allee, 2000). CoP membership also provides a stable sense of community with other colleagues within the company and fosters a learning-focused sense of identity (Wenger & Snyder, 2000).

Community benefits. The collective knowledge of CoP members helps build common language, methods and models around specific competencies that encourage innovation and risk-taking (Brown & Duguid, 1991). The community's knowledge is not only captured in face-to-face conversation or in video conference meetings but also through the use of resource tools and technologies that increase access to expertise across the company (Allee, 2000). CoPs aid in the retention of knowledge when employees move projects, offices, or leave the company, and help embed knowledge in the larger company population.

Business benefits. CoPs add value to organizations in a number of ways. This includes helping to drive strategy, supporting faster problem solving both locally and organization wide, and cross fertilizing ideas and increasing opportunities for innovation (Allee, 2000; Wenger & Snyder, 2000). For example, at Buckman Labs, CoP members routinely respond to specific queries within 24 hours from peers across Europe, South Africa, and Canada (Wenger & Snyder, 2000). CoPs can rapidly address and distribute practices for operational excellence.

CoP paradox. If CoPs are effective, why aren't they more prevalent? There are three key reasons. First, it's not easy to build and sustain CoPs and integrate them into organizations. Their organic, informal nature makes them resistant to supervision and interference (Wenger et al., 2002; Wenger & Synder, 2000) and so managers and executives with high needs for control or authoritarianism may resist their formation. The core of a CoP is made up of a small group of participants who are passionate for a particular topic and this passion energizes the community and provides both social and intellectual leadership (Wenger & Snyder, 2000). Managers are encouraged to bring the right people together and "provide an infrastructure for communities to thrive" (Wenger & Synder, 2000, p. 140) instead of "mandating" (Wenger & Synder, 2000, p. 140) the creation of CoPs. CoPs need to be driven by the community members to sustain momentum.

Second, CoPs are informal and are primarily self-organized (Wenger et al., 2002; Wenger & Synder, 2000). Membership is self-selected, and people tend to know when and if they should join. They know if they have something to give. Passion, commitment, and identification with the group's expertise hold the community of practice together.

The community lasts for as long as there is interest in maintaining the group. While informal and self-organized, communities benefit from cultivation: “like gardens, they respond to attention that respects their nature” (Wenger & Synder, 2000, p. 144).

Third, organization culture is often seen as a key inhibitor of effective knowledge sharing (McDermott & O’Dell, 2001). Companies often attempt to change their culture to match their knowledge management initiatives instead of adapting their knowledge management approach to fit the organization culture. The process of CoP development is inherently innovative and collaborative, as newcomers replace old timers and as the domains of practice force the community to revise its relationship to its environment (Brown & Duguid, 1991). This process can challenge organizations whose cultures emphasize hierarchal structure, strict measurement, and process control (McDermott & O’Dell, 2001). Wenger and Snyder (2000) believed executives and senior leadership can often have difficulty understanding the value of CoPs, and OD practitioners play an important role in building clarity around value. The best way to assess value, according to Wenger and Snyder (2000), was “by listening to members’ stories, which can clarify the complex relationships among activities, knowledge, and performance” (p. 145).

Organization Culture

Organizations will not learn effectively and CoPs cannot contribute to that learning until they recognize and confront the implications of culture (McDermott & O’Dell, 2001; Schein, 1996). Schein (1996) and McDermott and O’Dell (2001) believed that culture is often seen as a key inhibitor of effective knowledge sharing, and knowledge management needs to be adapted to fit into the culture, linked to solving business needs, and match the organization’s style.

Companies that successfully implement knowledge management do not try to change their culture to fit their knowledge management approach (McDermott, 1999; McDermott & O'Dell, 2001). They build their knowledge management approach to fit into their culture. Since Ford is known as a top-down hierarchical company, they took a direct approach when implementing a new knowledge management initiative (McDermott & O'Dell, 2001). Lotus, on the other hand, who is known for their "jeans and Hawaiian shirt" (McDermott & O'Dell, 2001, p. 80) culture of software development, had different knowledge sharing practices in different function's development. Lotus encourages its employees to decide how to share insights and build on each other's ideas.

McDermott and O'Dell (2001) identified five key lessons about aligning knowledge sharing with the organization culture, which includes: (a) make a connection between sharing knowledge and practical business goals, (b) match the style of your organization rather than copy practices by another organization, (c) link sharing knowledge to widely held core values, (d) enhance the networks that already exist, and (e) recruit the support of people who already share ideas. For any new change initiative, organizations should find the existing networks that already share knowledge and build on the energy they already have (Cameron & Quinn, 2011; McDermott & O'Dell, 2001; Schein, 1996).

Most discussions of organization culture (Cameron & Ettington, 1998; O'Reilly & Chatman, 1996; Schein, 2010) agree that culture is "a socially constructed attribute of organizations that serves as the social glue binding an organization together" (Cameron & Quinn, 2011, p. 18). Culture is reflected in the visible aspects of the organization, like its mission and values (McDermott & O'Dell, 2001; Schein, 2010). Culture also exists in the

way people act, what they expect of each other, and how they make sense of each other's actions (Cameron & Quinn, 2011; McDermott & O'Dell, 2001; Schein, 2010). In assessing an organization's culture, one can focus on the entire organization as the unit of analysis or one can assess different subunit cultures, identify the common dominant attributes of the subunit cultures, and aggregate them (Cameron & Quinn, 2011; Schein, 2010).

Cameron and Quinn's (2011) Organizational Culture Assessment Instrument (OCAI) model, based on their Competing Values framework, maps four dominant culture types of clan (collaborative), adhocracy (creative), market (competing), and hierarchy (controlling). The framework and associated instrument serve as diagnostic tools to help facilitate change in organizational culture by looking at current and preferred future cultural states. The figure below outlines the competing values framework (see Figure 1).

Figure 1

Competing Values Framework

One approach to analyzing company culture is to map the organization's mission, beliefs, and guiding principles to each of the four quadrants within the Competing Values Framework. By plotting an organization's mission and guiding principles, the strengths and weaknesses are often revealed when the various organization elements are mapped out (Cameron & Quinn, 2011). Schein (2010) disagreed with this approach of mapping mission, beliefs, and principles to analyze company culture. He places a high value on talking with employees, asking them questions, and hearing stories that illustrate organization culture.

Cameron and Quinn (2011) provided a nine-step systematic approach for changing an organization's culture. The nine steps for initiating culture change are as follows: reach consensus regarding the current culture, reach consensus regarding the preferred culture, determine what the changes will and will not mean, identify stories illustrating the desired future, identify a strategic action agenda, identify small wins, identify leadership implications, and identify metrics and measures to maintain accountability (Cameron & Quinn, 2011). The purpose of these steps is to facilitate involvement of organization members and minimize resistance to the culture change efforts that follow. Culture change does not occur without involvement, commitment, and active support throughout the entire organization. Because of its difficult implementation, a common viewpoint and understanding why culture needs to change needs to be shared before moving into any change effort.

In contrast to with Cameron and Quinn's approach, Edgar Schein (2010) revised and expanded Kurt Lewin's model, The Stages of Learning/Change, to demonstrate three key steps necessary to manage and implement change including the following: (a)

unfreezing, to create motivation to change; (b) learning new concepts, new meanings for old concepts; and (c) internalizing those new concepts and new meanings. In these three stages, Schein summarizes the difficulty inherent with change, the anxiety involved with un-learning embedded routines and learning new practices, and the need for a safety net to overcome resistance.

According to Schein (2010), creating the motivation to change is the critical first step for any organization change process. According to Cameron and Quinn (2011), reaching consensus regarding the current culture and preferred future culture is the critical first step. While their perspectives differ on initial steps, they both believe in the importance of understanding anxiety, fear, and resistance, and addressing these issues by involving the employees in the change effort, providing them with a compelling future vision, and an infrastructure to support the changes (Cameron & Quinn, 2011; Schein, 2010). In this research study, Cameron and Quinn's (2011) and Schein's (2010) work was used to analyze the multinational corporation's culture and how that culture facilitates knowledge sharing, learning and development.

Summary

Global change and technological innovation have challenged multinational organizations to evolve strategy and process. With an increase in available tools to communicate and collaborate, organizations must look inward at how they are adapting to change, and decide how they want to encourage and facilitate knowledge sharing. What balance do multinational organizations strike between global consistency and local differences to yield optimal organizational effectiveness? What is possible through the use and adaption of technological advances? What role does social interaction and

infrastructure play in order to ensure global access to information and encourage the sharing explicit and tacit knowledge?

CoPs are emerging in companies that (a) thrive on knowledge, (b) understand and appreciate the management paradox that these informal structures require, and (c) are willing to invest in their cultivation and integration. Through the adoption of CoPs, using different technologies and social processes, multinational corporations have the potential to shift ownership of knowledge sharing to its employees, and build capacity in their employee base to be vehicles for continual change and improvement. These communities provide opportunities for employees to play a dual role as student and as teacher.

Although a great deal of literature has defined CoPs and described their benefits and challenges as a knowledge management process, more research is needed to understand the impact of CoPs, especially across multinational corporations. In a growing global economy, tools for effective communication and collaboration across geographies are becoming more and more important. OD practitioners have an opportunity to help guide organizations in social interactions, to understand similarities and differences in style, and to identify productive ways to learn about those similarities and from those differences on a continual basis. This sharing of knowledge and experience can strengthen multinational organization's strategy and improve productivity on a continual, sustainable basis. This research study aimed to identify knowledge sharing best practices that support and influence a multinational corporation's organization culture, and identify common themes that bridge knowledge gaps, and create sustainable methods of continuous learning.

Chapter 3 of this research project details the design and methodology used to gather data about CoP and their impact on a multinational organization learning and development culture. Chapter 3 will define the sample setting, the participant selection process, data gathering methods, and the process for analyzing the data.

Chapter 3

Methodology

The purpose of this chapter is to describe the methods used to gather data from distributed engineering offices that have formed CoPs to enhance learning and development. This supports the study's research questions:

1. What behaviors and practices are used to establish CoPs?
2. What impact do CoPs have on distributed offices?
3. How do CoPs influence learning and development culture?

This chapter supports this research purpose by outlining the research and data gathering methodologies, including information about community of practice formation and development, community of practice output, and the evolution of learning and development culture in the engineering offices of one multinational corporation. This chapter addresses the research design, sampling methodology, data measurement, and process for analyzing the data. Limitations of the research approach are discussed at the end of this chapter.

Research Design

The research study was designed using qualitative techniques. By analyzing qualitative data, the researcher investigated how a multinational corporation's learning and development culture evolved through the development of CoPs in distributed offices. The research design used a series of semistructured interviews with employees from the same organization to analyze the three core elements of a CoP: its domain of knowledge, the community of people who care about the domain, and the shared practice of

improvement and the value that engineers brought to their offices through the development of their CoP (Wenger, 1998).

This qualitative methodology represented a single point in time collection of both the independent and dependent variables. The stories of CoP formation, development, and impact were used to assess the relationship among them. As a result, there is an important design weakness associated with the common method variance problem. Common method variance is defined as "variance that is attributable to the measurement rather than to the constructs the measures represent" (Fiske, 1982, p. 81). Many researchers agree that it is a potential problem in behavioral research, and studies can suffer from false correlations and run the risk of reporting incorrect research results (Bagozzi & Yi, 1991; Fiske, 1982; Spector, 1987).

Research Sampling

All CoPs in the multinational organization were invited to participate in the research study, and the Program Managers who facilitate CoP activities provided a total of 30 employee recommendations based on the CoP's interest in participating. These 30 employees included members from six office-specific CoPs.

As names of interested engineers and leads were collected, the researcher contacted each potential participant. Those who agreed to participate submitted a letter of consent to the researcher. The researcher informed each Program Manager and engineer that he would contact them to schedule the research interview once the institutional process for human subject research was completed and formal approval from the multinational organization was granted.

Table 1 is a listing of participating offices and the number of participants interviewed. To protect the anonymity of individual offices, the names of the offices are not shown. Each participating office was assigned a letter (A to F). Each office code was used to identify, track, and analyze the collected data.

Table 1

Listing and Size of Participant Offices, Numbers of Participants in Each Office

Office Code	Office Region	Office Size	Community of Practice Size	Total # Interviewed
Office A	Americas	100 - 250	8	*n* = 5
Office B	Americas	100 - 250	10	*n* = 5
Office C	Asia Pacific	250 - 500	10	*n* = 5
Office D	Asia Pacific	100 - 250	6	*n* = 5
Office E	Europe	100 - 250	8	*n* = 5
Office F	Europe	250 - 500	10	*n* = 5

The participants included 18 Engineers, six Engineering Leads, and six Program Managers across these communities. All engineers in each office's CoP were invited by the Program Manager to participate in the research study. All 30 participants took part in individual, 1-hour interviews with the researcher.

The purpose of this sampling methodology was to gather data from the three primary levels of CoP involvement and to build a comprehensive story about the learning and development culture in distributed offices. The three primary levels included the Engineers, Engineering Leads, and Program Managers. Engineers were interviewed to understand their perspective on community development, output, and value. Engineering Leads were interviewed to understand their perspective on community development, output, and value on the projects they lead and overall office cohesion. Program Managers were interviewed to understand their perspective on community development, output, and value.

Engineers, Engineering Leads, and Program Managers provided data about their office-specific CoP. With data from these three perspectives, the researcher analyzed patterns of CoP development, output, and impact on learning and development culture in each office and globally.

Protection of Human Research Participants

Approval to conduct the proposed research study was granted from Pepperdine University's Institutional Review Board. As a result, the study was conducted in accordance with generally accepted research and ethical principles including informed consent, anonymity, and confidentiality.

Measurement

Based on their CoP framework, Wenger et al. (2002) recognized the difficulty with measuring knowledge resources, but believe "you can measure and manage the 'knowledge system' through which it flows and creates value" (p. 166). They acknowledge two processes, the knowledge-development process and the application process, by which one can trace and document the relationship between activities that produce and apply knowledge. This includes looking at both anecdotal evidence—stories that explain linkages between activities, knowledge resources, performance outcomes—and static measures that include documents created, participation rates, and other activities. To identify value creation, the researcher gathered anecdotal evidence in interviews to understand what the communities did, and collected examples from Engineering Leadership and learning and development Program Managers to see how knowledge resources were applied to engineer's work.

Interview Protocol

A 13-question interview was constructed to collect data from each participating Engineer (see Appendix A), Engineering Lead (see Appendix B), and learning and development Program Manager (see Appendix C). The questions contained in the interview protocol guide were based on Wenger's (2002) work for measuring and managing value creation of a CoP. As recommended, the researcher focused on gathering casual stories and related statistics that are "needed to show how community activities, knowledge resources, business value are related" (Wenger et al., 2002, p. 173). The questions are detailed in Table 2.

Table 2

Interview Guide Questions (Engineers, Engineering Leads, and Program Managers)

No.	Questions
	Before Community of Practice Questions
3.	What type of learning and development activities existed in the office before the community of practice formed?
4.	Were others in the office aware of the learning and development needs?
5.	Who was motivated in the office to address these needs?
	Community of Practice Activity Questions
1.	What role do you currently play in your office's CoP?
2.	What motivated you to get involved?
6.	When did the community of practice form? What was the reason(s) for its forming?
7.	Can you describe for me how the community of practice formed? Who was involved? What role did you play?
8.	What motivates engineers to get involved in the community of practice?
9.	In what ways are you and other engineers recognized for your involvement in the community of practice?
	Community of Practice Value and Impact Questions
10.	What changes have you seen in the office, as a result of the community of practice?
11.	What impact have these changes had on learning and development in the office?
12.	How would you describe the effectiveness of the community of practice?
13.	What words or phrases would you use to describe the learning and development culture in the office?

Three of the interview guide questions (numbers 3-5) were designed to gather information about awareness, activities, and motivation to change before CoPs were formed. Six of the interview guide questions (numbers 1-2, 6-9) were designed to gather information about community of practice activity and resources created. Four of the interview guide questions (numbers 10-13) were designed to gather information about community of practice value and impact on learning and development culture.

Data Analysis

After completing the interviews, the data collected were organized into three sections, including CoP purpose and formation process, CoP output in distributed offices, and CoP impact on learning and development culture. Responses within a section were categorized by similarities. Differences among respondents were noted as well. After this initial categorization, best practices, behaviors, and common themes were identified.

The researcher analyzed participant responses to the CoP output and impact questions and looked for specific evidence where participants said CoPs were effective, helpful, and had a positive impact on the organization. To validate the correct comprehension and interpretation of the interviews, the research sent the analysis to the interviewees for approval and clarification. This technique is recommended by Seale (1999) who describes it as “seeking agreement from actors as to the truth of a researcher’s account” (p. 63). The interviewees did not identify any discrepancies, but they did point out that CoPs were not the sole driver of specific individual or community outcomes. They explained that CoPs had a significant influence on outcomes, in addition to office leadership and manager support.

The qualitative data was used to answer the following questions:

1. What behaviors and practices are used to establish CoPs?
2. What impact do CoPs have on distributed offices?
3. How do CoPs influence learning and development culture?

The researcher estimated that over 50% of the participants interviewed would need to state that CoPs were effective and positively influenced the office's learning and development culture to conclude that CoPs had an impact on learning and development culture.

Research Limitations

There are several limitations associated with this research design. Most notably, the research study investigated the practices of one multinational organization. The data collected only included qualitative interview data, and specific to CoPs within this multinational organization. The CoPs analyzed are office-specific, focused on learning and development, and the CoP members were Software Engineers.

Since the study investigated the practices of one multinational organization, the sample size was limited to that one organization. The organization's employee base was software engineers. The type of work and work culture is different from many other multinational organizations. The data captured and subsequent analysis may not be relevant to all multinational organizations or other types of organizations. The subject organization was also unwilling to allow additional data beyond the qualitative interview data to be included. Quantitative data was not included in the research study.

This study analyzed CoPs in the Engineering Organization, across all three global regions. While the study included communities from all three global regions, it did not include every community. All communities were invited to participate, but only half

agreed to participate. The data collected was not representative of all CoPs at the multinational organization.

Lastly, the participants volunteered for the research interviews. Their perspectives may or may not have been shared by others in the same CoP that did not choose to participate.

Summary

This chapter outlined the research design, sampling methodology, design, and data analysis procedures used to identify the impact of CoP on learning and development culture. The chapter also outlined the questions used to get at less tangible data such as engineer perceptions, level of engagement and commitment, and overall adoption of community of practice approach. Chapter 4 will detail the data gathered as well as the overall research findings.

Chapter 4

Research Findings

This research study explored the impact that CoPs have on a multinational corporation. The purpose of this study was to investigate the formation of CoPs, what behaviors and practices were used to establish them, and how they influenced a learning and development culture in a multinational corporation. The study aimed to address the following research question: What impact do CoPs have on a multinational corporation's learning and development culture? Knowledge gained from this study will be used to better understand how CoPs influence a multinational corporation’s learning and development culture. Qualitative data was gathered to answer the following questions:

1. What behaviors and practices are used to establish CoPs?
2. What impact do CoPs have on distributed offices?
3. How do CoPs influence learning and development culture?

This chapter reports the findings of the study and describes the data collection results.

Qualitative Data

This research study interviewed 30 participants from six office-specific CoPs across a multinational corporation. The study sample included 18 Engineers, six Engineering Leads, and six Program Managers across these communities. The six communities and 30 participants were spread across three geographic regions. The purpose of this sampling methodology was to gather data and build a comprehensive story about learning and development cultural change across geographically distributed offices.

The interviews began with questions about the participant's role in the CoP and the date of the CoP's formation. All Program Managers described their roles as evolutionary, as shifting from expert to a supporting "pair of hands." Most Engineers also described their roles as evolutionary citing a mix of responsibilities ranging from identifying training needs, teaching, creating or finding technical content, to recruiting additional volunteers. The Engineering Leads described their roles as a supportive one that included recognizing the CoP for their work in the office, providing support where needed, and encouraging other engineers to volunteer.

Establishing CoPs

One of the key axioms of OD is "that people's readiness for change depends on creating a felt need for change" (Cummings & Worley, 2009, p. 165). Participants were asked to describe the organizational readiness of their distributed office to adopt the CoP approach. This included gathering data about the awareness of challenges associated with learning and development and the motivation to change the current state. Participants were asked to describe the process used to form the communities, the roles in this process, the recognition practices, and the challenges associated with community of practice formation.

Organizational readiness. Participants identified five primary factors of organizational awareness associated with the office's readiness to adopt the CoP approach: (a) the need for learning and development, (b) the value of learning and development, (c) existing expertise in the office, (d) existing reliance on other offices, and (e) an existing culture of volunteerism (see Table 3). The most common awareness factors were the need for learning and development (100%) and existing reliance on other

offices (60%). These factors suggest where the initial need to change the state of knowledge sharing, learning and development came from.

Table 3

Organizational Readiness

Readiness Factor	*N*	%
Awareness		
Recognizes the need for learning and development	30	100
Need for more learning and development activities / training	22	73
Need to create a coordinated learning and development approach	10	33
Need to raise awareness and visibility of learning opportunities	8	27
Recognizes the value of learning and development	14	47
Helps us attract top engineering talent	3	10
Reinforces company culture of learning	3	10
Helps develop engineers' skills	8	27
Recognizes expertise in the office	6	20
Recognizes reliance on other offices	18	60
Culture of volunteerism	5	17
Motivation		
Desire to increase learning and development activities	8	27
Desire to teach	6	20
Desire to learn	1	3
Desire to help peers	1	3
Desire for self-sufficiency	8	27
Desire to make a contribution	6	20
Personal Satisfaction	4	13

Note. Number of participants = 30

Participants also identified four primary motivational factors associated with the office's readiness to adopt the CoP approach: (a) desire to increase L&D activities, (b) desire for self-sufficiency, (c) desire to make a contribution, and (d) personal satisfaction (see Table 3). The most common motivations were a desire to increase L&D activities (27%) and a desire for self-sufficiency (27%). Although awareness for change was high and uniform across the sample, the motivation for the change varied more widely.

Table 4

Core Member Readiness

Readiness factor	*N*	%
Awareness		
Recognizes the need for learning and development	30	100
Need for more learning and development activities / training	25	83
Need to create a coordinated learning and development approach	19	63
Need to raise awareness and visibility of learning opportunities	17	57
Recognizes the value of learning and development	22	73
Helps us attract top engineering talent	5	17
Reinforces company culture of learning	5	17
Helps develop engineers' skills	12	40
Recognizes expertise in the office	12	40
Recognizes reliance on other offices	16	53
Culture of volunteerism	7	23
Motivation		
Sense of responsibility	20	67
Invited by program manager	17	57
It's my job	8	27
Personal satisfaction	30	100
Wanted to help	20	67
Wanted to help myself	6	20
Passion and enjoyment related to education	16	53
Recognized for his/her potential expertise	25	83
Self-recognition	14	47
Recognized by others	11	37
Lack of volunteers	8	27

Note. Number of participants = 30.

Core member readiness. Participants discussed their individual readiness, their own awareness, and their own motivation. Participants identified five factors of individual awareness comparable to those of the organization: (a) the need for learning and development, (b) the value of learning and development, (c) expertise in the office, (d) reliance on other offices, and (e) culture of volunteerism (see Table 4). The most common awareness factors were the need for learning and development (100%) and the value of learning and development (73%). These factors show similarities and difference between overall office level awareness and CoP core member awareness. Both show

similar awareness of learning and development needs and reliance on other offices, but the CoP core members have a higher level of awareness regarding the value of learning and development and subject matter expertise in the office.

Participants also identified factors of their individual motivation: (a) a sense of responsibility, (b) personal satisfaction, (c) recognition of their own subject matter expertise, and (d) lack of existing local volunteers (see Table 4). The most common motivational factors were personal satisfaction (100%) and recognition of subject matter expertise (83%). This suggests the reasons why these participants are core members of the CoPs in their offices.

CoP purpose. Participants identified three primary reasons for CoP formation: (a) increase local learning and development activities, (b) increase office self-sufficiency, and (c) reinforce culture of learning (see Table 5). The most common reasons were to increase local learning and development activities (73%) and increase office self-sufficiency (47%). Within the reason of increasing activities, participants called out the need to increase understanding of L&D needs (27%), develop the local employee's technical skills (30%), share local subject matter expertise and best practices (20%), and visibility of learning opportunities (7%). The factors suggest a relationship between needs of the office and motivation to address the needs with the adoption of the CoP approach.

CoP formation. Participants described three broad and separate stages of CoP formation as well as key steps within those stages. The Potential stage included three steps: (a) design and gain buy-in on community of approach, (b) define potential members, and (c) gather engineer volunteers (see Table 6). The Coalescing stage included five steps: (a) meet with potential members, (b) identify and prioritize training

needs, (c) build facilitator pool, (d) create CoP documentation, and (e) create technical training content. Finally, the Maturing stage included two steps: (a) schedule activities and (b) meet regularly to continue evolving the CoP. The most discussed process steps were gathering engineer volunteers (80%), identifying and prioritize training needs (80%), and scheduling activities (87%). These factors suggest that the core steps of gathering volunteers, identifying and prioritizing training needs, and scheduling activities are needed to form a CoP and begin delivering learning and development activities.

Table 5

Community of Practice Purpose

Purpose	*N*	%
Increase local learning and development activities	22	73
Increase understanding of local learning and development needs	8	27
Develop local employee's technical skills	10	30
Share local subject matter expertise and best practices	6	20
Increase awareness and visibility of learning opportunities	2	7
Increase office self-sufficiency	14	47
Reinforce culture of learning	8	27

Note. Number of participants = 30.

Table 6

Community of Practice Formation Process

Activity	*N*	%
Potential Stage	30	100
Design and gain buy-in on community of practice approach	11	37
Define potential members	12	40
Gather engineer volunteers	24	80
Coalescing Stage	30	100
Meet w/potential members to discuss community of practice idea.	20	67
Identify and prioritize training needs.	24	80
Build facilitator pool.	8	27
Create community of practice project documentation plan	14	47
Create Technical Training Content	6	20
Maturing Stage	30	100
Schedule activities – talks, classes, reading groups	26	87
Meet regularly to continue evolving community of practice	17	57

Note. Number of participants = 30.

CoP roles. Participants described common CoP roles, their traits and abilities, and respective actions. The five key roles identified include the following: (a) group lead, (b) needs assessor, (c) instructor, (d) technical content creator, and (e) various support roles (see Table 7). The three roles most familiar to the participants were the group lead (87%), an instructor (80%), and a technical content creator (67%). This suggests that these three roles were most visible and of highest importance to the CoP ecosystem.

The CoP lead role was defined as one who brings volunteers together around a common goal (47%) and leads the organization and execution of tasks (40%). They lead group formation (53%) and facilitate engineering involvement (50%). The instructor role was defined as one who has subject matter expertise (53%), a desire to share knowledge (47%), and is skilled at facilitation and instruction (60%). Instructors teach and facilitate technical content (80%). The technical content creator role was defined as subject matter expert (40%) who wanted to fill a knowledge gap (57%). They create new content (67%) that can be distributed to other workers, and identify additional subject matter experts who can share their knowledge (27%).

Recognition practices. Participants identified five recognition practices associated with CoP participation: (a) formal recognition and (b) informal recognition by others, (c) the building of reputation, (d) the witnessing/ awareness of a participant's contribution, and (e) personal satisfaction. The most common recognition practices were witnessing one’s own contribution (80%), formal recognition (67%), and personal satisfaction and contribution to the organization (60%; see Table 8). These factors suggest a relationship between CoP member motivation and the value placed on learning and development with a desire to help teammates and see organization improvements.

Table 7

Roles in the Community of Practices

Role	*N*	%
Group lead		
Traits and Abilities	26	87
Brings people together around common goal	14	47
Well-respected	5	17
Organizes and executes	12	40
Actions	26	87
Leads group formation	16	53
Leads needs assessment	4	13
Facilitates engineer involvement	15	50
Builds awareness and visibility of the group	8	27
Needs Assessor		
Traits and Abilities	8	27
Awareness of training needs	7	23
Desire to understand training needs	4	13
Actions	8	27
Volunteers ideas for training	6	20
Collects engineers training needs	8	27
Helps prioritize needs	8	27
Instructor		
Traits and Abilities	24	80
Subject matter expertise	16	53
Good facilitation and presentation skills	14	47
Desire to share knowledge and teach	18	60
Actions	24	80
Teaches/Facilitates technical content trainings	24	80
Technical Content Creator		
Traits and Abilities	20	67
Subject matter expertise	12	40
Recognized and desired to fill a gap	17	57
Actions	20	67
Design technical content	20	67
Invite subject matter experts to share knowledge	8	27
Supportive roles		
Traits and Abilities	14	47
Passion for training and knowledge-sharing	14	47
Actions	14	47
Raise visibility and reinforce value of CoP	8	27
Recruit volunteers	10	33
Connect CoPs to various L&D resources	9	30

Note. Number of participants = 30.

Table 8

Recognition Practices

Practice	*N*	%
Formal Recognition	20	67
With my teammates	12	40
With my manager	8	27
With leadership	9	30
With the office	6	20
Informal Recognition	15	50
Receive Community of Practice swag	15	50
Receive free food	5	17
Building a Reputation	10	33
Viewed as leaders in the office	4	13
Viewed as subject matter experts	6	20
Witnessing / awareness of my contribution	24	80
Helps teammates learn, do their jobs better	18	60
Helps yourself learn, do your job better	10	33
Helps the office	11	37
Personal Satisfaction / Contribution to organization	18	60
Don't want recognition	4	13

Note. Number of participants = 30.

Challenges. After discussing recognition practices, participants discussed the challenges associated with creating, developing, and sustaining the activities of CoPs. Four challenges were identified: (a) lack of organization commitment, (b) inconsistent membership involvement and participation, (c) inconsistent volunteer culture and expectations, and (d) lack of consistent recognition. The most common awareness factors were lack of organization commitment (73%), inconsistent membership involvement and participation (53%) and inconsistent volunteer culture and expectations (53%; see Table 9).

Participants identified a lack of organization commitment as a key challenge for CoP evolution. By lack of organization commitment, participants identified two subtopics of concern including: leadership support (47%) and access to resources (53%).

Participants observed that leadership does not always fully commit to learning and development initiatives and does not always visibly support CoP efforts. The second subtopic identified was global accessibility to knowledge, tools, and resources. Participants found it difficult to know what learning and development resources already existed, what activities were happening, and what knowledge existed in other offices.

Table 9

Community of Practices Challenges

Challenge	*N*	%
Lack of Organization Commitment	22	73
Leadership needs to support CoP	14	47
Training, tools, and resources aren't accessible globally	16	53
Inconsistent Membership Involvement and Participation	16	53
Infrastructure needs better organization	10	33
Output needs to be better	6	20
Impact is not clear	9	30
Activity is highly dependent upon Community leadership	16	53
Inconsistent Volunteer culture and expectations	16	53
Small number of volunteers	14	47
Engineer resistance to Community participation	6	20
Engineering time is limited	12	40
Lack of consistent recognition	12	40

Note. Number of participants = 30.

Two themes had an equal number of responses: (a) inconsistent member involvement and participation and (b) inconsistent volunteer culture and expectations. With regards to membership involvement and participation, participants cited the dependency on CoP leadership as a crucial concern (53%). With regards to volunteer culture and expectations, participants expressed concern over a low number of participants (47%) and a lack of engineering time to commit to CoPs (40%).

Impact of CoPs on Multinational Corporations Distributed Offices

When the interviews shifted to discuss the impact of CoPs on distributed offices, participants articulated that the CoPs were not the sole driver of specific individual or

community outcomes, but had a significant influence on them. For example, participants noted that office leadership and manager support also influenced individual and community development.

Participants believed that CoPs helped create both community and individual benefits. Participants identified three individual benefits including the following: (a) the development of new technical skills and competencies, (b) the creation of more career development opportunities, and (c) enabled engineers to do their jobs more effectively (see Table 10). Participants identified five office benefits including the following: (a) attracting talent, (b) improved retention rates, (c) improved office moral and cohesiveness, (d) improved visibility outside office, and (e) increased engineering job satisfaction. The most significant outcomes were the development of new individual technical skills and competencies (60%) and improved office moral and cohesiveness (53%; see Table 10). These factors suggest a relationship between CoP activity and a positive impact on learning and development culture.

Table 10

Organization Outcomes of Community of Practices

Organization Outcomes	N	%
Individual Benefits	24	80
Developed new technical skills and competencies	18	60
Created more career development opportunities	10	33
Helped engineers to their jobs more effectively	11	37
Office Benefits	22	73
Attracting talent	4	13
Improved retention rates	5	17
Improved office morale and cohesiveness	16	53
Improved visibility outside office	9	30
Engineer job satisfaction	6	20

Note. Number of participants = 30.

Impact on CoPs on Learning and Development Culture

The interviews concluded with a discussion about the impact of CoPs on the office's culture. To understand the impact of CoPs on an office's learning and development culture, the researcher assessed culture before and after CoP formation. Participants shared information about learning and development practices before CoPs were formed, characteristics of the CoPs once formed, and learning and development changes since the creation of CoPs.

With respect to culture before CoPs, participants identified two primary areas of concern: (a) the lack of past learning and development activities and (b) the factors that limited knowledge sharing, generation, and distribution in their offices (see Table 11). The most common learning and development activities included: (a) infrequent technical talks (27%) and (b) "very little to nothing" (34%). For the activities that did take place, participants noted that technical talks were given by engineers in the office or, more often, when guests travelled to the office. The most common limiting factors included: (a) lack of local learning and development activities (97%) and (b) a dependency on other engineering offices (55%). Engineers in distributed offices did not initiate activities. They were either dependent on others who visited or on traveling to hub offices to receive it.

The researcher took the responses to learning and development before CoP, compared them to the categories of Cameron and Quinn's Competing Values Framework, and plotted the key factors across the four quadrants of clan, adhocracy, hierarchy, and adhocracy (see Figure 2). For example, the researcher placed the "dependent on other engineering offices" statement in the hierarchy quadrant. This statement suggests a

relationship between the dependency of distributed offices and the centralized processes of a hierarchal organization culture.

Table 11

Learning and Development Before Community of Practices

Learning and Development Before Communities	*N*	%
Lack of Local Learning and Development Activities	18	62
Infrequent Technical Talks	8	27
Online materials: Codelabs, orientation materials	3	10
Limited number of classes	5	17
Very little to nothing	10	34
Limiting Factors		
Lack of local learning and development activities	28	97
Lack of local learning and development leadership	10	34
Lack of visibility of learning and development opportunities	6	20
Didn't understand training needs	4	14
Dependent on other engineering offices	16	55
Engineers flew to hub offices for training	14	48

Note. Number of participants = 29. One participant was not familiar with learning and development before the formation of their CoP.

Figure 2

Learning and Development Culture Before CoPs

Using this framework, the researcher observed that most offices had learning and development cultures that were hierarchal and lacked clan and adhocracy characteristics. These factors suggested that the learning and development culture local collaboration, problem solving, and innovation. This lack of local activity was one of the motivations behind CoP formation.

CoP characteristics in distributed offices. Participants then identified the key characteristics of CoPs once they were formed. Three primary areas were identified: CoP domain, CoP community, and CoP practice (see Table 12). Eighty percent of the participants interviewed recognized the domain that was defined with their CoP. By domain, participants described a defined scope and purpose for the community, one that was primarily focused on technical skill development and knowledge sharing. Seventy-three percent of the participants identified the sense of community with the CoP, either the leadership within the group or the culture of volunteerism. Participants spoke to the importance of both aspects of community, where leadership was a central theme (53%), as was the willingness of engineers to volunteer for CoPs (40%). Lastly, 87% of participants identified the CoP's practice. Participants recognized three factors: (a) an approach that was viewed as effective and organized (73%), (b) had good output (30%), and (c) identified new ideas (20%).

Learning and development changes. Finally, participants identified learning and development changes since the CoPs formed. Three primary areas were identified, which also aligned with the primary reasons for CoP purpose: (a) increased local learning and development activity, (b) increased self-sufficiency, and (c) reinforced culture of learning (see Table 13).

Table 12

Community of Practice Characteristics

Characteristics	*N*	%
Domain		
Defined scope, technical skills & knowledge	24	80
Community	22	73
Has strong leadership from within	16	53
Helps cultivate a culture of volunteerism	12	40
Practice	26	87
Viewed as effective and organized	22	73
Had good output	9	30
Identified new ideas	6	20

Note. Number of participants = 30.

Table 13

Learning and Development Changes since Community of Practice

Change	*N*	%
Increased local learning and development activity	30	100
Increased quantity of learning and development classes	23	77
Increased understanding of engineers training needs	9	30
Increased engineer interest in learning and development activities	16	53
Increased engineer participation in learning and development activities	14	47
Activities are more coordinated, not ad hoc	9	30
Increased self-sufficiency	26	87
Increased awareness and visibility of learning and development resources	9	30
Increased awareness of subject matter expertise	14	47
Increased ownership of learning and development activities	18	60
Reinforced culture of learning	12	40

Note. Number of participants = 30.

Participants defined learning and development activity as more local facilitation, more knowledge sharing, and more content development focused on the development of the engineers in the office. The most common factors of increased local activity were (a) increased quantity of learning and development classes (77%), (b) increased engineer interest in learning and development activities (53%), and (c) increased engineer participation in learning and development activities (47%).

The most common factors of increased self-sufficiency were (a) increased ownership of learning and development activities (60%) and (b) increased awareness of local subject matter expertise (47%). These factors suggest a decreased need to rely on hub offices.

Lastly, participants noted that CoPs reinforce a culture of learning (40%). By culture of learning, participants defined this as a support of existing beliefs that employees are expected to continue learning and developing in their careers. The existence and development of CoPs provided another means to support ongoing learning locally.

Current learning and development cultural beliefs. The last portion of the interview included participants describing the current learning and development cultural beliefs. Three primary beliefs were identified: (a) increased office-level ownership and activity related to learning and development, (b) increased office focus on learning and development, and (c) the need for more learning and development support (see Table 14).

The first belief, increased office-level ownership and activity, included three commonly supported ideas: (a) learning and development opportunities are more accessible and more frequent (50%), (b) engineers are both teachers and students (47%), and (c) volunteerism is a key component to L&D (47%). The second belief, increased office focus on learning and development, included two factors: (a) learning and development is more of a priority (47%) and (b) there is more excitement for learning (40%). Lastly, participants identified three factors that supported the third belief, learning and development needs more support: (a) there’s a need to continually evolve and

improve (40%), (b) leadership needs to show more support (27%), and (c) there is a need for more advanced content (27%).

Table 14

Current Learning and Development Cultural Beliefs

Belief	*N*	%
Increased Office-level ownership and activity related to learning and development	30	100
Learning and development opportunities are more accessible and more frequent	15	50
We have expertise in the our office	8	27
Engineers are both teachers and students	14	47
There is an increased sense of office community	11	37
Volunteerism is a key component to L&D	14	47
Local ownership has increased	10	33
Increased learning and development focus	20	67
Learning and development is more of a priority for us	14	47
There is more excitement for learning	12	40
Learning and development needs more support	15	50
Leadership needs to show support for learning and development	8	27
There is a need to continually evolve and improve	12	40
There is a need for more advanced content	6	20

Note. Number of participants = 30.

The researcher took the responses to current learning and development cultural beliefs, compared them to the categories of Cameron and Quinn's Competing Values Framework and plotted the key factors across the four quadrants of clan, adhocracy, hierarchy, and adhocracy (see Figure 3). For example, the researcher placed the "volunteerism is a key component of L&D" statement in the clan quadrant. This statement suggests a relationship between employee participation and the focus on empowering employees and facilitating their participation in professional development in a clan culture.

These factors suggest a change in learning and development culture that now emphasizes clan and adhocracy. The distributed offices lessened their dependency on the

stability and control, synonymous with a hierarchy culture, and increased local ownership, collaboration, and innovation, synonymous with clan and adhocracy cultures. They developed a local community that focused on creating innovative solutions for their own learning and development needs.

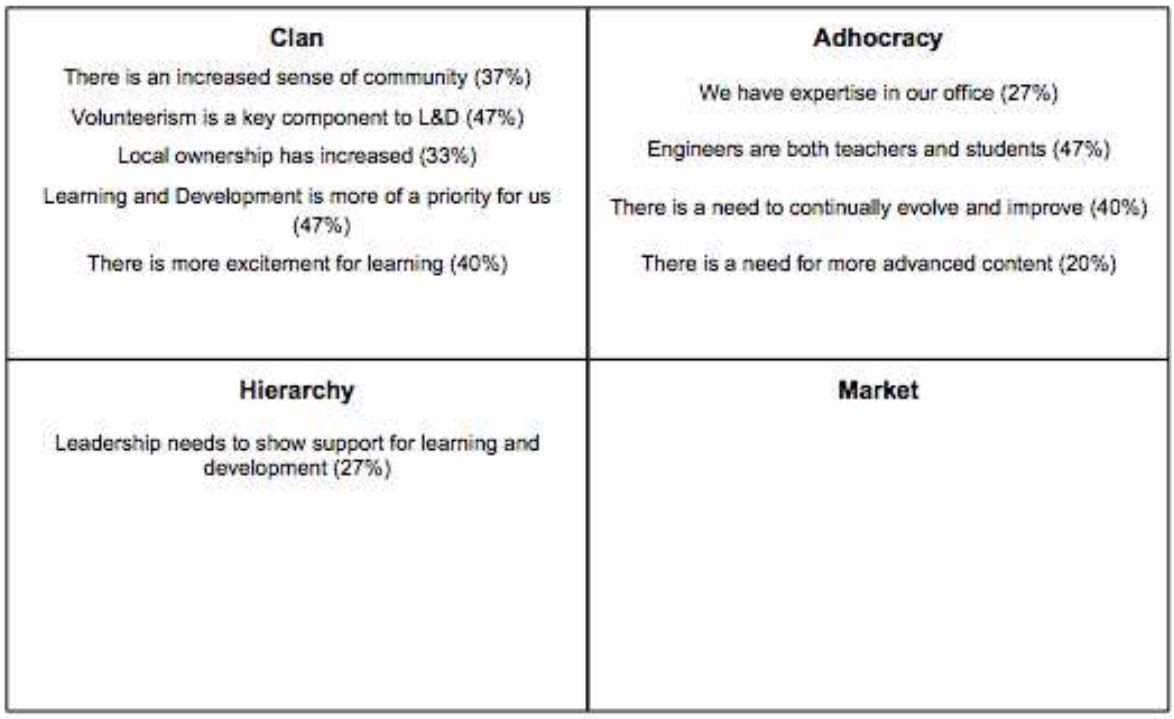

Figure 3

Learning and Development Culture Before CoPs

Summary

This chapter presented the findings of this research study. Participants were aware of the need for more knowledge sharing and learning and development in their offices. They were motivated to adapt the CoP change initiative. This was primarily due to their awareness of learning and development needs, the value they place on learning and development, and their motivation to contribute to help the organization. Participant awareness and motivation influenced the purpose of forming CoPs. They wanted to

increase learning and development activities, and decrease the need to rely on hub offices. They gathered engineer volunteers, identified and prioritized training needs, and scheduled activities.

The researcher estimated that over 50% of the participants interviewed would need to state that CoPs were effective and positively influenced the office's learning and development culture to conclude that CoPs had an impact on learning and development culture. Participants identified two significant changes to learning and development that CoPs influenced. This included (a) increased local learning and development activity (100%) and (b) increased self-sufficiency (87%). The distributed office learning and development culture has shifted from one that relied heavily on centralized systems and hub offices, to one that encourages teamwork, employee development, and a commitment to continual learning and evolution.

Chapter 5 will draw conclusions derived from the study and the aforementioned themes, discuss limitations of the research, make recommendations to Organization Development practitioners, and offer suggestions for additional research.

Chapter 5

Conclusions, Recommendations, and Summary

This research study explored the use of CoPs in a multinational corporation. It attempted to answer the following questions:

1. What behaviors and practices are used to establish CoPs?
2. What impact do CoPs have on distributed offices?
3. How do CoPs influence learning and development culture?

Chapter 5 is divided into four sections. The first section presents conclusions derived from the research study and how they relate to the existing literature. That is followed by recommendations based on these conclusions. The third section is a listing of future research possibilities. The chapter concludes with a summary.

Conclusions

Establishing CoPs. Before the establishment of CoPs, distributed offices suffered from a lack of learning and development activities and relied on hub offices to provide limited resources. Distributed offices lacked a local learning and development community, and activities were infrequent and ad hoc. One of the main conclusions drawn in Lave & Wenger's (1991) research project was that, "learning is a social fact, pushed by involvement and participation in a practice" (p. 54). This conclusion is reinforced by the work of CoP members in this multinational corporation. Research participants' awareness of learning and development needs and motivation to participate in the office's positive change directly led to CoP creation. They socialized learning throughout their individual offices. From a process consultation perspective, engineers were invited into the problem by learning and development Program Managers, and

asked to help solve it (Schein, 2010). The creation of CoPs in distributed offices influenced a shift away from a centralized and controlled hierarchical culture towards a team-focused, participatory, and problem-solving culture.

This cultural shift also included challenges for each CoP which included the following: (a) a lack of leadership support , (b) inconsistent global access to resources, and (c) inconsistent membership involvement and participation. One of the key challenges for cultivating CoPs is creating connections across large geographic distances (Wenger et al., 2002). This study's findings support Wenger et al.'s research. Participants found that leadership did not always fully commit to learning and development initiatives, and did not always support CoP efforts. Leadership didn't always understand and see the value of CoP output.

It was difficult for CoP members to know what learning and development resources already existed, what activities were happening, and what knowledge existed in other offices. The CoPs created in the multinational corporation focused on practices that supported individual and community benefits, but did not focus on practices that encouraged global distribution of knowledge. With their focus on individual and office specific needs, CoP efforts reinforced inconsistent global knowledge-sharing practices.

CoP members were concerned with the lack of consistent membership involvement and participation. CoPs rely heavily on leadership within the community to drive direction, create a healthy infrastructure, and recruit members. CoPs focused inward on their own office needs and member participation, and did not consistently reach out to other office CoPs for best practices and knowledge sharing opportunities.

To continue on, CoPs need to address the lack of leadership commitment, address the organization issues behind this issue, and determine what the barriers are. The CoPs need to identify ways to sustain energy, educate new members, and grow their influence across the organization. Influence can be defined as providing new output and value to the individual office, to the larger region, and to the entire multinational corporation.

Impact of CoPs on multinational corporations distributed offices. Over the last couple of years, the multinational corporation in this research study began centralizing decision-making, leadership, and reallocating people and projects. Distributed offices lost projects and power as people were forced to shift to new projects. This loss impacted office morale and was reflected in the way participants described the office culture before the CoPs. With the introduction of CoPs, participants began developing new technical skills through knowledge sharing, engineers increased their ability to perform their jobs effectively, and distributed offices redefined their local identity. With more local knowledge-sharing activities in distributed offices, CoPs contributed to a learning-focused identity, and engineers contributed directly to that local identity. Engineers rediscovered a sense of belonging with teammates through the organization and distribution of subject matter expertise. This helped reestablish a healthy distributed office culture. Offices regained a sense of power and a commitment to office community and employee development.

Due to increased CoP knowledge generation and distribution, distributed offices were also beginning to be seen as destinations, as good places to advance one's career. They embedded knowledge into a larger employee population. CoP participants believed their work contributed to this positive distributed office brand and spread it to other

offices in the same region. At a time when more and more decision-making power was shifting to headquarters and hub offices, the creation of CoPs provided a renewed sense of ownership, wealth, and power to distributed offices in the form of subject matter expertise, knowledge, and opportunity.

Allee (2000) believed CoPs benefit the individual, the community, and the business. In this research study, participants identified CoP benefits that impacts the individual and the community. Perhaps due to the young age of the CoPs, participants could not yet identify benefits for the entire organization. Some participants mentioned that knowledge sharing was primarily focused at the office level, and an idea for future growth was to better distribute knowledge across more offices. If this were to happen, this could benefit the business, and CoP impact could expand. As stated in previous research, CoPs in multinational corporations do have the potential to address local and global issues of knowledge sharing and collaboration (Haas et al., 2000; Kohlacher & Mukai, 2007; McDermott, 1999; Wenger & Snyder, 2000). In this research study, CoPs focused on the individual office needs first because that was the original reason for CoP formation. As CoPs moved into the active stage, the learning and development Program Managers, as OD practitioners, had the opportunity to help the CoP build upon their local success and brainstorm how they can continue generating value and impact for not only the office but also across the organization. CoPs could find a new level of impact and visibility if they were to focus on how their work at the office level could positively benefit the corporation on a global level.

CoPs can grow to strengthen networks across a global organization and offset concerns about hierarchy and organization structure boundaries but it takes employee

time and patience (Wenger & Snyder, 2000). In this research study, employees drove the creation of CoPs from the bottom up. The engineers prioritized goals that were specific to their individual offices, and did not have a broad reach across the entire multinational corporation. The decentralized CoP formation process went against the centralized decision-making process of the Engineering organization, and provided a tension with recent organizational shifts. With limited time to volunteer and with inconsistent leadership support, engineers also had concerns about CoP value and sustainability. While they were addressing local issues, CoP efforts were not focused on impacting the corporation on a global level. Consistent leadership support, positive reinforcement of CoP activity, and rewards systems across regions are needed to create momentum for global knowledge sharing (Wenger & Snyder, 2000).

Impact of CoPs on culture. Participants in the research study identified a renewed focus on learning and development, a sense of ownership within the office, and a need for more support from leadership to continually succeed. The development of CoPs helped create local learning organization where members were continually expanding their capacity to create the results they desired (Senge, 1990). Participants recognized that with increased activity came an increased focus on employee development, learning, and knowledge sharing. With the creation, development, and maturation of CoPs, engineers were engaged in both learning and teaching. Peers were teaching peers and knowledge workers were becoming leaders, based on their subject matter expertise. Learning and teaching was becoming part of the distributed office's "DNA," and "translating the basic DNA of learning organizations into strategies can create a powerful competitive advantage" (James, 2003, p. 60).

Based on its current beliefs, the multinational corporation learning and development culture in this research study can be seen as a blend of clan and adhocracy cultures. The corporation developed local CoPs that focused on creating innovative solutions for their own learning and development needs. This was possible because local volunteers invested in employee development and were willing to experiment with different approaches to creating and distributing content. The clan organization often operates liked an extended family, a collaborative community that is held together by a strong sense of commitment to each other's development (Cameron & Quinn, 2011). In this research study, the CoPs are committed to learning and development. CoP leaders are seen as collaborative facilitators, and they support and recognize their team member's development. Cameron and Quinn (2011) describe an adhocractic culture as one that is a "dynamic, entrepreneurial, and creative workplace" (p. 51). The creation of CoPs helped address the tension caused by recent organizational shifts because it empowered employees in distributed offices to own the solutions to their problems, and create new solutions to their learning and development needs. Through CoPs, engineers brought back a sense of clan and adhocracy back into their day-to-day work. The creation and development of CoPs was a team building process for some as it brought connections between participants that did not exist before.

Recommendations

Based on the research study's findings about the CoP formation process and their impact on distributed offices and the learning and development culture, the researcher has identified three recommendations. These three recommendations focus on strengths and challenges that were defined in this study about CoPs and include the following: embed

organization culture values into CoP development and sustainability, identify and support leadership roles during all stages of CoP development, and create transorganizational communities of practice.

Embed culture values into CoP development and sustainability. The researcher's first recommendation is to embed organization cultural values into CoP development and sustainability. CoPs cannot be pushed on an organization's environment (McDermott & O'Dell, 2011). The participants need to have both awareness of the problem, motivation to make a change to address the problem, and understand how the creation of CoP supports organization culture values and beliefs. The CoPs in the multinational organization were able to develop more effectively when both core members and the office as a whole understood the opportunity to own the problem of lack of learning and development resources.

The opportunity to address learning and development needs directly supported the academic values of the multinational organization. The multinational corporation believes that "great isn't good enough," and encourages its employees to continually iterate on projects, experiment, fail fast, and learn from mistakes. Employees are asked to innovate and think big on projects, and it is a healthy dissatisfaction with the way things are that becomes the driving force behind everything the company does. Organization culture should not be seen as a barrier to sharing knowledge but a starting point to discovering how best to facilitate it. In companies like Ford, Lotus, PricewaterhouseCoopers LLP, Chrysler, HP, and World Bank, their CoPs vary in size and scope, and that is purposeful (Haas et al., 2000; Kohlacher & Mukai, 2007; McDermott, 1999; Wenger & Snyder, 2000). The cultures of each company and the goals of each CoP are different. It is best to

appreciate the unique nature of one's company and use those values to support knowledge sharing interventions like CoPs.

The OD practitioner, and in the case of this study, the Program Manager, needs to take the pulse of the organization, the office, and the client before proceeding. As a KM intervention, the OD practitioner needs to understand the values of the organization, the organization's readiness for change, areas of potential resistance, and find integration points where organization cultural values can be embedded into the evolution of CoPs. If resistance is not dealt with early on, it can threaten the health and longevity of CoPs. The OD practitioner needs to find core members who are aware of the need to change and continuously improve and create a healthy core that is willing to work through the ebb and flow of CoP development.

Ensure leadership and leadership's support during the CoP life cycle. The researcher's second recommendation is to ensure CoP leadership and leadership support during all stages of a CoP's life cycle. Leadership is needed within the CoP to facilitate volunteers, provide infrastructure support, and encourage global distribution of CoP output across multinational corporations. Support from leadership is needed to recognize CoP members, promote their output and impact, and increase the visibility of their work across offices and regional boundaries.

Participants in this study discussed the importance of CoP leadership to bring definition to the group's direction, infrastructure, and activities. They praised the work of the current CoP leads and were concerned about the CoP's health if the lead where to leave. To sustain activity, momentum, and continuously improve, CoPs will always need a lead or coleads. CoPs should also think about sharing or shifting leadership

responsibilities from time to time. Leadership is needed at multiple levels to address community development, foster integration of knowledge sharing, and promote a future vision for CoP work.

Leadership support is also needed from the top of the organization to reinforce the value of their work, encourage more volunteers, and support the learning culture that is crucial to development of the employee base. At the beginning of formation, CoPs need support so they can grow and have the confidence that what they are trying to do is valuable to the organization. Leadership can provide visibility to CoP efforts. This support must be dealt with carefully, though, because the CoP thrives from the bottom up and has to be owned by its core members, not by the leaders in the office or organization. It is a managerial paradox as Wenger (2000) has explained.

To mature and sustain momentum over time, leadership also needs to encourage CoP activity, recognize its value across office, functions, and the organization. In partnership with learning and development Program Managers, leadership needs to identify rewards systems that thank engineers for volunteering, recognize their contribution, and encourage continual involvement from various engineers in all offices. Engineers should be rewarded for their contributions to individual development in their own office, community development within their office, and cross-office collaboration across regional boundaries. This can positively impact distributed office employee development, the sustainability of CoPs, and influence broader knowledge distribution within multinational corporations. Without alignment at the top, CoPs will continue to struggle with visibility beyond individual offices and share knowledge in a more haphazard way. In a multinational corporation that thrives on knowledge sharing across

boundaries, CoPs need to be a key knowledge management strategy that is visible and supported across locations and roles. Stories from other multinational corporations should be shared with engineers and engineer leads to show how CoPs can evolve over time and add value as they mature.

Create transorganizational CoPs. The researcher's third recommendation is to create transorganizational CoPs within multinational corporations and across multiple organizations. In this research study, CoP output led to individual and office-specific benefits within a multinational corporation. If CoPs can share knowledge and best practices across the multinational corporations' offices and regions, their output can increase and lead to larger benefits for the entire corporation. By increasing the distribution of technical knowledge across geographic boundaries, CoPs can provide additional development opportunities to specific individuals, teams, and entire engineering product areas. By sharing CoP best practices globally, CoPs can identify ways to improve CoP infrastructure and increase member involvement and participation.

Cross-office collaboration can strengthen the corporation's knowledge management system and build global CoP consistency while still maintaining local CoP variations. By communicating across offices and regions, CoPs can share ideas, successes and challenges, and choose how to evolve based on what works in other CoPs. As the local experts, CoP members can choose what new methods to try, and ensure that their own CoP continues to address local needs and strengthens the local office identity.

The networking across geographic boundaries can also provide senior leadership opportunities to establish global rewards systems. By observing similarities and differences across the difference CoPs, senior leadership can work in partnership with

learning and development Program Managers to identify measures that will recognize the individual, community, and business-wide benefits of CoP work. This can reinforce CoP value, membership participation, and long-term sustainability of global knowledge sharing.

Given the experience that multinational corporations have with CoPs, they have an opportunity to share their knowledge with other organizations. By sharing knowledge across multiple organizations, multinational corporations can increase society's collective intelligence. In today's "global village" there is a proliferation of global problems: environmental degradation, economic disparity between rich and poor, disease pandemics, and breakdowns of financial systems. The problems we face are becoming more complex. The need to learn and network across company boundaries is acute. Individual organizations and individual communities cannot solve these problems on their own. The knowledge that multinational corporations have is crucial to creating transorganizational CoPs across organizations. By building a global web of communities, global community organizers have the opportunity to join forces behind larger, common goals and share richer data across their respective organizations. Multinational corporations can take advantage of their collective experiences, work together, and address challenges that require complex knowledge. These transorganizational CoPs can go beyond individual businesses and integrate knowledge from the local, national, and global levels as well as from the private, public, and not-for-profit sectors.

As global citizens, we all need to increase our collective intelligence, build global connections, understand local variations, and use our collective knowledge to begin

addressing the global challenges that impact all of us. Multinational corporations have an opportunity to lead the way in this effort.

Suggestions for Additional Research

Additional research should be done to further understand the impact of CoPs in multinational corporations, and how the CoP approach can be used to facilitate knowledge sharing continuously across organizations both in the private and public sectors.

Research on CoPs impact in multinational organizations is an area that needs to be continually investigated given the global nature of businesses. OD practitioners need to understand how to facilitate the sharing of knowledge across various organization boundaries. It would be beneficial to study the long-term impact of CoPs, those that have matured and sustained, and what influences the work of CoPs have had on the organization ability to continuously change and improve.

There is an opportunity to take the work of CoPs in the private sector and apply it to the public sector. This could have a far-reaching impact on global challenges associated with health, nutrition, and education. The knowledge sharing in the private sector is focused on competitive advantages to increase productivity, effectiveness, and market share. The private sector is focused on ROI, financial gain. What if we were able to apply the tools, mechanisms, and positive social practices into the public sector and address global challenges that impact large percentages of the world's population like climate change, access to clean water, food, and vaccinations, and other severe global challenges? What if we were able to take the approaches used to positively impact

thousands of people across a multinational corporation, and apply them across multiple organizations that can work together to help millions?

Summary

Understanding the impact of CoPs in multinational corporations can have significant impact on continuous organization change, knowledge sharing approaches across distributed offices, and learning and development culture. Corporations are discovering that CoPs are critical to mastering increasingly difficult KM challenges. Wenger et al. (2002) argued that once these communities fully integrate into organization strategy, they can offer new possibilities for weaving organizations around knowledge, connecting people, solving problems, and creating new business opportunities.

A multinational corporation's learning and development organization faces the number of challenges, including creating, organizing, and distributing knowledge. The creation of CoPs enables more employees across the company to give time to learning and development initiatives, knowledge sharing generation and distribution, and consequently to creating more organization wealth. Given the specialized content that employees need to learn in different functions and the distributed nature of multinational corporations, CoPs are mechanisms to invite the workforce to own more of their individual development, contribute to community and business growth and success.

The first question this study attempted to answer was the following: What behaviors and practices are used to establish CoPs? Participants identified three primary reasons for CoP formation: (a) increase local learning and development activities, (b) increase office self-sufficiency, and (c) reinforce culture of learning. These factors suggest a relationship between the needs of the office and the motivation to address the

needs with the adoption of the CoP approach. The findings of the research study identified three core steps that are needed for forming a CoP including: (a) the gathering of volunteers, (b) the identifying and prioritizing training needs, and (c) the scheduling activities are needed to form a CoP and begin delivering learning and development activities. The creation of CoPs in distributed offices influenced a shift away from a centralized and controlled hierarchical culture towards a team-focused, participatory, and problem-solving culture.

The second question this study attempted to answer was the following: What impact do CoPs have on distributed offices? Participants in the research study believed that CoPs helped create both individual and community benefits. The most significant outcomes were the development of new technical skills and competencies and improved office morale and cohesiveness. These factors suggest a relationship between CoP activity and a positive impact on learning and development culture. At a time when more and more decision-making power was shifting to headquarters and hub offices, the creation of CoPs provided a renewed sense of ownership, wealth, and power to distributed offices. For continued evolution and sustainability, learning and development Program Managers and leadership needs to identify rewards systems that recognize volunteer contribution, and reward local, regional, and global knowledge distribution.

The third and final question this study attempted to answer was the following: How do CoPs influence learning and development culture? The findings of the research study included (a) increased office-level ownership and activity related to learning and development, (b) increased office focus on learning and development, and (c) the need for more learning and development support. CoPs enabled peers to teach each other and

knowledge workers to become leaders. In a multinational corporation that thrives on knowledge sharing across boundaries, CoPs are valuable mechanisms that tap into employee motivation and commitment and are a key knowledge management strategy to encourage distribution across locations and roles. Stories from other multinational corporations should be exchanged with other corporations to show how CoPs can evolve over time and add value to complex systems as they continuously change.

Multinational corporations have opportunities to increase society's collective intelligence and build global connections. With the adoption of CoPs, multinational corporations can see the importance and delicate balance of global needs and local variations. By building a global web of CoP stories, global community organizers have the opportunity to join forces behind larger, common goals that span multinational corporations. Multinational corporations, such as the one in this research study, can take advantage of their collective experiences that span geographic and organization boundaries, share them with other corporations, and begin helping address challenges that require complex knowledge sharing strategies.

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Appendix A: Interview Questions for Engineers

Interview Questions for Engineers

CoP - domain, community, and value

1. What role do you currently play in your office's CoP?
2. What motivated you to get involved?
3. What type of learning and development activities existed in the office before the community of practice formed?
4. Were others in the office aware of the learning and development needs?
5. Who was motivated in the office to address these needs?
6. When did the community of practice form? What was the reason(s) for its forming?
7. Can you describe for me how the community of practice formed? Who was involved? What role did you play?
8. What motivates engineers to get involved in the community of practice?
9. In what ways are you and other engineers recognized for your involvement in the community of practice?
10. What changes have you seen in the office, as a result of the community of practice?
11. What impact have these changes had on learning and development in the office?
12. How would you describe the effectiveness of the community of practice?
13. What words or phrases would you use to describe the learning and development culture in the office?

Appendix B: Interview Questions for Engineering Leadership

Interview Questions for Engineering Leadership

CoP - domain, community, and value

1. What role do you currently play in your office's CoP?
2. What motivated you to get involved?
3. What type of learning and development activities existed in the office before the community of practice formed?
4. Were others in the office aware of the learning and development needs?
5. Who was motivated in the office to address these needs?
6. When did the community of practice form? What was the reason(s) for its forming?
7. Can you describe for me how the community of practice formed? Who was involved? What role did you play? What role did engineers play?
8. What motivates engineers to get involved in the community of practice?
9. In what ways are engineers recognized for their involvement in the community of practice?
10. What changes have you seen in the office, as a result of the community of practice?
11. What impact have these changes had on learning and development in the office?
12. How would you describe the effectiveness of the community of practice?
13. What words or phrases would you use to describe the learning and development culture in the office?

Appendix C: Interview Questions for Program Managers

Interview Questions for Program Managers

CoP - domain, community, and value

1. What role do you currently play in your office's CoP?
2. What motivated you to get involved?
3. What type of learning and development activities existed in the office before the community of practice formed?
4. Were others in the office aware of the learning and development needs?
5. Who was motivated in the office to address these needs?
6. When did the community of practice form? What was the reason(s) for its forming?
7. Can you describe for me how the community of practice formed? Who was involved? What role did you play? What role did the engineers play? Engineering leadership?
8. What motivates engineers to get involved in the community of practice?
9. In what ways are engineers recognized for their involvement in the community of practice?
10. What changes have you seen in the office, as a result of the community of practice?
11. What impact have these changes had on learning and development in the office?
12. How would you describe the effectiveness of the community of practice?
13. What words or phrases would you use to describe the learning and development culture in the office?