ABSTRACT

BOOTH, SHARON ELIZABETH. Cultivating Knowledge Sharing and Trust in Online Communities for Educators: A Multiple-Case Study. (Under the direction of Kevin Oliver.)

Innovative uses of technology to support teacher learning are emerging through professional learning communities that leverage social networking technologies. The purpose of this qualitative multiple-case study is to develop a deeper understanding of the practices of successful online learning communities. Among the most difficult challenges faced by online communities is fostering and sustaining knowledge sharing. The value of an online learning community lies in the rich knowledge that is exchanged among members. Without this ongoing exchange, online communities fail to thrive. A key facilitating factor for knowledge sharing in online communities is trust. Functioning as a mechanism to keep the participants in a community integrated and cohesive, trust builds and maintains exchange relationships which can lead to quality knowledge sharing. This study examines successful online learning communities for educators in order to better understand the common practices that support and encourage knowledge sharing and the development of trust.

Cross-case findings from this study indicate that cultivation of a knowledge sharing environment was rooted by: a clear purpose; a common identity; purposeful recruitment and promotion; an experienced moderator; a flexible community structure; and guidelines for participation. Across the three communities, knowledge sharing was sustained through multiple options and opportunities for knowledge sharing. The importance of engaging community members through structured conversations is strongly supported by the data. Though the moderator(s) of each community played varied roles, the significance of their roles for cultivating and sustaining knowledge sharing is also supported by cross-case findings.
Cross-case findings suggest common factors across communities that contributed to the cultivation a fertile environment in which trust could develop and grow, including: the establishment of guidelines for participation and netiquette; the credibility of the moderator; and the competence of members. Findings further suggest that trust can be sustained by enforcing trustworthy behavior; reinforcing a sense of community through frequent communication from the moderator; increasing social presence; sharing personal and professional information; and providing opportunities for face-to-face meetings.

Future directions for research are suggested, including the use of design-based research to explore structured conversations and the use of social network analysis to explore the role of influential members in online communities of practice. The use of design-based research (DBR) methodology to study the potential of structured conversations in different online community contexts and for different purposes would provide tangible examples of knowledge sharing among educators, better ties between theory and practice, and would acknowledge learning in context. While results of this study shed some light on informal member roles within online communities, additional research is needed to better understand the role of influential members in cultivating and sustaining knowledge sharing and trust. Use of Social Network Analysis (SNA) as a methodological tool may be helpful in analyzing the interactions and connections of influential members.
Cultivating Knowledge Sharing and Trust in Online Communities for Educators:
A Multiple-Case Study

by
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DEDICATION

To my parents – without your unwavering love, support, and encouragement, this would not have been possible.
BIOGRAPHY

Sharon Booth (Sherry) is a native North Carolinian. After graduating from Sweet Briar College with a Bachelor of Arts in Mathematics in 1986, she became interested in “new” research that was being done with children and computers. Following this interest led her to Harvard University School of Education where she focused on instructional uses of technology in education. Sherry graduated from Harvard University with a Master’s in Education. She spent the early part of her career at Education Development Center in Newton, MA where she deepened her passion for developing innovative uses of technology for teaching and learning. While in the doctoral program at North Carolina State University, Sherry worked at the Friday Institute for Educational Innovation where she was involved in several different research initiatives involving technology, teaching, and learning. Sherry is currently a full-time research associate at the Friday Institute and resides in Cary, North Carolina with her two children.
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At the heart of this study are the voices of the participants, individually and collectively, who gave generously of their time and their insights about learning, growing, and trusting in an online community of practice. I hope that I have faithfully represented you in the stories and analyses offered through this study.

To the many friends who have stood patiently by me, held me up, and cheered me on during this journey, I thank you and promise to pay it forward. With my deepest appreciation, I thank my parents for the untold ways you have supported and loved me while I pursued this life-long goal. And lastly, I thank my children, Tate and Caitlyn, for loving me, encouraging
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CHAPTER 1: INTRODUCTION

Innovative uses of social networking technologies are increasingly being leveraged to support educators around the world in learning from and with each other (Baker-Doyle & Yoon, 2010; Barab, MaKinster, & Scheckler, 2003; Borko, Whitcomb, & Liston, 2009; Duncan-Howell, 2010; Farooq, Schank, Harris, Fusco, & Schlager, 2007; Wenger, White, & Smith, 2009). Social networking technologies offer new opportunities for educators to create and engage in online communities of practice. Over the past twenty years, communities of practice have evolved as an effective form of professional learning for teachers (Vescio, Ross, & Adams, 2008). In their status report on teacher professional development in the United States and abroad, the National Staff Development Council (Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009) emphasize the powerful effect of professional learning when it is embedded and sustained through work of communities of practice.

Communities of practice are “social containers that enable genuine interactions among participants, who can bring to the learning table both their experience of practice and their experience of themselves in that practice” (Wenger, 2009). Informal learning communities in which teachers share their expertise and know-how, collectively develop new knowledge, and build trusting relationships can support and sustain educational innovation that leads to improved instructional practice and ultimately increased student achievement (Moolenaar & Sleegers, 2010; Vescio et al., 2008). More recently, communities of practice have begun to evolve and emerge in online spaces. Like face-to-face communities of practice, online communities can increase communication, collaboration, and support among teachers (Babinski, et al., 2001; Chen, Chen, & Tsai, 2009; Hur & Brush, 2009; Vavasseur &
Additionally, they enable teachers to gain equitable access to human and information resources that may not be available locally or that fiscal constraints might limit (Dede, Ketelhut, Whitehouse, Breit, & McCloskey, 2009; Loucks-Horsley, Stiles, Mundry, Love, & Hewson, 2010; Schlager, Farooq, Fusco, Schank, & Dwyer, 2009); reduce feelings of disconnectedness or isolation (Duncan-Howell, 2010; Gray, 2004); facilitate informal knowledge sharing across time and space (Duncan-Howell, 2010; Hew & Hara, 2007; Vavasseur & MacGregor, 2008; Young & Tseng, 2008); and support new knowledge creation (Wang, Yang, & Chou, 2008). The increasing importance of online communities of practice is evident in the United States’ 2010 National Education Technology Plan (U.S. Department of Education, 2010) which calls for the use of social networking technologies and platforms “to create communities of practice that provide career-long personal learning opportunities for educators within and across schools, preservice preparation and in-service education institutions, and professional organizations” (p. xviii). The purpose of these communities is ensure that professional educators are well connected to the content, resources, data, information, peers, and expertise they need to be highly effective.

While the promise of online communities of practice is great, the realization of success cannot be achieved by simply building an online platform, inviting educators to join, and hoping that they will spontaneously interact in productive ways. Even when online communities are created with great care and planning, success is often elusive. Among the most difficult challenges faced by online communities of practice is fostering and sustaining genuine knowledge sharing interactions (Barab, Kling, & Gray, 2004; Chiu, Hsu, & Wang, 2006; Fang & Chiu, 2010; Hsu, Ju, Yen, & Chang, 2007; Prestridge, 2010; Schlager &
Fusco, 2003; Wenger et al., 2009; Wise, Padmanabhan, & Duffy, 2009). Without this ongoing exchange, online communities fail to thrive (Ardichvili, 2008; Chiu et al., 2006; Fang & Chiu, 2010). The purpose of this qualitative multiple-case study (Yin, 2009) is to develop a deeper understanding of the practices of successful online learning communities. While the structure and characteristics of online communities can vary greatly, this study specifically focuses on communities that are designed to promote learning and increase knowledge sharing among K-12 teachers.

**Background**

With the increasing availability of social network software, tools, and services, it is relatively simple to set up an online community platform. However, it is not always the case that “if you build it they will come,” nor is it the case that when they come, knowledge will be readily offered and shared (Brazelton & Gorry, 2003; M. J. Lin, Hung, & Chen, 2009; Schlager & Fusco, 2003). An online community can have the right user interface, the right tools and the right ethos, but if community members are not engaged, the community will not flourish (Bishop, 2007). This study is based in part on my experience in setting up an online community for educators involved in a multi-district one-to-one (1:1) technology initiative in the state of North Carolina (1:1 indicates a ratio of one personal computing device per student). The online community was created for 1:1 educators to share and discuss ideas related to planning, implementing and sustaining effective 1:1 learning technology programs. During face-to-face professional development institutes for 1:1 educators, the need for a 1:1 online learning community was expressed time and again. Educators were eager to share their successes and equally motivated to learn from the lessons of others. The process of
creating the technical platform for the 1:1 online community took place in less than a week. Over the course of a few months, membership in the community grew rapidly. While numerous efforts were made to encourage knowledge sharing among members, the vigorous knowledge sharing activity that was envisioned for the community failed to come to fruition. Why? It was not readily obvious how this online community differed from more successful knowledge sharing communities for educators that had emerged in recent years. A similar fate has befallen countless other online communities within the field of education and beyond (Carr & Chambers, 2006; Ludford, Cosley, Frankowski, & Terveen, 2004). A desire to better understand the practices of successful online communities prompted the current study.

**Statement of Problem**

Despite the enthusiasm surrounding online communities, many ‘so-called’ communities more closely resemble digital ghost towns than actual communities (Preece et al., 2004). There is no clear understanding of precisely what makes online learning communities successful (Ardichvili, 2008; Ke & Hoadley, 2009). The reasons why some online communities succeed while others fail are complex and varied (Beenen et al., 2004; Fang & Chiu, 2010; Farooq, Schank, Harris, Fusco, & Schlager, 2007; Ke & Hoadley, 2009; Schlager, Fusco, & Schank, 2002). Scholars call for further research that converts the enthusiasm for online social networking into reliable evidence of how, when, and why online education communities do or do not support teachers’ development of new knowledge and practices (Preece, Nonnecke, & Andrews, 2004; Schlager et al., 2009). Among the most difficult challenges faced by online communities is fostering and sustaining knowledge sharing (Barab, Kling, & Gray, 2004; Chiu, Hsu, & Wang, 2006; Fang & Chiu, 2010; Hsu,
Ju, Yen, & Chang, 2007; M. J. Lin, Hung, & Chen, 2009; Prestridge, 2010; Schlager & Fusco, 2003; Wise, Padmanabhan, & Duffy, 2009). The value of an online community lies in the rich knowledge that is exchanged among members (Ardichvili, 2008; Chiu et al., 2006; Fang & Chiu, 2010). Without this ongoing knowledge exchange, the potential of online communities cannot be realized (Ardichvili, 2008; Chiu et al., 2006; Fang & Chiu, 2010). Over the past decade, scholars have turned their attention to examining underlying factors that facilitate or impede the development of successful online communities. A key facilitating factor for knowledge sharing in online communities is trust (e.g. Ardichvili, 2008; Chiu et al., 2006; Hsu et al., 2007; Usoro, Sharratt, Tsui, & Shekhar, 2007; Young & Tseng, 2008). Functioning as a mechanism to keep the participants in a community integrated and cohesive (Hoy & Tschannen-Moran, 1999), trust builds and maintains exchange relationships which can lead to quality knowledge sharing (Bryk & Schneider, 2002; Levin & Cross, 2004; Usoro et al., 2007). As growing trust creates fertile ground for knowledge sharing, increased knowledge sharing reciprocally deepens trust (Chiu et al., 2006; Fang & Chiu, 2010; Usoro et al., 2007). While a number of studies have identified motivations, enablers, and barriers to knowledge sharing in online communities (e.g. Ardichvili, 2008; Carr & Chambers, 2006; Chiu et al., 2006; Hew & Hara, 2007; M. J. Lin et al., 2009), these studies stop short of systematically examining the identifiable practices that successful communities enact to establish and sustain enabling conditions for knowledge sharing and overcome known barriers to knowledge sharing. Additional studies are needed to better understand the specific practices of moderators and members that activate and sustain knowledge sharing and the development of trust in online communities (Ardichvili, 2008; Chiu et al., 2006; Fang &
Purpose of Study

The purpose of this study is to examine successful online learning communities for educators in order to better understand the common practices that support and encourage knowledge sharing. Based on the premise that trust and knowledge sharing are mutually reinforcing processes, the study further seeks to understand how the practices that support knowledge sharing reciprocally build and strengthen trust. The following research questions frame the study:

1. How is knowledge sharing cultivated in online learning communities for K-12 educators?
2. How is knowledge sharing sustained in online learning communities for K-12 educators?
3. How is trust cultivated in online learning communities for K-12 educators?
4. How is trust sustained in online learning communities for K-12 educators?

Definition of Terms

Online Learning Community (OLC)

Online communities are generally defined as communities that employ Web 2.0 networking technologies. Web 2.0 can best be understood by contrasting it with Web 1.0. Web 1.0 refers to the original form of the Internet, or World Wide Web. Web 1.0 websites are static, predetermined and administered by the people who publish them, and typically
provide consumers with discrete information (Lankshear & Knobel, 2007). In contrast, Web 2.0 is highly collaborative and participatory, with services and tools that link people to other people in interactive and flexible ways (Lankshear & Knobel, 2007). An online learning community is not merely a website or database of best practices, “it is a group of people who interact, learn together, build relationships, and in the process develop a sense of belonging and mutual commitment” (Wenger, McDermott, & Snyder, 2002, p. 34). Barab, MaKinster, and Scheckler (2003) further define a online community as “a persistent, sustained social network of individuals who share and develop an overlapping knowledge base, set of beliefs, values, history, and experiences focused on a common practice and/or mutual enterprise” (p. 238). The success of an online community is typically defined in terms of its effectiveness and health (Bourhis & Dubé, 2010). Effectiveness is the extent to which a community has met its objectives, provided benefits to members, and, in some cases, provided value to the sponsoring organization. The health of a community is typically defined by member satisfaction and level of activity.

The online communities that are the focus of this study, as well as the studies of online communities included in the literature review, can also be categorized as “communities of practice” (Lave & Wenger, 1991; Wenger, 1998; Wenger et al., 2002). Communities of practice (CoPs) are “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). CoPs typically consist of a small core group of active participants who participate quite frequently and assume community leadership; a small active group of members who participate regularly but not as
frequently as the core group; and a large portion of members, peripheral participants, who rarely participate (Wenger et al., 2002).

Knowledge Sharing

Knowledge may include book knowledge, practical knowledge, or cultural knowledge (Hew & Hara, 2007). Wenger (1998) suggests that every practice is in some sense a form of knowledge, and that knowing is defined only in the context of a specific practice. “The knowledge of experts is an accumulation of experience – a kind of ‘residue’ of their actions, thinking, and conversations – that remains a dynamic part of their ongoing experience” (Wenger et al., 2002, p. 8). Knowledge sharing is defined as a process of communication between two or more participants involving the provision and acquisition of knowledge (Usoro et al., 2007). Wenger notes that communities of practice are well positioned to codify knowledge because they can combine both the tacit and explicit aspects of it. Communities can produce useful documentation, tools, and procedures (explicit knowledge) because they understand the needs of practitioners: these products have increased meaning because the explicit knowledge requires the tacit knowledge inherent in the community to be applied (Wenger et al., 2002). Sharing tacit knowledge requires informal learning processes and communication such as storytelling, conversation, mentoring, and encouraging (Wenger et al., 2002).

Social Trust

Social trust involves a calculation whereby a person decides whether to engage in an action with another individual that incorporates some degree of risk (Bryk & Schneider, 1996). In consonance with Bryk and Schneider, Hoy and Tschannen-Moran (1999) define
trust as a multifaceted concept that encompasses one party’s willingness to risk vulnerability based on the confidence that the latter party is benevolent, reliable, competent, honest, and open. Following a review of trust literature from four decades of research, Hoy and Tschannen-Moran (1999) describe five facets of trust as follows: (1) benevolence, confidence that one’s well-being, or something one cares about will be protected and not harmed by the trusted party; (2) reliability, predictability, or knowing what to expect from others; (3) competence, trust in the skill or abilities of another; (4) honesty, trust in another person’s character, integrity, and authenticity; and (5) openness, the extent to which relevant information is not withheld. Though all facets of trust are important, Tschannen-Moran and Hoy (2000) note that their relative weight depends on the degree of interdependence and vulnerability in the relationship.

Two types of social trust are important in online communities: relational trust and institution-based trust. Relational trust is formed through the mutual understandings that develop in the course of sustained communications among individuals, each of whom is expected to behave in a normatively appropriate manner (Bryk & Schneider, 1996). Institution-based trust is based on the belief that formal structures or mechanisms are in place that will ensure trustworthy behavior of individual members, and protect the members from negative consequences (Ardichvili, Page, & Wentling, 2003).

**Cultivate**

Cultivating implies preparing for use. For the purpose of this study, cultivating is an act by the creator and/or moderators of the community that prepares the community for knowledge sharing in a way that is similar to the process of preparing land for planting. This
study examines the specific practices that are used to cultivate a fertile environment for knowledge sharing and the development of trust in online communities and to further identify those practices that are common across communities. General cultivating practices may include, but are not limited to: recruiting members based on shared practice (Jones & Preece, 2006); providing opportunities for face-to-face meetings of community members or regular live videoconferences (Ardichvili, 2008; Babinski et al., 2001; Wasko & Faraj, 2005); providing an online member directory to establish a sense of community (Babinski et al., 2001); and clearly communicating norms and expectations for sharing knowledge (Ardichvili, 2008; Nonnecke, Andrews, & Preece, 2006). Note that these examples are general practices, whereas this study examines practices at a greater level of specificity.

Sustain

To sustain is to provide ongoing support or nourishment. In addition to providing a fertile environment for knowledge sharing and the development of trust, online communities also require continuous “care and feeding.” Wenger et al. (2002) note that, “you cannot pull the stem, leaves, or petals to make a plant grow faster or taller. However, you can do much to encourage healthy plants: till the soil, ensure they have enough nutrients, supply water, secure the right amount of sun exposure, and protect them from pests and weeds” (p. 12-13). While moderators can open the doors to conversation, it is the circumstances, activities and aspirations of its members that determine whether the community will thrive (Wenger, et al., 2009). The general practices and processes that sustain knowledge sharing and trust might include, but are not limited to: sending weekly community activity updates to members; sending e-mails to individual members of the community (Gairín-Sallán,
Rodríguez-Gómez, & Armengol-Asparó, 2010); developing strategies that help to build an individual’s reputation in the profession (Wasko & Faraj, 2005); making members feel unique (Beenen et al., 2004); and using methods to strengthen teachers’ self-esteem and support teachers’ confidence (Hur & Brush, 2009). Again, these examples are general practices whereas this study examines practices at a greater level of specificity.

**Moderator**

The moderator of a community acts as a host and facilitator of communication for the community. In some communities there are multiple moderators. In most cases, the moderators for a community are identified as such on the main page of the community website. The moderator’s role typically involves four functions: organizational, social, intellectual, and technological (Gairín-Sallán et al., 2010). Gairín-Sallán et al. (2010) further describe the four functions in the following way: (1) the *organizational function* involves coordinating and managing the work of the group; (2) the *social function* entails creating a pleasant and friendly atmosphere which encourages members to become involved; (3) the *intellectual function* involves summarizing and synthesizing the work of the group as well as monitoring the relevance and quality of the contributions; (4) the *technological function* involves understanding the community platform and tools and being able to provide members with some level of technical support. Although moderators of a community are also members of the community, for simplicity hereafter, participants in the study will be referred to as either “moderators” or “members,” with “members” designating those participants who are not moderators.
Member

Members of a community are identified as people who voluntarily join and participate in the community. For the purpose of this study, membership and participation in the community is not associated with structured courses or workshops promising credit or certification.

Significance of Study

Harnessing the power of networking technologies for teacher learning and support holds great promise. Though considerable scholarly research has been conducted on face-to-face learning communities (e.g. Hipp, Huffman, Pankake, & Olivier, 2008; Louis & Marks, 1998; Tillema & Van der Westhuizen, 2006; Vescio, Ross, & Adams, 2008), research on online communities is only beginning to emerge. It is important that we root our knowledge of online communities in careful exploration and study of information-rich cases. Simply quantifying participation in online communities (e.g. number of posts, number of members) tells us little about quality of interactions among members (F. R. Lin, Lin, & Huang, 2008; Schlager et al., 2009) or the practices that encourage members’ interactions. Studies with great attention to detail, context, and nuance (Patton, 2002) are needed to unpack the practices of successful online communities and to develop a deeper understanding of knowledge sharing and trust in those communities. Exploring the common factors that facilitate knowledge sharing across multiple online communities and examining the interplay between trust and knowledge sharing can contribute to the broader knowledge base of literature on online communities. Results from this study are intended to provide scholars with evidence of practices that support knowledge sharing and the development of trust in
online communities. Further, results of the study may offer empirical data for administrators and educators who want to create and sustain online communities.

Earlier studies have identified contextual enablers and barriers to knowledge sharing in online communities (e.g. Ardichvili, 2008; Carr & Chambers, 2006; Chiu et al., 2006). Studies have also identified participants’ motives for knowledge sharing (e.g. Hew & Hara, 2007; M. J. Lin, et al., 2009). This study extends that work by examining successful online communities at a smaller grain size. For example, effective leadership is identified by the literature as an essential enabler for successful communities; however, the literature stops short of systematically identifying the precise practices of effective moderators in individual communities and further analyzing common patterns of practice across multiple communities. Similarly, the literature identifies trust as a cornerstone for successful communities; however, the literature is relatively unpopulated with empirical evidence of the precise practices of community moderators and members that serve to build and sustain trust within and across communities. Social presence is also identified as a support factor for effective knowledge sharing communities, yet there is little empirical evidence on the practices of community moderators and members that serve to create social presence within a community. Chiu et al. (2006) suggest that identifying the precise practices that facilitate knowledge sharing behavior in online communities will help both academies and practitioners gain insight into how to stimulate knowledge sharing in online communities in the future. While the motivation to share knowledge must precede knowledge sharing, it does not necessarily result in actual participation in knowledge sharing activities (Ardichvili, 2008). Studies are needed to better understand the practices that activate and sustain
knowledge sharing in online communities (Ardichvili, 2008; Chiu et al., 2006; Fang & Chiu, 2010; Hur & Brush, 2009; Hur & Hara, 2007; Ke & Hoadley, 2009; F. R. Lin et al., 2008; M. J. Lin et al., 2009; Prestridge, 2010; Wise et al., 2009; Young & Tseng, 2008). The present study systematically identifies the practices of community moderators and members that cultivate and sustain knowledge sharing and trust. It further examines common practices across divergent communities.

**Theoretical Framework**

This study is guided by Wenger’s (1998) social theory of learning and the theoretical construct of communities of practice (Lave & Wenger, 1991; Wenger, 1998). Consistent with Vygotsky’s (1978) theory of sociocultural cognitive development, Wenger’s social theory of learning emphasizes construction of knowledge through interpersonal social interactions. Wenger’s theory is based on four assumptions: (1) we are social beings; (2) knowledge is a matter of competence with respect to valued enterprises; (3) knowing is a matter of participating in the pursuit of such enterprises; and (4) meaning – our ability to experience the world and our engagement with it as meaningful – is ultimately what learning is to produce (Wenger, 1998, p. 4). Social theory of learning characterizes social participation as a process of learning and of knowing through the integration of the following four interconnected components: *meaning* (learning as experience); *practice* (learning as doing); *community* (learning as belonging); and *identity* (learning as becoming) (Wenger, 1998, p. 5).

The construct of communities of practice is based on the social theory of learning. Communities of practice (CoPs) are “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). CoPs have three defining dimensions: domain, community, and practice. Members of a CoP have a domain of shared interest, such as an interest in teaching mathematics or literacy. The shared domain provides an identity for the community and encompasses issues, challenges, and passions through which members recognize each other as learning partners (Wenger et al., 2009). The community dimension of the framework refers to members’ mutual engagement in their practice. Members’ mutual engagement defines the community. The practice dimension of the community encompasses the ongoing activities and techniques that members engage in, as well as the explicit and tacit knowledge they possess. In other words, the practice involves both acting and knowing. Through their practice, members of the community develop a shared repertoire of resources, such as stories, experiences, and ways of addressing challenges (Wenger et al., 2009).

This theoretical framework was chosen as a lens for examining online communities because of its relevance to the study of the informal and social aspects of creating and sharing professional knowledge. Central to the communities of practice framework is the process of “legitimate peripheral participation” whereby less experienced members of the community learn through social interactions with more experienced members and experts of a specific knowledge domain (Lave & Wenger, 1991). These ideas are particularly salient in examining the generation and dissemination of both explicit and tacit knowledge within an online community. For example, of interest in this study is how specific knowledge-sharing practices and the development of trust may serve to move members who may be legitimately
lurking on the periphery of a online community to more central roles where they are actively engaged in knowledge sharing.

**Overview of Approach**

A qualitative case study approach with a multiple-case design (Yin, 2009) is used for this study. The purpose of the research is to contribute to our fundamental knowledge of how knowledge sharing and trust are built and sustained in online communities. The decision to select qualitative research methodology is driven by the nature of the research questions. Qualitative methods are particularly appropriate for research questions that are focused more on process than product (Merriam, 2002; Yin, 2009). The research questions of this study are primarily aimed at explaining how specific practices can advance knowledge sharing and the development of trust. The questions are framed to seek an in-depth understanding of a complex social phenomenon over which the researcher has little control (Merriam, 2002; Yin, 2009), examining that phenomenon “in great depth with careful attention to detail, context, and nuance” (Patton, 2002, p. 227). The case study method suitably enables the researcher to retain the holistic and meaningful characteristics of this real-life experience (Yin, 2009). The case study methodology set forth in Yin’s (2009) *Case Study Research: Design and Methods* was used to guide the design of this study.

**Organization of the Study**

Chapter 1, Introduction, provides an overview of the study, including the study’s purpose, definitions of key terms, significance of the study, theoretical perspective, and a brief description of the methodological approach to the study. Chapter 2, Literature Review,
situates the study in existing relevant and scholarly literature. Chapter 3, Methodology, provides a rationale for the research genre guiding the study and explains the research procedures put forth to address each of the research questions. Chapter 4, Findings, presents the findings from each individual case as well as a cross-case synthesis of findings. Chapter 5, Discussion, expands on particularly salient findings from Chapter 4, tying them to current theoretical and empirical research literature. Further, Chapter 5 offers implications for practitioners and suggests directions for future research.
CHAPTER 2: LITERATURE REVIEW

Online learning communities have been studied in various contexts, for different purposes, and through a range of disciplines. In their review of research on online communities, Iriberri and Gondy (2009) found that research on online communities grew in waves. Sociologists compared online communities with face-to-face communities. They examined social relationships in online communities and issues of trust and reciprocity. Psychologists examined individuals’ participation in online communities and the connection between participation and feelings of belonging, safety, and attachment to the group. Management researchers analyzed the value of online communities to business organizations, while information systems researchers examined the technological platforms for supporting online communities. Based on the supposition that online communities can provide a form of ongoing professional learning, this study examines online communities from an education perspective. While communities cannot be mandated by decree (Wenger, 1998) or designed a priori (Barab et al., 2003), they can be supported, encouraged, and nurtured (Wenger, 1998). This study closely examines common practices that cultivate knowledge sharing and the development of trust across three successful online communities for teachers. The following research questions frame the study:

1. How is knowledge sharing cultivated in online learning communities for K-12 educators?
2. How is knowledge sharing sustained in online learning communities for K-12 educators?
3. How is trust cultivated in online learning communities for K-12 educators?
How is trust sustained in online learning communities for K-12 educators?

The purpose of this literature review is to provide a qualitative review and synthesis of the existing literature on knowledge sharing and trust in online communities. The literature review is framed by the study’s research questions and undergirded by the study’s theoretical framework. It begins with an overview of studies that have examined knowledge sharing and/or trust in online communities. The overview is followed by a discussion of key issues related to knowledge sharing and trust in online communities. Following the examination and synthesis of key issues is rationalization for both the scholarly significance of the research problem as well as the practical significance of the research problem.

Literature Search

For this literature review, high-quality empirically-based research studies of online communities that specifically examined knowledge sharing and/or trust within the community were identified. An empirically-based study is defined as “any study that had a systematic data collection plan (qualitative or quantitative) that was created to answer specific research/evaluation questions that were established a priori” (Lawless & Pellegrino, 2007, p. 584). A study is considered to be of high quality “if its research design and analytic strategy were appropriate to the topic under study, its methodology was applied in a careful manner, its focus was relevant to the research questions, and its interpretation was well-supported” (Guarino, Santibanez, & Daley, 2006, p. 178).

First, a broad literature search on online communities was conducted using the following electronic databases: Academic Search Premier, PsychINFO, ERIC, JSTOR, and Google Scholar. The following key words and phrases were used singularly and in
combination: *online community, online learning community, virtual community, virtual learning community, knowledge sharing,* and *trust.* The search was limited to peer-reviewed journals from the past 15 years. Published scholarly reviews of literature found through initial search strategies were used to identify additional studies, as were the reference lists of key studies. Related unpublished dissertations were searched in an effort to glean studies that might have been missed by other search strategies. The combined results of all searches yielded roughly 800 studies.

The abstracts of identified studies were then reviewed to determine their relevance to the current study. Studies that were insufficiently relevant to the research questions for this review were eliminated. Studies of health-related support groups were eliminated because knowledge sharing in these online communities is typically not related to professional growth. Studies of online communities involving K-12 students and studies of online communities that formed during formal post-secondary courses were eliminated due to the fact that knowledge sharing is generally required rather than voluntary. Online communities composed of students in a class are distinctly different from online communities where participants are drawn together by a common interest and participate voluntarily (Ridings, Gefen, & Arinze, 2002). Many of the studies were of initial interest but upon closer inspection did not meet the aforementioned criteria of being high-quality and empirically-based. Some studies claimed to be empirically-based yet failed to adequately describe or support the analyses performed. Given the limited research on online communities for K-12 educators, studies of online communities outside the field of education were included in the review. Ultimately, 44 studies were reviewed to provide an overview of literature related to
knowledge sharing and trust in online communities. The 44 studies included in this review are outlined in Appendix A.

This group of studies is by no means exhaustive; however, I believe that, collectively, it represents the recent empirical research on knowledge sharing and trust in online communities. My process for reviewing and synthesizing data from the studies is an act of interpretation. As such, my articulation of factors related to knowledge sharing and the development of trust in online communities may be subject to misinterpretation.

**Literature Synthesis**

**Overview of Literature**

Of the 44 studies reviewed, 22 studies are from the field of education and 22 studies are from other fields, primarily information science and technology, or business and management. Though all of the online communities examined in the studies were based on voluntary participation, there was a marked diversity in the purposes, goals, and size of the communities. The purpose of the communities varied from providing ongoing support for mathematics and science teachers; to providing a knowledge sharing community for IT specialists; to connecting members of corporate global learning communities; to enabling coordinators of remote learning councils in Canada to connect and learn as a community. The size of the communities ranged from 12 members to over 80,000 members. Most studies sought to understand factors related to the success of the communities, with success generally being defined by the extent of knowledge sharing that occurred in the community. The studies varied in duration, data collection, and analysis of findings. They were undertaken with varying degrees of rigor and reported with a range of scholarship. The predominant
methodology used among the 44 studies was case study analysis, with 21 studies taking a qualitative case study approach. Fourteen studies used quantitative methods and nine studies used mixed methods. Multiple data collection methods and data sources were used, the most common being semi-structured interviews, collection and analysis of online posts, and survey questionnaires. Key issues addressed by the research centered on: motivations for online knowledge sharing; support factors for online knowledge sharing; barriers to online knowledge sharing; the importance of trust in online knowledge sharing; and unique challenges of online communities related to trust and knowledge sharing.

**Individual Motivations for Knowledge Sharing**

Motivation to share knowledge must precede the act of knowledge sharing. What motivates members of an online community to share or not to share knowledge with other members of the community? Of the 44 studies reviewed, 10 studies specifically examined motivations for knowledge sharing. Five of the ten studies focused on a single community; the other five studies examined trends in motivations to share knowledge across three different communities.

Hew and Hara (2007), drawing on the work of Batson, Ahmad, and Tsang (2002), identified four broad classes of community involvement motives that may help to explain why individuals are willing to exchange knowledge in an online community: (1) egoism (increase one’s own personal benefit); (2) altruism (increase the welfare of one or more individuals other than oneself); (3) collectivism (increase the welfare of the group); and (4) principlism (uphold some moral principle, such as justice or reciprocity). These classes of community motives provide a useful framework for examining findings from studies on
online communities that examined motivations for knowledge sharing. Table 1 provides a summary of the studies in which each type of motive was identified.

Table 1

*Motives for Knowledge Sharing*

<table>
<thead>
<tr>
<th>Motive Category</th>
<th>Studies in which motive was identified</th>
<th>Examples of motive</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Egoism</strong></td>
<td>Ardichvilli, Page, &amp; Wentling (2003)</td>
<td>Offset isolation of work environment; acquire new skills; seek feedback or advice; enhance professional reputation.</td>
</tr>
<tr>
<td></td>
<td>Duncan-Howell (2010)</td>
<td></td>
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<tr>
<td></td>
<td>Gray (2004)</td>
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<tr>
<td></td>
<td>Hew &amp; Hara (2007)</td>
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<tr>
<td></td>
<td>Hur &amp; Brush (2007)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lin, Hun, &amp; Chen (2009)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wasko &amp; Faraj (2005)</td>
<td></td>
</tr>
<tr>
<td><strong>Altruism</strong></td>
<td>Chiu, Hsu, &amp; Wang (2006)</td>
<td>Provide emotional support to new teachers; help less-experienced peers; derive enjoyment from helping others</td>
</tr>
<tr>
<td></td>
<td>Fang &amp; Chiu (2010)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gray (2004)</td>
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</tr>
<tr>
<td></td>
<td>Hew &amp; Hara (2007)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yu, Lu, &amp; Liu (2010)</td>
<td></td>
</tr>
<tr>
<td><strong>Collectivism</strong></td>
<td>Chiu, Hsu, &amp; Wang (2006)</td>
<td>Advance a particular field (e.g. literacy); develop a collective identity.</td>
</tr>
<tr>
<td></td>
<td>Gray (2004)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hew &amp; Hara (2007)</td>
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</tr>
<tr>
<td></td>
<td>Yu, Lu, &amp; Liu (2010)</td>
<td></td>
</tr>
<tr>
<td><strong>Principlism</strong></td>
<td>Ardichvilli, Page, &amp; Wentling (2003)</td>
<td>Reciprocate knowledge or advice offered by the community.</td>
</tr>
<tr>
<td></td>
<td>Fang &amp; Chiu (2010)</td>
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<tr>
<td></td>
<td>Gray (2004)</td>
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<td>Yu, Lu, &amp; Liu (2010)</td>
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</table>

*Egoistic motives.* Findings from the research reveal that egoistic motives are a primary driver for knowledge sharing in online communities. Gray (2004) studied the
experiences of 43 coordinators of Alberta Community Adult Learning Councils who participated in an online community of practice designed to provide support for their work. Analysis of interview data from this qualitative study indicate that coordinators were initially motivated to participate in the online community to offset the isolation of their work environment. Over time, the coordinators additionally looked to the community as a valuable work resource. They were motivated to engage in knowledge sharing by a desire to acquire new skills and develop a better understanding of the values, beliefs, and viewpoints of the practice. In a quantitative study of online communities for teachers, Duncan-Howell (2010) used an online survey (N = 98) to learn more about the professional development experiences, attitudes, and skills of online community members. Data was gathered from teachers in three different communities, including: (1) a community focused on implementing information and communication technologies in the classroom; (2) a general community focused on pedagogical and professional issues of K-12 teachers; and (3) a community for English teachers. Consistent with Gray’s findings, Duncan-Howell found that teachers were motivated to participate in an online knowledge sharing community as a way of reducing feelings of disconnectedness, isolation, and aloneness. As well, teachers liked the immediacy of the learning in an environment where they could quickly receive responses or solutions to their questions about teaching or learning.

Hew and Hara (2007) and Hur and Brush (2009) were also interested in teachers’ motivations for participating in online knowledge-sharing communities. In a qualitative case study of one online community for teachers, Hew and Hara (2007) sought to understand knowledge flow among teachers. Through online observations and semi-structured
interviews (N = 20) they examined the types of knowledge shared by the teachers, as well as the motivations and barriers to knowledge sharing. Among the motives for knowledge sharing identified by Hew and Hara (2007) were reasons of personal gain, such as gaining a better understanding of the subject being discussed or gaining emotional support. In a qualitative case study of three different online communities for teachers, Hur and Brush (2009) used analysis of online posts and interviews with teachers (N = 20) to examine teachers’ motivations for knowledge sharing. Consistent with findings from the aforementioned studies, they found that knowledge exchange was driven by several egoistic motives: the need to share both positive and negative emotions, the need for advice or support from teachers outside their school, a desire to explore new ideas, as well as a desire to experience a sense of camaraderie and combat isolation.

Egoistic motives for knowledge contribution can also include the desire to enhance one’s professional reputation (Ardichvili et al., 2003; Wasko & Faraj, 2005). In a mixed methods study of motivators for knowledge contribution in online communities, Wasko and Faraj (2005) used archival, network, and content analysis data, as well as survey data (N = 173), to better understand why individuals participating in a closed community of roughly 7,000 legal professionals help strangers by providing advice or sharing information when there is no immediate benefit to the contributor. They found that members were primarily motivated to contribute knowledge when they perceived that participation would enhance their professional reputation. Ardichvili et al.’s (2003) qualitative study of motivation and barriers to employee participation in online knowledge-sharing communities at three different large corporations similarly identified self-based reasons for members contributing
to an online community. Analysis of interview data (N = 30) revealed that members felt the need to establish themselves professionally by gaining formal expert status, or gaining informal recognition through multiple postings.

**Altruistic motives.** Altruistic motives for knowledge sharing in online communities often stemmed from feelings of empathy. In Gray’s (2004) study of an OLC for Alberta Learning Council members and Hew and Hara’s (2007) study of an OLC for teachers, findings revealed that members of online communities for teachers empathized with their less-experienced peers and viewed their knowledge-sharing contributions to the communities as an altruistic way of helping out and providing support. In a quantitative study of a corporate online community, Chiu, Hsu, and Wang (2006) examined the motivations behind members’ knowledge sharing. Analysis of survey results (N = 310) revealed that community-related outcome expectations play an important role underlying knowledge sharing, while personal outcome expectations had an insignificant effect on knowledge sharing. Community-related outcome expectations refer to a knowledge contributor’s judgment of likely consequences that his or her knowledge sharing behavior will produce value to one or more members of a online community, suggesting both altruistic and collective motives. In a quantitative study designed to examine knowledge sharing among members of a large IT-oriented OLC, Fang and Chiu (2010) hypothesized that altruism and conscientiousness are positively associated with knowledge-sharing continuance intentions. Conscientiousness refers to the voluntary actions that include effort or time spent beyond the average to enhance the quality of knowledge sharing and adherence to regulations (Fang & Chiu, 2010). To test their hypotheses, Fang and Chiu surveyed 142 members of a online community. They found
that altruism and conscientiousness have significant effects on online community members’ knowledge sharing continuance intentions. Yu, Lu, and Liu (2010) also explored voluntary knowledge sharing in an online community. Through analysis of survey data (N = 442) from three different communities, Yu, Lu, and Liu found that enjoyment related to helping others significantly impacted knowledge sharing behavior, also highlighting altruism as a key motivator.

**Collective motives.** Evidence of collective motives among teachers participating in online communities can be found in the studies of Gray (2004) and Hew and Hara (2007). Gray indicates that participation in knowledge sharing helped coordinators of Alberta Learning Councils explore questions of identity. Through the telling and retelling of stories, members of the community negotiated the meaning of their work, developed their collective knowledge, and forged a group identity. Hew and Hara (2007) found that the primary motivator for literacy teachers participating in an online community was collectivism. Teachers were motivated by a desire to improve the field of literacy education. Similar evidence of collective motives can be found in online communities outside the field of education. Ardichvili et al. (2003) found that members of corporate online communities viewed their knowledge as public good and were more motivated to exchange knowledge by community interest considerations rather than narrow self-interest. In the aforementioned study by Chiu et al. (2006), collective motives were identified through the presence of community-related outcome expectations. Yu et al.’s (2010) findings also confirm that the presence of a strong knowledge sharing culture motivates individuals to contribute to the collective knowledge.
**Principlistic motives.** Evidence of principlistic motives for knowledge sharing in online communities can be found in several studies (e.g. Ardichvili et al., 2003; Fang & Chiu, 2010; Gray, 2004; Hew & Hara, 2007; Yu et al., 2010). Frequently, the principlistic motive manifested itself through the norm of reciprocity. The norm of reciprocity refers to a set of socially accepted rules regarding a transaction in which a party extending a resource to another party obligates the later to return the favor (J. B. Wu et al., 2006). Anticipated reciprocal relationships can have an effect on attitude toward knowledge sharing and the intention to share knowledge (Chiu et al., 2006). Members of a community may be motivated by a sense of professional obligation to other members of the community (Gray, 2004), or by a desire to give back to the community because they have received knowledge from the community (Ardichvili et al., 2003; Hew & Hara, 2007; Yu et al., 2010). Frequently, members of a community believe that, in principle, it is only fair to help others if they themselves have received help from the community (Yu et al., 2010). While the aforementioned studies found reciprocity to be a strong motivator for knowledge sharing, two studies (M. J. Lin et al., 2009; Wasko & Faraj, 2005) specifically found that the norm of reciprocity did not have significant influence on knowledge sharing. Wasko and Faraj found that members of a community of legal professionals were motivated to contribute knowledge to the community even though they expected that their help would not be reciprocated. In a study of three different online communities, M. J. Lin et al. (2009) examined the ways in which the norm of reciprocity influences online community members’ willingness to share knowledge. Analysis of survey data (N = 350) revealed that the norm of reciprocity had an insignificant influence on knowledge sharing behavior. One possible explanation for this
finding is that expectations that knowledge contributions will be reciprocated may be
generalized rather than individualized (M. J. Lin et al., 2009). Generalized reciprocity occurs
when giving is reciprocated by a third party rather than the original recipient (Mathwick,
Wiertz, & De Ruyter, 2007).

In summary, research suggests that knowledge sharing in online communities is
primarily driven by egoistic motives, including the desire to gain information or resources as
well as the desire to enhance one’s professional reputation. Knowledge sharing may also be
driven by altruistic and collectivistic motives. Members of a online community often want to
help other members or advance the collective aims of their profession. Findings from the
research additionally indicate that the norm of reciprocity drives motivation to share
knowledge in online communities. Consistent with social learning theory and the
communities of practice framework, individual motives for knowledge sharing suggest that
engagement in an OLC is a highly social form of learning. While the literature clearly
identified motivations for knowledge sharing, few studies examined practices that increase or
capitalize on members’ inherent motivations to contribute knowledge.

Support Factors for Knowledge Sharing

In addition to individual motivations for sharing knowledge in an online community,
the literature identifies several support factors for knowledge exchange in online
environments. The most discussed support factors include: trust; leadership and effective
moderation; shared vision and identity; sociability and social presence; usability and
governance; network density; and the ability to lurk.
Trust. The literature is clear that trust is a key facilitating factor for knowledge sharing in successful online communities (Ardichvili, 2008; Ardichvili et al., 2003; Chiu et al., 2006; Fang & Chiu, 2010; Feng, Lazar, & Preece, 2004; Hsu et al., 2007; Jones & Preece, 2006; Ridings et al., 2002; Sharratt & Usoro, 2003; Usoro et al., 2007; J. J. Wu, Chen, & Chung, 2009; Young & Tseng, 2008). In reference to the community dimension of the CoP framework and the application of social learning theory to online communities, Wenger et al. (2009) assert that “learning together depends on the quality of relationships of trust and mutual engagement that members develop with each other” (p. 8). Given the importance of trust in knowledge-sharing online communities and its centrality to the research questions of this study, this topic will be addressed separately following the section on “Barriers to Knowledge Sharing.”

Leadership and effective moderation. Leadership, typically in the form of effective moderation or facilitation, is identified by the literature as an essential enabler for knowledge sharing in successful online communities (Babinski et al., 2001; Bourhis, Dubé, & Jacob, 2005; Farooq et al., 2007; Gairín-Sallán et al., 2010; Gareis & Nussbaum-Beach, 2007; Gray, 2004; Jones & Preece, 2006; Prestridge, 2010). As noted in the Chapter 1 definition of “moderator,” the moderator’s role typically encompasses four functions: (1) the organizational function involves coordinating and managing the work of the group; (2) the social function entails creating a pleasant and friendly atmosphere which encourages members to become involved; (3) the intellectual function involves summarizing and synthesizing the work of the group as well as monitoring the relevance and quality of the contributions; and (4) the technological function involves understanding the community
platform and tools and being able to provide members with some level of technical support (Gairín-Sallán et al., 2010).

Several of the studies reviewed specifically focused on leadership and moderation. Gairín-Sallán et al. (2010) sought to define the specific characteristics of moderation in online networks. Bourhis, Dubé, and Jacob (2005) investigated how the actions taken by the leaders of online communities influence their success. Babinski, Jones, and DeWert (2001) examined the roles of facilitators in an online support community for first-year teachers. Gray (2004) sought to understand the role played by the moderator of an online community for coordinators of Alberta Learning Councils. Other studies examined or discussed the importance of leadership and effective moderation within the context of broader issues (e.g. Farooq et al., 2007; Preece et al., 2004; Prestridge, 2010).

Overall, findings from the studies reviewed underscore the essential role of the moderator in the success of the community. The presence of a moderator who is attuned to the cultural, social, and organizational issues of a particular practice is essential for sustaining the online community over an extended period and enabling it to evolve beyond superficial interactions (Gray, 2004). Often the community moderator is the enabling linchpin for additional knowledge-sharing support factors such as trust (Ardichvili et al., 2003), sociability (Jones & Preece, 2006), and shared vision (Carr & Chambers, 2006), each of which will be discussed in later sections.

Of the studies reviewed, a recent study by Gairín-Sallán et al. (2010) is the most relevant to the research questions proposed in this study and the most productive in shedding light on practices that cultivate and sustain knowledge sharing in online communities. The
purpose of Gairín-Sallán et al.’s (2010) study was to gain a better understanding of the moderators’ role in knowledge networks. To this end, Gairín-Sallán et al. (2010) conducted a qualitative case study of three different online communities: (1) a community of faculty members from the School of Educational Sciences in Barcelona; (2) a community of elementary and secondary teachers; and (3) a community of specialists in gender-based violence working in public administration. Methods for gathering data included exploratory interviews with the institutional managers (N = 6), moderators of the three networks (N = 6), analysis of the content of the online forums, analysis of the general functioning of the networks, and two discussion groups with members of the networks (N = 10 each). Findings from the study are organized according to the previously noted moderator functions: organizational, intellectual, social, and technological. The following examples of moderator activities within each function are taken from a summary table presented in the study (Gairín-Sallán et al., 2010, p. 308):

- Example of organizational function: monitoring the relevance and quality of contributions in an effort to ensure that they meet the goals set in the network.

- Example of intellectual function: learning about and analyzing the needs of the debate to discover the hot points in the discussions.

- Example of social function: motivating and fostering a culture of shared learning by promoting cohesion within the community.

- Example of technological function: skillfully using the everyday working tools of the community platform.
The Gairín-Sallán et al. study does not consider issues of trust as a factor in knowledge sharing. Additionally, the online communities that were the focus of the Gairín-Sallán et al. study were considerably smaller (35, 42, 38) than the communities of focus in this study. It is unknown if the Gairín-Sallán et al. findings related to the moderator’s role in small communities are applicable to larger communities. While findings from the study are very useful in informing this study, they remain at a slightly larger grain size than the practices this study seeks to examine.

In their study of eight varied online communities, Bourhis et al. (2005) investigated how the actions taken by leaders of online communities influence the community’s success. Analysis of field notes and responses to an online questionnaire (N = 106) show that the leader of a OLC has an important influence on its success. Findings further revealed that the most successful communities had very involved leaders who possessed the ability to build alliances, foster trust, and find innovative ways to encourage participation. Though this study provides compelling evidence to establish leadership as a key support factor for successful communities, it stops short of identifying the precise practices that leaders across the eight communities used to build alliances, foster trust, and encourage participation. Further, it fails to note the size of each of the eight communities studied, thus weakening its external validity.

Babinski, Jones, and DeWert’s (2001) study of an OLC for first year teachers also examined the role of the moderator. While findings from the study mention general practices of the moderator (e.g. offering advice, asking clarifying questions, and introducing broader
issues), findings from this study shed little light on specific practices used by the moderator to cultivate and sustain knowledge sharing.

Research suggests that while effective moderating strategies can help to sustain an OLC through the anticipated ebbs and flows of interactivity (Gray, 2004), if done diligently, moderation can be very time-consuming, (Preece, 2000). The amount of time a leader devotes to the community is crucial to the success of the community: “it takes time to sell the online community’s objectives to the participants, to closely follow the community, to make timely interventions, to develop innovative ideas, and to stimulate and encourage participation” (Bourhis et al., 2005, p. 32). Moderation is essentially a labor of love that may take many hours every day (Preece, 2000).

The time a moderator devotes to moderating the community is important, but time alone will not lead to effective moderation. Being a good moderator requires skill and expertise (Bourhis et al., 2005; Gairín-Sallán et al., 2010; Gray, 2004; Jones & Preece, 2006; Preece, 2000). Bourhis et al. (2005) found that selecting a leader based on his/her personality, enthusiasm, and skills was also important for the success of the community. Key characteristics of effective moderators include sufficient knowledge of the practice itself to demonstrate credibility (Gray, 2004; Jones & Preece, 2006); technical competence and the ability to teach members how to use the technology in an effective manner (Bourhis et al., 2005; Gray, 2004); an understanding of how to build community and develop social connections (Gray, 2004); creativity and intuition, the capacity to create socially-constructed meaning and to reinvent it contextually (Gairín-Sallán et al., 2010); an orientation toward life-long learning (Gairín-Sallán et al., 2010; Gray, 2004); and the ability to foster trust and
to find innovative ways to encourage participation (Bourhis et al., 2005). One study, Bourhis et al. (2005) asserted that these characteristics must be nurtured and developed; therefore initial training of moderators followed by a supervised training period is crucial. Despite the noted importance of prior experience and skills for effective moderation, beyond this one study, few findings from the literature on strategies for nurturing and supporting the training of effective moderation emerged. Further, no studies examined the ways in which the role of the moderator changes when a community grows.

**Shared vision.** A shared vision embodies the purpose and collective goals of a learning community. An important support factor for encouraging the evolution of successful online communities is establishing a clear purpose for the community and making sure the purpose is well understood by the community members (Carr & Chambers, 2006; Jones & Preece, 2006). A shared vision is essential for supporting meaningful conversations online (Wise et al., 2009) and is positively associated with knowledge sharing in online professional communities (Chiu et al., 2006). Jones and Preece’s (2006) qualitative case study of two different online communities revealed that a shared vision and collective identity were crucial to successful exchange of knowledge within the community. The findings suggest that selective recruitment of members may support the development of a shared vision. Jones and Preece (2006) indicated that members of the community were specifically invited to join the community based on their shared academic practice, thus “everyone knows why they are there and everyone has similar experiences and a shared language with which to express ideas and voice opinions” (Jones & Preece, 2006, p. 133). In the study of a online community for coordinators of Alberta Learning Councils, Gray (2004) found that the collective identity
forged through the ongoing sharing of stories contributed to the willingness of members to share knowledge of their practice.

**Member roles.** Although learning in an online community occurs in the social context of a group, members of a community participate in different ways, engage for different purposes, and play different roles (Wenger et al., 2009). In addition to a collective identity, the literature intimates the importance of supporting members’ individual identity. Beenen et al. (2004) used social psychological theories as a lens for examining members’ motivations to contribute to an online community of over 80,000 members. Analyzing data from an online experiment (N = 830), they found that recognizing members’ unique roles in the community encouraged them to contribute more to the community in general, and especially to contribute in the domain where they were made to feel unique. Conversely, role ambiguity within an online community tends to diminish knowledge sharing (F. R. Lin, Lin, & Huang, 2008). In a study to analyze online behaviors and roles in learning communities, Yeh (2010) found that the most common roles assumed by members of online communities are “information providers, opinion providers, and trouble-makers” (p. 149). Few studies closely examined unofficial roles members play in online communities and how those roles influence knowledge sharing and the development of trust. Also unanswered by the literature is how the characteristics of influential members of a community differ from the characteristics of members who are simply active within the community.

**Sociability and social presence.** Sociability is concerned with the social interactions that community members have with each other via computing technology (Jones & Preece, 2006). Consistent with the tenets of social theory of learning, sociability involves the people
(identities), purposes (domains and tasks), and policies (norms and rules) of online communities (Jones & Preece, 2006). Based on their extensive analysis of the design process for building an online community of practice for teachers, Barab et al. (2003) assert that designers must explicitly acknowledge sociability issues in creating online communities. A key component of sociability is social presence (Preece, 2000). Social presence can be defined as the degree to which participants in online communication feel affectively connected to one to another (Swan & Shih, 2005). Social presence can critically influence interactions among members of an online community (Preece, 2000; Ridings et al., 2002), and in turn, is vital to knowledge sharing (Prestridge, 2010). In a mixed methods study of an OLC for teachers (N = 16), Prestridge (2010) found that increased levels of social presence augment the level of meaningful interaction and purposeful dialogue that occurs online, while decreased levels of social presence inhibit critical discussion. Findings from Gairín-Sallán et al.’s (2010) study suggest that the moderator of the community plays an important role in establishing social presence. While the literature indicates that social presence is a key support factor for knowledge sharing, specific practices that create and sustain social presence could not be readily identified in the reviewed literature.

**Usability and governance.** The usability of a online community is concerned with the features and functions that enable users to interact successfully with technology across the human-computer interface (Jones & Preece, 2006). Usable community software is a key enabler for knowledge sharing in online communities (Ardichvili, 2008; Barab et al., 2003; Farooq et al., 2007; Jones & Preece, 2006; H.-F. Lin, 2006; Preece, 2000). The essential software components must include: architecture for the information that supports the
community; tools for searching the information and navigating through it; design of dialogue format; and access (Jones & Preece, 2006). To be successful, online communities must also develop governance structures that include policies for membership, etiquette, privacy, as well as informal norms of behavior (Beenen et al., 2004; J. J. Wu et al., 2009). Policies typically vary from tacit assumptions and rituals to formal protocols, rules, and laws that guide people’s interactions (Preece, 2000).

**Network density.** Wasko and Faraj (2005) suggest that the connections between individuals are important predictors of collective action within a community. Wasko and Faraj examined structural capital in online communities, hypothesizing that dense networks with a large proportion of direct ties between members would be more likely to sustain collective action or participation. They proposed that the more individuals are in regular contact with each other, the more they are likely to develop “habits of cooperation.” Additionally, they suggest that individuals who are centrally embedded in the community have a relatively high proportion of direct ties to other members and are more likely to have developed the so-called habits of cooperation. Analysis of survey results indeed indicated that individuals who are central to the network and connected to a large number of others are more likely to sustain contributions to the collective. This finding indicates that the development of a critical mass of active participants who are connected in multiple ways is important for sustaining online communities. (Wasko & Faraj, 2005).

**Lurking.** An interesting question raised by the literature is whether or not lurking is a support factor for knowledge sharing or a barrier to knowledge sharing. A lurker is defined as “someone who has never posted in the community to which he/she belongs” (Preece et al.,
inhibit engagement in critical discussion. Included among the deterrents were opportunities for members to ‘lurk’ or disengage at any given time. Preece, Nonnecke, and Andrews (2004) suggest that lurking may or may not be a problem depending on the perspective from which this behavior is being judged and the goals of those making the judgment: “If there is little or no message posting in a community, then lurking is a problem. No one wants to be part of a conversation where no one says anything. Such online communities cannot survive because there is so much happening on the Internet that people do not return to silent communities” (Preece et al., 2004, p. 203). On the other hand, in vibrant, active communities, Preece et al. (2004) argue that lurking is not a problem and should not be considered deviant behavior. Consistent with this suggestion, Gray (2004) noted that newcomers to the online community of Alberta Learning Council coordinators spoke of the value of logging in to the community to read and learn without feeling obligated to post. From a community of practice perspective, Wenger et al. (2009) assert that lurking is a form of “legitimate peripheral participation” and, as such, a crucial process by which a community can offer learning opportunities. Bishop (2007) found that one way of encouraging lurkers to become more engaged in the community is for “regulars, leaders, and elders” to openly nurture new members in the community so that lurkers can see that those who are new to a community are treated well. Seeing that new users have their posts responded to in a constructive way may persuade lurkers to become more actively involved.
Barriers to Knowledge Sharing

Ardichvili (2008) suggests that the challenge in enabling online communities is not so much that of creating them by administrative decree, but that of removing barriers for individuals’ participation. Motivation to contribute knowledge to a community may never result in actual participation if a participant encounters one or more known barriers to participation (Ardichvili, 2008). Many of the aforementioned studies that examined support factors for knowledge sharing also examined barriers to knowledge sharing. This literature identifies several barriers to knowledge sharing in online communities, including: lack of trust; lack of knowledge and/or confidence in knowledge; lack of time; and technological barriers.

Lack of trust. As previously noted, trust is a key facilitating factor for knowledge sharing in online communities. Likewise, lack of trust and/or distrust forms a significant barrier to knowledge sharing. Following a study on motivation and barriers to participation in online knowledge-sharing communities, Ardichvili et al. (2003) asserts that, to understand how to overcome many of the barriers to knowledge sharing in online communities, researchers must better understand the mechanisms of trust among community members and in the organizations. Following this section on barriers to knowledge sharing, trust is addressed in more detail. Issues of relational trust and institution-based trust are examined as potential barriers to knowledge sharing in online communities.

Lack of knowledge and/or confidence. Lack of knowledge and/or confidence in the accuracy of shared knowledge was frequently cited in the literature as a barrier to participation in knowledge sharing communities. Gray (2004) found that beginners in the
field were hesitant to post initially because “they felt their inexperience rendered them with ‘nothing to offer’” (p. 27). Carr and Chambers (2006) examined teachers’ participation in an online community that was developed and funded by the Australian Government as part of the National Quality of School Pilot Project. In consonance with Gray’s findings, their findings suggest that teachers’ personal reluctance to share practices was largely due to a lack of confidence. Similarly, findings from Hew and Hara’s (2007) investigation of knowledge sharing in an online community for literacy teachers and Hur and Hara’s (2007) study of an online community for elementary teachers also revealed members’ lack of confidence in the accuracy of knowledge they were putting forth was a hindrance factor for knowledge sharing. Experienced teachers were reluctant to contribute to the community for fear that younger teachers had more innovative ideas; younger teachers feared that their lack of experience made their ideas less accurate. Due to the lack of social cues in online environments, members additionally feared that their ideas or opinions would be misconstrued. In a phenomenological study of an online community for elementary and junior high school teachers, Young and Tseng (2008) examined the interplay between trust formation and knowledge practice. Findings based on interviews (N = 49) conducted over a 6-month period revealed that teachers anxieties related to the embarrassment of making a mistake formed a significant barrier to knowledge exchange.

Ardichvili, Page, and Wentling (2003) found that in many cases, a significant barrier to participation in corporate knowledge sharing communities was participants’ worry that what they post may not be important, relevant to a specific discussion, and/or completely accurate. Members did not want to let down their colleagues or mislead them. Members of
online communities were also reluctant to post because they feared criticism or ridicule of their post (Ardichvili et al., 2003). Members worried that they may receive responses belittling the significance of their contributions and feared being criticized for posting questions that deal with matters for which they should already know the answer.

Despite evidence the members’ lack of confidence was a significant barrier to knowledge sharing, the literature was relatively silent on strategies or practices for building teachers’ confidence. Hur and Brush (2009) assert that further work is needed to develop methods that strengthen teachers’ self-esteem and support teachers’ confidence in contributing to online communities.

**Lack of time.** Not surprisingly, lack of time is often cited as a barrier to participation in online communities. Hew and Hara (2007) note that knowledge sharing is not something teachers are expected to do or paid to do; therefore, there is an issue of competing priority with other responsibilities at their school. In her study, Gray (2004) found that lack of time due to competing priorities was the greatest single deterrent affecting the extent of members’ participation in the online community. Members of the community reported that having to go to the community website rather than being fed information via a push technology such as an electronic mailing list made it easy to forget to log in regularly. Additionally, dealing with the ‘tsunami’ of more pressing work made it easy to put participation on the back burner. Coordinators who logged into the community after being away for a while often felt overwhelmed by the volume of postings and reported not having time to wade through all of the posted conversations.
**Technological barriers.** Several technical barriers to knowledge sharing in online communities were identified in the literature. In Gray’s (2004) study of an online community for coordinators of Alberta Adult Learning Councils, lack of familiarity with online technologies was a barrier for coordinators’ participation in the community. Several studies (e.g. Carr & Chambers, 2006; Gray, 2004; Hur & Hara, 2007) identified lack of access to technology itself as a barrier to participation in online communities. While in some cases there was simply no access to technology, in other cases, the speed of accessing the site was slow to the point of creating a barrier to use of the community (Hur & Hara, 2007). No studies indicated specific practices designed to help members overcome technological barriers.

**Social Trust**

Trust has been an important topic of research, particularly in the areas of sociology and psychology, since the 1950s (Feng et al., 2004). Interest in social trust increasingly grew throughout the 1980s and 1990s. Based on their extensive research on issues of trust among teachers and principals in the Chicago Public Schools, Bryk and Schneider (1996) describe social trust as confidence in the reliability and integrity of individuals and social relations. Social trust involves a calculation whereby a person decides whether to engage in an action with another individual that incorporates some degree of risk (Bryk & Schneider, 1996). In consonance with Bryk and Schneider’s (1996) definition of social trust, Hoy and Tschannen-Moran (1999) define trust as a multifaceted concept that encompasses one party’s willingness to risk vulnerability based on the confidence that the later party is benevolent, reliable, competent, honest, and open. Following their review of trust literature from four decades of
research, Hoy and Tschannen-Moran (Hoy & Tschannen-Moran, 1999) describe the five facets of trust as follows: (1) *benevolence*, confidence that one’s well-being, or something one cares about will be protected and not harmed by the trusted party; (2) *reliability*, predictability, or knowing what to expect from others; (3) *competence*, trust in the skill or abilities of another; (4) *honesty*, trust in another person’s integrity, character, and authenticity; and (5) *openness*, the extent to which relevant information is not withheld.

The importance of trust in learning communities has been well established. Whether a learning community is face-to-face or online, research has shown that trust is a key facilitating factor for successful collaboration, meaningful discourse, and knowledge sharing within learning communities (e.g. Andrews & Lewis, 2002; Ardichvili et al., 2003; Bolam et al., 2005; Bryk & Schneider, 2002; Chiu et al., 2006; Clausen, Aquino, & Wideman, 2009; Hipp et al., 2008; Hsu et al., 2007; Sztajn, Hackenberg, White, & Allexsah-t-Snider, 2007; Tschannen-Moran, 2001; Usoro et al., 2007). The literature suggests that two types of social trust are particularly important in online communities: relational trust and institution-based trust. Relational trust is formed through the mutual understandings that develop in the course of sustained communications among individuals, each of whom is expected to behave in a normatively appropriate manner (Bryk & Schneider, 1996). Relational trust is sometimes referred to as interpersonal trust. Relational trust “does not develop spontaneously but must grow out of patterns of practice over time in which people learn that they can depend on each other to behave in predictable ways in high-stakes activities” (City, Elmore, Fiarman, & Teitel, 2009, p. 163). Relational trust is founded on voluntary commitments and cannot be coerced (Bryk & Schneider, 1996). Institution-based trust is based on the belief that formal
structures or mechanisms are in place that will ensure trustworthy behavior of individual members, and protect the members from negative consequences (Ardichvili et al., 2003). Trust cannot be readily “wired into” the design of online communities (Kling & Courtright, 2003).

**Trust and Knowledge Sharing as Reciprocal Processes**

Empirical evidence supports the claim that trust is influenced by the amount and quality of communication, or knowledge sharing, in a relationship (Tschannen-Moran & Hoy, 2000). Reciprocally, a significant factor in constructing a knowledge-sharing climate is building an atmosphere of trust (Tschannen-Moran, 2001). Evidence of this dynamic can be found in both face-to-face communities and in online communities. For example, in a study of face-to-face professional learning communities in the urban school district of Chicago, Illinois, Bryk et al. (1999) surveyed 5,690 teachers to better understand their work in professional learning communities. Bryk et al. found a mutually reinforcing relationship between trust and knowledge sharing in professional learning communities: as the work of professional learning communities proceeds in an atmosphere of trust and respect, trust and respect tends to deepen, thus strengthening the professional learning community. Findings from studies of online communities (e.g. Fang & Chiu, 2010; H.-F. Lin, 2006; Ridings et al., 2002; Usoro et al., 2007) have similarly established that trust and knowledge sharing are mutually reinforcing processes. Strong links between the dimensions of trust as outlined by Tschannen-Moran and Hoy (Hoy & Tschannen-Moran, 1999; Tschannen-Moran, Hoy, & Hoy, 1998; Tschannen-Moran & Hoy, 2000) and knowledge sharing in online communities can be identified in several of the reviewed studies. Table 2 provides a summary of studies in
which one or more of the five dimensions of trust were found to be reciprocally linked to knowledge sharing.

### Table 2

*Dimensions of Trust Identified in Studies*

<table>
<thead>
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<th>Dimensions of Trust</th>
<th>Studies</th>
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|                     | Fang & Chiu (20002)  
|                     | Lin (2006)  
|                     | Ridings, Gefen, & Arinze (2002)  
|                     | Usoro, Sharratt, Tsui, & Shekhar (2007)  
|                     | Young & Tseng (2009) |
| Reliability         | Farooq, Shank, Harris, Fusco, & Schlager (2007)  
|                     | Ridings, Gefen, & Arinze (2002)  
|                     | Wu, Chen, & Chung (2009) |
|                     | Fang & Chiu (20002)  
|                     | Lin (2006)  
|                     | Ridings, Gefen, & Arinze (2002)  
|                     | Usoro, Sharratt, Tsui, & Shekhar (2007) |
| Honesty (Integrity) | Ardichvilli, Page, & Wentling (2003)  
|                     | Fang & Chiu (20002)  
|                     | Lin (2006)  
|                     | Ridings, Gefen, & Arinze (2002)  
|                     | Usoro, Sharratt, Tsui, & Shekhar (2007) |
| Openness            | Ridings, Gefen, & Arinze (2002)  
|                     | Young & Tseng (2009) |

In a study of online communities of practice, Usoro et al. (2007) focused on the role of trust in knowledge sharing. They conceptualized trust across three dimensions:
competence, integrity, and benevolence, and hypothesized that one’s degree of trust in each dimension is positively related to one’s engagement in knowledge sharing. Results from an online survey (N = 120) of participants in a corporate online community show that all three trust factors significantly and positively relate to knowledge sharing in online communities.

Hsu, Ju, Yen, and Chang (2007) explored trust and knowledge sharing behaviors across 39 different online communities. In particular, Hsu et al. were interested in the relationship between identification-based trust and knowledge sharing. Identification-based trust, a form of relational trust, is defined as members’ trust due to emotional interaction among participants in an online community. Identification-based trust develops as people make emotional investments in relationships, express genuine care and concern for others, and believe that these sentiments will be reciprocated (Hsu et al., 2007). Findings from the analysis of an online survey (N = 274) suggest that trust develops in stages with the ultimate development of identification-based trust leading to successful knowledge sharing.

In a recent study, Fang and Chiu (2010) sought to understand what triggers members of an IT-oriented online community to voluntarily and continuously contribute knowledge to community. Findings from the analysis of survey results (N = 142) established that altruism and conscientiousness are important facilitators of knowledge sharing continuance intentions. Further, an individual’s beliefs in other members’ competence, integrity, and benevolence increase the individuals helping behaviors and willingness to share knowledge, thus highlighting the reciprocal relationship between trust and knowledge sharing.

While the three studies cited above (Usoro et al. 2007; Hsu et al. 2007; and Fang & Chiu, 2010) establish the importance of trust in knowledge sharing, the research stops short
of identifying specific practices that cultivate or sustain trust. Hints of practices that cultivate trust can be found in two additional studies: Ridings, Gefen, and Arinze (2002) and Young and Tseng (2008). Ridings et al. (2002) studied the antecedents and effects of trust in online knowledge-sharing communities. In particular, they examined how three antecedents of trust – perceived responsiveness, confiding of personal information (other members confiding their personal information), and disposition to trust – influence trust in other members’ ability, benevolence, and integrity. Results from analyses of an online survey (N = 663 participants from 36 different communities) show that members’ trust in the ability, integrity, and benevolence of others was significantly predicted by the other members’ responsiveness and confiding behavior. When posted messages in a community are responded to quickly and often, members of the community form higher levels of trust. Additionally, findings suggest that members of a community will trust others more and share more knowledge if they know something personal about the other members. In a phenomenological study of a trust formation and knowledge sharing in an online community for teachers, Young and Tseng (2008) examined the interplay between trust formation and knowledge practice. Consistent with the findings of Ridings et al. (2002), Young and Tseng’s findings indicate that confiding of personal information reinforced a sense of trust among members of the community. Trust needed to support knowledge sharing was built when teachers shared classroom experiences and openly acknowledged their limitations or lack of knowledge in certain areas. Confiding personal information is a specific practice by members of a community that leads to the development of trust and, reciprocally, knowledge sharing.
Unique Challenges of Online Environments

Although trust is positively related to knowledge sharing in both face-to-face and online communities, without the facial expressions, verbal cues, and nonverbal cues afforded in face-to-face communities, online communities face unique challenges in cultivating trust (Ridings et al., 2002). “In the online setting, the sense of social distance and the lack of social cues make it hard for people to identify with each other and to assess mutual ability, integrity, and benevolence” (Young & Tseng, 2008, p. 56). In online environments, trust becomes additionally mediated by social presence, or the degree to which participants feel affectively connected to one another (Ardichvili, 2008; Ridings et al., 2002).

Several studies explicitly examined the unique challenges of trust in online knowledge sharing communities. Feng, Lazar, and Preece (2004) asked: What causes users, who have never met their communication partners face-to-face, to trust or not to trust them online? Without the presence of face-to-face cues or previous face-to-face meetings, how do people online decide whether they trust each other? Twelve participants took part in a controlled experiment that examined online conversation patterns of participants in three different sessions. The study examined the impact of empathy on interpersonal trust in online communities. Empathic accuracy was defined as the ability to accurately infer the specific content of other people’s thoughts and feelings. Feng et al. hypothesized that empathic accuracy and the specific ways in which members of a community respond to other members’ requests have a positive effect on online interpersonal trust. Their findings confirmed that both empathic accuracy and response type have a significant influence on online interpersonal trust: members who talked in an empathically accurate and supportive
way were most trusted by other participants. Feng et al. emphasized that empathic accuracy itself does not guarantee trust: in order to win other people’s trust online, a person not only needs to correctly infer the other’s feeling, but also provide supportive response. Findings of the study are limited by the conditions of the controlled environment in which the study took place.

In a case study of the development of an online community for mathematics and science teachers, Barab, MaKinster, and Scheckler (2003) found that trust is a two-way street: not only must knowledge recipients trust knowledge providers, knowledge providers in an online community must also trust the motives of the recipient of knowledge. In a face-to-face situation, asking help from someone who is co-present affords the opportunity to read facial expression and nonverbal cues; however, when a member of a community types a message online there are the issues of: “Where will this message be dispersed? How widely will it travel? Who will see it? If it is archived, will it hinder future growth and credibility if one moves away from the currently held (and printed) opinion?” (Barab et al., 2003, p. 250). These are issues of both relational trust and institution-based trust. Carroll, Choo, Dunlap, et al. (2003) note that, in the case of online teacher communities, teachers must be able to trust that information about their personal successes and failures will not be used against them for the purposes of administrative decisions and that some level of privacy and protection will be afforded to sharing and self-study activities. In a study of trust factors influencing members of online communities in Taiwan (N = 381), J. J. Wu, Chen, and Chung (2009) found that community privacy policies significantly enhance the level of trust among online community
members. Community members perceive privacy policies as a security mechanism that contributes to information control and information security.

**Practices for Knowledge Sharing and Trust**

The literature on online communities has identified motivations for knowledge sharing in online communities, support factors for knowledge sharing, and barriers to knowledge sharing. Further, the literature has explored trust in online communities and the importance of trust for knowledge sharing. With the exception of the recent aforementioned study by Gairín-Sallán et al. (2010), noticeably missing from the literature is a systematic investigation of practices purposefully used in successful online communities to cultivate and sustain knowledge sharing and trust. A handful of studies offer suggested practices for cultivating knowledge sharing and trust in online communities in the discussion or conclusion of the study. Suggested practices for cultivating knowledge sharing and/or developing trust culled from the literature reviewed include: creating a core group of centralized individuals (Chiu et al., 2006; Wasko & Faraj, 2005); providing opportunities for face-to-face meetings (Ardichvili, 2008; Babinski et al., 2001; Wasko & Faraj, 2005); sending individual e-mails to members of the community to establish a relationship between moderator and member and encourage posting (Beenen et al., 2004; Gray, 2004); contacting lurkers in a more individualized fashion in order to encourage participation (Gairín-Sallán et al., 2010); creating a searchable directory of members (Babinski et al., 2001; Chiu et al., 2006; Feng et al., 2004); posting guidelines for netiquette (Ardichvili et al., 2003; Nonnecke et al., 2006); and posting privacy policies (J. J. Wu et al., 2009). This study seeks to extend
our knowledge of online communities by looking across three successful online communities for educators to systematically identify such practices and analyze them in greater detail.

**Significance of Study**

Online knowledge sharing is an important form of collective learning; therefore, understanding how online communities function and what leads to successful knowledge sharing in these communities is an important task for researchers and practitioners alike (Ardichvili, 2008). Despite the enthusiasm surrounding online communities, many ‘so-called’ communities more closely resemble digital ghost towns than communities (Preece et al., 2004). Studies are needed to better understand the practices that activate and sustain knowledge sharing in online communities (Chiu et al., 2006; Fang & Chiu, 2010; Hur & Brush, 2009; Hur & Hara, 2007; Ke & Hoadley, 2009; F. R. Lin et al., 2008; M. J. Lin et al., 2009; Preece et al., 2004; Prestridge, 2010; Wise et al., 2009; Young & Tseng, 2008). Chiu et al. (2006) suggest that identifying the precise practices that facilitate knowledge sharing behavior in online communities will help both academies and practitioners gain insights into how to stimulate knowledge sharing in online communities in the future.
CHAPTER 3: METHODOLOGY

Online communities facilitate knowledge sharing, the transfer of expertise and experiences, and the exchange of ideas in ways that can significantly contribute to teachers’ continual professional learning. The purpose of the study is to develop a deeper understanding of the practices of successful online learning communities. In particular, the study examines the ways in which knowledge sharing and trust are cultivated and sustained in online communities. The following research questions frame the study:

1. How is knowledge sharing cultivated in online learning communities for K-12 educators?
2. How is knowledge sharing sustained in online learning communities for K-12 educators?
3. How is trust cultivated in online learning communities for K-12 educators?
4. How is trust sustained in online learning communities for K-12 educators?

Design of the Study

Appropriateness of Approach

A qualitative case study approach with a multiple-case design (Yin, 2009) is used for this study. The study design is primarily guided by the methodology set forth in Yin’s (2009) *Case Study Research: Design and Methods*. The purpose of the research is to contribute to our fundamental knowledge of the practices of successful online communities for K-12 educators. The decision to use qualitative research methodology is driven by the nature of the research questions. Qualitative methods are particularly appropriate for research questions
that are focused more on process than product (Merriam, 2002; Yin, 2009). The research questions of this study are primarily aimed at gaining a more detailed understanding of how specific practices of a community can advance knowledge sharing and cultivate trust. The questions are framed to seek an in-depth understanding of a complex social phenomenon, the events of which the researcher has little control (Merriam, 2002; Yin, 2009), examining that phenomenon “in great depth with careful attention to detail, context, and nuance” (Patton, 2002, p. 227). The case study method suitably enables the researcher to retain the holistic and meaningful characteristics of this real-life experience (Yin, 2009).

Multiple-Case Design

This study includes three individual cases. Each case is a distinct online learning community. A multiple-case design uses replication logic, as opposed to sampling logic (Yin, 2009). With this approach, each case is carefully selected to predict similar results (Yin, 2009). According to Yin (2009), the simplest multiple-case design involves the selection of two or more cases that are believed to be literal replications. “Selecting such cases requires prior knowledge of the outcomes, with the multiple-case inquiry focusing on how and why the exemplary outcomes might have occurred and hoping for literal (or direct) replications of these conditions from case to case” (Yin, 2009, p. 59). The known “outcome” for the cases in this study is the success of the community. The number of replications needed depends on the certainty the researcher wishes to have about the results. If the theory is general, such as the one used for this study, two to three replications are sufficient for establishing certainty of results. In a multiple-case design, each individual case comprises a “whole” study. The process for conducting a multiple-case study, as detailed by Yin (2009), begins with
development of a theoretical framework. The theory can be practical or academic. A data collection protocol is then created. The first case study is undertaken; data is collected and analyzed; and a summary report is written. The conclusions detailed in each case report are then considered to be the information that must be replicated by the subsequent individual cases. Once all of the case reports are written, cross-case conclusions are drawn by examining evidence across individual cases and a cross-case report is written.

**Theoretical Propositions**

This study is guided by Wenger’s (1998) social theory of learning and the theoretical construct of communities of practice (Lave & Wenger, 1991; Wenger, 1998). Social theory of learning characterizes social participation as a process of learning and of knowing through the integration of the following four interconnected components: (1) meaning (learning as experience); (2) practice (learning as doing); (3) community (learning as belonging); and (4) identity (learning as becoming) (Wenger, 1998, p. 5). Communities of practice (CoPs) are “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). CoPs have three defining dimensions: domain, community, and practice. Based on social learning theory and the communities of practice framework, the following propositions are put forth:

- Specific practices enacted by community creators and/or moderators cultivate an environment for knowledge sharing in online communities.
- Specific ongoing practices and processes of community moderators and members sustain knowledge sharing in online communities.
• Specific practices enacted by community creators and/or moderators support the establishment of trust in online communities.

• Specific ongoing practices and processes of community moderators and members sustain the development of trust in online communities.

• Knowledge sharing and trust development are mutually reinforcing processes.

Case Selection and Participants

Process of Selection

A “snowball approach” (Patton, 2002) was initially used to identify potential cases for this study. As Patton (2002) explains, this process begins by asking well-situated people to recommend information-rich cases. The chain of recommended cases typically diverges initially as many possible sources are recommended, and then converges as a few key cases are mentioned over and over. Over the course of 14 months, I talked with several well-situated people – people knowledgeable about online communities – to seek recommendations of successful communities to study. In these conversations, metrics for success were open to the interpretation of the person with whom I was speaking but typically included number of members, level of activity, and proportion of topics directly relevant to practice. Following the initial identification of 15 communities, a refined set of operational criteria was developed whereby candidate communities were screened for inclusion as a case (Yin, 2009). The following criteria were used to screen potential cases:

• The primary purpose of the community is to increase knowledge sharing among K-12 educators.

• Participation in the community is voluntary.
• Participation is not associated with structured courses or workshops promising credit or certification.

• Membership is free.

• The community has exhibited sustained knowledge sharing for at least one year. Sustained knowledge sharing is marked by daily knowledge exchange postings.

• The community has clearly defined leadership (Dubé, Bourhis, & Jacob, 2006) with one or more moderators available to monitor and facilitate community activity.

• Participants are geographically distributed and not limited in affiliation to one school or district.

Based on these criteria, three online communities were selected for inclusion in the study. Membership in the three communities ranges from 300 members to over 20,000 members. The intention in looking at communities of varying sizes was to gain perspective on practices that are needed or not needed under different contexts to support knowledge sharing and the development of trust.

Cases

The cases selected for this study have been given pseudonyms, as have the participants in the study.

Case 1: National Education Leaders Network. The National Education Leaders Network (NELN) is the flagship community for a larger network of teacher communities created by an organization whose mission centers on teacher leadership, research, and policy. The purpose of the community is to bring accomplished educators together to work on
projects, publish their writing and action research, engage in focused online discussions with national experts, and connect with educational decision makers to advocate for best policy and practice. It is moderated by Paul Norris and includes roughly 300 members. Membership requires registration and approval by Paul Norris.

**Case 2: English Teachers’ Online Community.** The English Teachers’ Online Community (ETOC) is an online community for K-12 English teachers. It has won several national awards for effective use of social networking in education. It is described by its creator, Henry Burkhart, as “a place to ask questions and get help. A community dedicated to helping you enjoy your work. A cafe without walls or coffee: just friends.” The community includes roughly 20,000 members. Membership requires registration. Henry Burkhart is the primary moderator. There are over 200 subgroups within the community covering a variety of topics, including, for example: new teachers; teaching reading; adolescent literature; poetry; literature circles; and teaching with technology.

**Case 3: Personal Learning Network for Educators.** The Personal Learning Network for Educators (PLNE) is dedicated to the support of a personal and professional learning network for educators. It was created and is moderated by Ted Whitfield. The community includes roughly 3,500 members. Membership requires registration. There are 49 subgroups within the community covering a variety of topics, including, for example: educators on Google Wave; 21st century science educators; podcasting in the classroom; and music education.
Study Participants

The moderators for a community are identified as such on the main page of the community website. Although moderators of a community are also members of the community, for simplicity, hereafter participants in the study are referred to as either “moderators” or “members,” with “members” designating those participants who are not moderators. Purposeful sampling (Creswell, 2007; Merriam, 1997) was used to select a pool of 20 actively engaged members from each community. Purposeful sampling is based on the assumption that the researcher wants to gain deeper insight and understanding of a phenomenon. Community members who are actively engaged are more likely to have the ability to provide deeper insight about their engagement in the community than less active members. Selection of potential member participants was based on the following criteria: the member had been actively engaged in the community as evidenced by either originating or replying to at least 5 posts for the purpose of sharing professional knowledge within the two months preceding selection. The purpose of this process is not to make generalized statements about all participants; it is to create an illustrative sample (Patton, 2002). From the pool of members who indicated a willingness to participate in the study, eight members were randomly selected for individual interviews. All interviewees provided their consent to participate in the study using an NCSU IRB-approved online consent form.

Data Sources

A strength of case study data collection lies in the ability to draw from multiple sources of evidence (Yin, 2009). The use of multiple sources of evidence enables the researcher to develop converging lines of inquiry through a process of data triangulation.
(Patton, 2002; Yin, 2009). Three sources of data were used for each case study: (1) an interview with the moderator of the OLC; (2) interviews with eight community members from each OLC; and (3) community documentation.

**Interviews**

The primary source of data for the study was semi-structured interviews with community moderators and members. The purpose of the interviews was to gain multiple perspectives on the ways in which knowledge sharing and trust are cultivated in online communities. The purpose of interviewing moderators was to better understand practices they have enacted to cultivate knowledge sharing and the development of trust. Further, the purpose of the interviews with moderators was to understand how knowledge sharing and trust are sustained over time, through ebbs and flows of activity, and during periods of growth. The purpose of interviewing members of the community was to provide a source of data triangulation. For example, are the practices that cultivate knowledge sharing, as described by the moderator of the community, the same as those described by the members?

**Community Documentation**

Documentation can take many forms, including: e-mail correspondence, agendas, announcements, written reports of events, personal notes, news clippings and other articles appearing in the mass media or community newspapers, and even formal studies or evaluations of the same “case” being studied (Yin, 2009). “For case studies, the most important use of documents is to corroborate and augment evidence from other sources” (Yin, 2009, p. 103). Yin notes several strengths of documentation:
• Stable – can be reviewed repeatedly
• Unobtrusive – not created as a result of the case study
• Exact – contains exact names, references, and details of an event
• Broad coverage – long span of time, many events, and many settings (Yin, 2009, p. 102).

**Data Collection**

Data collection and data analyses for each case took place over a five-week period as outlined in Figure 1 below. Data collection for each case began with an interview with the moderator of the community followed by interviews with eight members of the community and the collection of community documentation. A total of 27 people were interviewed, including one moderator from each community and eight members from each community. Cross-case analysis took place in the two weeks following the final individual study.
<table>
<thead>
<tr>
<th>Case 1</th>
<th>Week 1: 7/5-7/11</th>
<th>Week 2: 7/12-7/18</th>
<th>Week 3: 7/19-7/26</th>
<th>Week 4: 8/16-8/22</th>
<th>Week 5: 8/23-8/29</th>
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<tr>
<td></td>
<td>Interviewed moderator.</td>
<td>Interviewed 8 community members.</td>
<td>Transcribed interview data.</td>
<td>Gathered documentation to corroborate interview findings.</td>
<td>Analyzed data Conducted member checks.</td>
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<tr>
<th>Case 2</th>
<th>Week 1: 8/30-9/5</th>
<th>Week 2: 9/6-9/12</th>
<th>Week 3: 9/13-9/19</th>
<th>Week 4: 9/20-9/26</th>
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<tr>
<th>Case 3</th>
<th>Week 1: 10/4-10/10</th>
<th>Week 2: 10/11-10/17</th>
<th>Week 3: 10/18-10/24</th>
<th>Week 4: 10/25-10/31</th>
<th>Week 5: 11/1-11/7</th>
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<tr>
<td></td>
<td>Interviewed moderator.</td>
<td>Interviewed 8 community members.</td>
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<th>Cross-Case Analysis</th>
<th>11/8-11/22</th>
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*Figure 1. Time Frame for Multiple-Case Study*
Interviews

A semi-structured interview protocol was used with community moderators and a separate semi-structured interview protocol was used with community members (see Appendix B). The moderator and member interview protocols were developed based on a review of literature on knowledge sharing and trust in online communities. Each protocol followed four lines of questioning related to the four research questions of the study. The first line of questioning centered on cultivating knowledge sharing; the second line involved sustaining knowledge sharing; the third line centered on cultivating the development of trust; and the fourth line focused on sustaining trust. The moderator interview protocol was pilot tested with Bethany Smith, Assistant Director of Learning Technologies at the College of Education at North Carolina State University, who is the moderator of an online community at the College of Education. The member interview protocol was pilot tested with Nancy Flannigan, an active community delegate from one of the communities. Further, both interview protocols were reviewed by Ross White, Associate Director for Educational Programs at LEARN NC, and Jeni Corn, Senior Research Associate at the Friday Institute for Educational Innovation and Director of Evaluation Studies. Based on the pilot tests and reviews of the interview protocols, interview questions were adjusted as needed, redundant questions were eliminated, and additional questions were added to enable clarification. For example, a definition of “knowledge sharing” was added to the interview protocol and additional optional prompts were added that I could use if the interview conversation stalled. The semi-structured nature of the interviews allowed the protocol to be further modified during the interviews in order to pursue new issues as they emerged.
Prior to the start of each case, I identified, contacted, and obtained informed consent from the moderator and members of the community who would be participating in the study. Interviewees were given the choice of using Skype, an online conferencing software, for the interviews or using the telephone. Fifteen interviewees chose Skype, while twelve interviewees preferred to be interviewed by telephone. The same interview protocol was used for the Skype interviews and the telephone interviews. Following receipt of the informed consent from each interviewee, a mutually convenient time and date for the interview was set. In accordance with the Human Subjects Review Board procedures, all interviews began with a description of the steps taken to protect the confidentiality of respondents. With the permission of the participants, the interviews were recorded for later transcription. Interviews with community moderators lasted from 1-3 hours. Interviews with members lasted from 30 minutes to 1 hour. Notes were taken during each interview to formulate new questions as the interview moved along and to further probe things that were said earlier. Following each interview, I reflected on the interview as a whole, made notes about particular details, elaborated on observations of particular interest, and made notes of evidence to look for in community documentation.

**Community Documentation**

Documentation from each online community was used to corroborate evidence from the interviews with community moderators and members. Documentation included the following sources:
• Publically accessible information on the community website, including documentation that describes the community, the community’s purpose, the community’s privacy policies, the community’s subgroups, and community events.

• E-mail announcements or newsletters sent out by the community moderator.

• Archived posts created by community members for whom I had obtained informed consent.

• General discussion forums were also considered as documentary evidence. All identifying information was stripped.

A case study database was created to house the raw data of each case study in addition to the case study reports. Digital recordings of each interview were given a code name and placed within the database. Recordings were transcribed by an experienced transcriptionist. Transcribed interviews were also given code names and included in the case study database.

**Data Analysis**

As outlined above, the three sources of data for this multiple-case study were interviews with the moderators of each community, interviews with eight members from each community, and documentation from each community. The general strategy used for data analysis followed the theoretical propositions that undergird the study (Yin, 2009). For each case, all interview data and, when feasible, community documentation was imported into ATLAS.ti, a qualitative data analysis software program. Prior to data analysis, I attended an intensive 2-day workshop at East Carolina University on how to apply ATLAS.ti to the qualitative analysis of research data.
Each interview transcript and various pieces of community documentation, such as newsletters from the community moderator, were assigned as “primary documents” within ATLAS.ti. Primary documents were then grouped into families. For example, the “Moderator” family included the transcripts of all interviews with moderators; the “Members” family included the transcripts of all interviews with members; the “Community A” family included all interview transcripts (moderator and member) and documentation from the Case 1 community. A preliminary coding scheme was established a priori based on information from the literature review. Forty-seven a priori codes were entered into the code manager. Codes were then grouped into Code Families. The coding scheme was refined and expanded as I interacted with the data. As codes were added they were placed in Code Families. Appendix C provides all of the code families created for analysis. Code families include both a priori codes and expanded codes. For example, the code family “moderator practices” includes a priori codes as well as expanded codes such as: “moderator acts as cheerleader,” “moderator intervenes/plays sheriff,” and “moderator nudges.” The data was thematically coded using the software. During coding, features of the software were used to sort and group the data in an effort to identify themes. While qualitative software can facilitate data storage, coding, comparing, and linking, “the qualitative analyst doing content analysis must still decide what things go together to form a pattern, what constitutes a theme, what to name it, and what meanings to extract from it” (Patton, 2002, p. 442).

The following example illuminates how data analysis was performed:

Research Question 1 (RQ1) asks: *How is knowledge sharing cultivated in online learning communities for K-12 educators?* The undergirding theoretical proposition is that specific
practices enacted by community creators and/or moderators encourage knowledge sharing in online communities. To address RQ1, I examined data from moderator and member interviews, as well as documentation from the community, to identify the ways in which a fertile environment for knowledge-sharing was created.

- Data source 1: Interview with moderator. Example question from moderator interview protocol: What are the written (or unwritten) rules or norms for knowledge sharing in this community? How are these conveyed to the members?
- Data source 2: Interview with members. Example question from member interview protocol: Are there expectations or norms for knowledge sharing in this community? If so, please describe.
- Data source 3: Community documentation. Guidelines for participation in community.

If evidence of clear norms and expectations were found in the data sources, the code “clear norms/expectations” was applied. The code “clear norms/expectations” belongs to the code family “Cultivating an environment for K-S.” The code “clear norms/expectations” was applied 10 times for Community A (Case 1). Based on the coded pieces of data, a preliminary theme was noted. Following this inductive analysis of the data, deductive analysis was used to compare the findings against the original proposition. Evidence suggests that by sending out “guidelines for participation” when members joined the community and by reiterating those guidelines and norms through newsletters and posts on the community site, the moderator for Community A took actions to cultivate a fertile environment for knowledge sharing. During cross-case analysis of the data, findings were examined across
communities to determine if this finding was replicated by Community B and Community C. A cross-cutting theme was revealed and added to the cross-case findings. This analysis process was applied multiple times for each research question and for each case in the study.

Following the analysis of data for each community, an individual case report was written for that community. In a multiple-case design, while each individual case comprises a “whole” study, it is the replication of conditions from case to case that ultimately establishes the results of the study. In Chapter 4, a detailed description of each individual community is followed by the cross-case findings from the study.

**Validity**

**Internal Validity**

Internal validity can be defined as how accurately an account represents participants’ realities of the social phenomena under study and is credible to them (Creswell & Miller, 2000). Validity refers not to the data, but to the inferences drawn from them (Hammersley & Atkinson, 1983). The following four strategies were used to increase the internal validity of the study: (1) triangulation; (2) member checking; (3) data saturation; and (4) reflexivity.

Triangulation uses multiple perceptions to clarify meaning, thus verifying the repeatability of an interpretation (Stake, 1995). The potential problems of validity can be addressed through triangulation of multiple sources of evidence (Yin, 2009). Different types of data provide cross-data validity checks (Patton, 2002). Evidence gathered through interviews with community moderators and members provide the primary source of data and also provide cross-data checks. Triangulation of evidence gathered from moderators and evidence gathered from members were used to illuminate the research questions and check
for consistency of findings (Patton, 2002). Additionally, community documentation was compared to data from interviews to test for consistency of results. Patton (2002) notes that while different sources of data may yield different results, understanding the inconsistencies in findings across different sources of data can be illuminating and offer deeper insights into the phenomenon under study.

Member checking involves taking the data and interpretations back to the participants in the study so that they can confirm that it is accurate with what they said or meant (Creswell & Miller, 2000). Member checks with participants were used to validate data collected through interviews. During the interview I restated, summarized, and/or paraphrased the information received from participants to ensure that what was heard was indeed correct.

Submerging or engaging oneself in the data collection phase over a long enough period of time to ensure an in-depth understanding of the phenomenon can also shore up the validity of a study (Merriam, 2002). Merriam (2002) suggests that the best rule of thumb for knowing how long one needs to observe a phenomenon or how many people need to be interviewed is that the data and emerging findings must begin to feel saturated. In gathering data from nine people within each community over the course of five months, I found that no new information was surfacing as new data was collected.

Reflexivity involves self-questioning and reflection by the researcher to understand how his or her values and interests may impinge upon research work (Patton, 2002). Throughout the process of data collection and analysis, I continually reflected on my own beliefs about knowledge. I believe that knowledge, and thus knowledge sharing, involves
more than just content knowledge or “knowledge that.” My belief that knowledge involves tacit knowledge, or “knowledge of how,” shaped the ways in which I viewed knowledge sharing among members of the online communities I studied. At the beginning of each interview with online community members, I began by sharing and discussing the conceptualization of knowledge sharing that I would be using during the interview.

**External Validity**

External validity is concerned with the generalizability of a study (Merriam, 2002). Providing thick, rich description is the primary strategy for ensuring external validity in qualitative research. Merriam (2002) suggests that the most common way of conceptualizing external validity in qualitative research is as reader generalizability: with the aid of thick, rich description, the readers themselves determine the extent to which the findings of the study can be applied to their context. “Since small, non-random samples are selected purposefully in qualitative research, it is not possible to generalize statistically. A small sample is selected precisely because the researcher wishes to understand the particular in depth, not to find out what is generally true of the many” (Merriam, 2002, p. 28). I have attempted to ensure external validity by thoroughly describing in rich detail the ways in which knowledge sharing and trust are cultivated in each of the three communities that were the focus of this study. By examining practices that support the development of knowledge sharing and trust across communities with divergent membership, I have further increased external validity. Additionally, the multi-case design helps to ensure the external validity of the study through replication logic (Yin, 2009).
**Reliability**

The reliability of a study refers to the extent to which the findings are trustworthy, or consistent with the data collected (Merriam, 2002). For qualitative studies, reliability lies in “others’ concurring that given the data collected, the results make sense – they are consistent and dependable” (Merriam, 2002, p. 27). Peer review was used to help ensure reliability in the analysis of evidence. Peer examination involves asking a colleague to review some of the raw data and assess whether the findings are plausible based on the data (Merriam, 2002). In addition to having the members of my committee act as peer reviewers, I also engaged several persons who are knowledgeable about online communities as peer reviewers. Throughout the study I created an audit trail, or “chain of evidence” (Yin, 2009) to describe how data was collected, how categories for analysis were derived, and how decisions are made (Merriam, 2002). The audit trail was kept in the form of an electronic log.

**Subjectivity Statement**

One barrier to trustworthy findings in qualitative research stems from the suspicion that the research has crafted findings according to preconceived notions and biases (Flyvbjerg, 2006; Patton, 2002; Yin, 2009). Flyvbjerg (2006) argues that, on the contrary, because of the intense observation made possible by the case study, the researcher is more likely to cast off preconceived notions and theories. He notes that “experience indicates that the case study contains a greater bias toward falsification of preconceived notions than toward verification” (p. 237). Patton (2002) points to several instances where intense observation and closeness to sources of data made key insights possible, such as: “Piaget’s closeness to his children, Freud’s proximity to and empathy with his patients, Darwin’s
closeness to nature, and even Newton’s intimate encounter with an apple. In short, closeness does not make bias and loss of perspective inevitable; distance is no guarantee of objectivity” (Patton, 2002, p. 49). In an effort to maintain subjectivity throughout the study, I continually engaged in a systemic search for alternative themes, divergent patterns, and rival explanations in the data (Patton, 2002).

Ethical Issues

Interviews and interview data

All requirements for the protection of human subjects have been met. In accordance with the guidelines of the North Carolina State Institutional Review Board, a letter of informed consent was obtained from all interview participants prior to the interview. Through informed consent, the interview participants were made aware (1) that participation was voluntary, (2) of any aspects of the research that may affect their well-being, and (3) that they were free to stop participation at any point in the study. Additionally, the names and identifying information of the interview participants were changed to protect their identities in the case narrative.

Community Documentation

Owing to the fact that most ethical guidelines for social research were established before the advent of the Internet, it is important to note a few challenges that are unique to online research (Baym & Markham, 2009; Lee, Fielding, & Blank, 2008). Some users perceive publicly accessible sites as private (Eynon, Fry, & Schroeder, 2008; Hine, 2008; Markham, 2005); however, online communities may include thousands of members, making negotiation of informed consent impractical (Hine, 2008). This challenge is related to the
publically available community documentation that was gathered. While I believe that my use of community documentation poses little risk to the members of the communities being studied, the anonymity of community members could be compromised if direct quotes from posts are used. Direct quotes could potentially be entered by someone into a search engine that would directly link the quote to the individual’s post (Eynon et al., 2008; Markham, 2005). For this reason, no direct quotes from the community discussion forums were used.

**Limitations of the Study**

Despite the steps taken to optimize study quality, there are several potential limitations of the study. First, due to the aforementioned unfeasibility of obtaining informed consent from all members of large online communities, only the interactions of nine members from each community can be analyzed in detail. The selection of a limited sample of interactions between members may restrict the potential understanding that could come from a more in-depth observation of participants’ reading and posting habits. Second, due to time and budgetary constraints, the number of communities that can be studied and the duration of each case study must be limited, possibly restricting potential understanding that could come from a more extensive study. Third, the inherent weaknesses of interviewing as a method of collecting data may limit the study. Weaknesses of interviews include: response bias; bias due to poorly articulated questions; and/or issues of reflexivity (interviewee gives what interviewer wants to hear) (Yin, 2009).
CHAPTER 4: FINDINGS

This qualitative research study was driven by a need to better understand the common practices that support and encourage knowledge sharing and the development of trust in online learning communities. A multiple case study approach was used to focus on three successful online communities. In this chapter I present the findings of the study. A detailed profile of the online communities that were the focus of the study is followed by a presentation of major themes that emerged from cross-case analysis. To generate a profile for each community, I drew from three sources: interviews with the moderator(s) of each community; interviews with eight members from each community; and documentation available on the community website. In presenting the profile for each community, I describe five aspects of the community: (1) the purpose of the community; (2) general characteristics of community members including the moderator; (3) the community’s “digital habitat” (Wenger et al., 2009); (4) fruitful ongoing opportunities for knowledge sharing within the community; and (5) evidence of trust among community members. Cross-case findings focus on commonalities in how the three communities cultivated a fertile environment for knowledge sharing and ways in which they sustained knowledge sharing. Additionally, cross-case findings describe commonalities among the three communities in cultivating and sustaining trust. The names of the community moderators and community members discussed are pseudonyms.
Case Reports

Case 1: National Education Leaders Network (NELN)

Interviews for this case took place in July-August of 2010. The pseudonyms given to the moderator and members of the community are as follows: Moderator: Paul; Members: Donna, Jonathan, Diane, Kyle, Brent, Martin, Tim, and Greta.

**Purpose.** The National Education Leaders Network (NELN) is the flagship community for a larger network of online teacher communities created by an organization whose mission centers on teacher leadership, research, and policy. The initial goal in forming the NELN community was to create opportunities for teacher leaders to collaborate, share their expertise and experiences, and access resources in ways that would strengthen their voice as practitioners in national discussions of education policy.

The community was created as an experiment, really, a “what-if.” Could we do it, and if we did it, what would we have, and what might we do with it? We didn’t know of any teacher leadership community that was nationwide, that was independent of traditional teacher organizations, and that tried to target teachers who had some reasonable evidence of accomplishment that we could identify. (Paul, moderator of the community)

In March of 2003, with grant support from a national bank, the parent organization began by inviting 200 accomplished teachers from five southeastern states to participate in a three-month series of online structured conversations. The conversations were designed to provide teachers with a feel for engaging in online dialog with other teachers who were as advanced in the field as they were and who were interested in both policy and practice. Following the series of structured conversations, teachers were asked if they would like to stay in the group
and form a more permanent community. The closed community was to be moderated by Paul and teachers would have the opportunity to discuss issues and matters of interest and importance to the group. Roughly 175 people stayed on to establish what is now known as the National Education Leaders Network. Initially created to engage members in focused conversations as a form of professional learning, in the past seven years, as members’ knowledge and expertise in educational policy has grown, the community’s orientation has expanded to include collaborative projects that enable deeper learning and refining of policy insights. Members publish their writing and action research, engage in focused online discussions with national experts, and connect with educational decision makers to advocate for best policy and practice. The community, which is still moderated by Paul, includes about 300 members.

Characteristics of community members. Members of the NELN community are highly accomplished teachers who share a passion for teaching and a desire to improve student learning by advancing the teaching profession. They include State and National Teachers of the Year, Presidential Award Winners, Milken Educators, and teachers who have earned the highest honors from their professional associations. As teacher leaders they “live” the complex educational policy issues that drive their conversations and collaborations. They are drawn to the community by a desire to deepen their knowledge and understanding of important policy issues that affect the daily lives of all teachers. Members view themselves as learning partners and report that the opportunity to examine issues of educational policy from the diverse perspectives of various members is what keeps them actively engaged.
Membership in the community is by invitation only. All members interviewed indicated that they value the closed aspect of the community and the ability to speak openly “behind closed doors.” According to members interviewed, the community environment is one of trust and mutual respect for the competence and credibility of other members. Online conversations reveal a willingness among members to take risks by asking difficult questions and putting their own thinking out there for debate and discussion. Members indicate that the small community provides an ideal place to test out ideas and get feedback before presenting them to a broader audience of educators and policy makers.

Evidence of a core group within the community could be easily identified by both contributions within the community as well as cross-referencing of members within the interviews. NELN core members are known for their different areas of expertise and for the varied roles they play within the community. NELN members characterize influential members within their group as those who have the ability to recognize a problem, analyze it, and offer solutions. NELN interviewees report that the most influential members of the community are not there to gripe or complain, they are actively publishing and engaging in discussion about elevating teacher voice and improving the quality of the profession at large. Their posts are thoughtful and thought-provoking. They further indicate that influential members’ posts reflect that they have read about the issue at hand and they support their thinking with examples, quotes or evidence from experts in the field. Influential members challenge and push the thinking of others.

As the community’s creator and sole moderator, Paul plays a central role in the community. One member described Paul as “the grease on the wheel, the person who keeps
everything running smoothly in the community.” Another member described him as the “wizard behind the curtain.” Similarly, other members of the community highlighted the importance of Paul’s leadership in keeping the community alive, healthy, and rich in content. Five out of eight members interviewed indicated that it is Paul’s behind-the-scenes support, nudging and gentle prodding that keeps them engaged as learning partners.

**Digital habitat.** In 2007, a website platform was created for NELN using Drupal, a free open-source content management system. NELN has both a public face and a private space. The public face is a website that includes current news items, a repository of resources posted by NELN Forum members, and featured blogs of NELN Forum members. The private space of the National Education Leaders Network is the actual closed community and includes the following additional features: group discussion forum, group wiki, group announcements, digital library, and member directory.

**Opportunities for knowledge sharing.** Interviews with the moderator and members of the NELN community revealed a range of opportunities for both tacit and explicit knowledge sharing within the community. The knowledge sharing opportunities described below are not the only knowledge sharing opportunities within the community but, according to interview data and analysis of online content, they are the most fruitful.

**Group discussions.** The NELN Group Discussions page provides an informal way for members to engage in ongoing discussions around educational policy issues of importance to them. Knowledge shared is dynamic and diverse, constantly changing as conversations evolve. Over the past six months, the discussion board averaged 20 new discussions threads per month with an average of 13 comments per thread.
Blogs and articles. Blogging and writing articles provides a conduit for knowledge sharing among members within the community as well as the broader education community. Within the NELN community, seven blogs by community members are featured on the public website. Bloggers receive a stipend of $2,000 per year with the expectation that they will blog at least once per week. In 2006, NELN launched a partnership with Teachers Magazine, a companion publication to Education Week. This partnership affords semi-structured opportunities for NELN members to write articles and blog. Each week, a new article written by a NELN member is featured on the Teacher Magazine site. Additionally, two NELN Forum members are featured bloggers for Teacher Magazine.

Book reviews. Each year, NELN Forum members have an opportunity to participate in the Annual Summer Book Giveaway. Publishers are invited to send review copies of their latest professional books and an annotated list of the books is posted in the community discussion forum. Members are invited to select, read, and review books that intrigue them. Members keep the books and reviews are added to the website resources database. The book reviews may also appear in the NELN Teacher Voices blog.

Newsletter. NELN Newsletter is posted in the general discussion forum twice a month. Each edition typically includes around 30 news blurbs. The upbeat newsletter touts members’ recent articles, blogs, and book reviews and provides news and highlights about members’ professional lives and activity. News items are enhanced with photos, cartoons, and pictures. All members interviewed mentioned the newsletter as an important source for knowledge sharing. Over the past 6 months, the monthly newsletter has generated an average
of 47 comments per newsletter by members of the community, 30% of which are posted by unique members.

**Webinars.** Occasionally webinars are hosted within the community. Webinars typically feature national thought-leaders in the field of education policy. Members are often invited to submit questions for the speaker prior to the webinar event.

**Collaborative projects with a deliverable.** Of all of the knowledge sharing opportunities available to NELN members, the opportunity to participate in focus groups and co-author a white paper or a book on a particular pressing policy issue is the most formal and structured. NELN’s parent organization assembles teams of accomplished educators from across the nation to study important education policy issues in depth and publish their unique solutions and policy recommendations. Focus group participants engage in a series of webinars in which they have the opportunity to consider and discuss the issue at hand from a variety of perspectives. Participants receive a stipend for their participation in the focus group and their contribution to the writing of the white paper or book. Funding is provided by outside foundations.

**Trust.** Trust among members of the NELN community was strong. All members interviewed indicated a willingness to risk vulnerability based on the belief that fellow community members are benevolent and competent. Members indicated that the closed community of like-minded, accomplished teachers increased their confidence that what was said in the community would stay in the community. While they understood that some things said in the community could potentially cause someone to lose their job, trust in the integrity of fellow members increased their willingness to take calculated risks for the benefit of
sharing and learning in a professional collegial environment. Members of the community said that the invitation process for joining the community not only provided an indication of the credibility and competence of members who were being recruited, it subsequently raised the level and expectations for discussion. Martin’s comment about the closed aspect of the community echoed that of other members: “You don’t want to sound like NELN is an elitist group or anything like that, but I do think the fact that it is a closed community where people are invited to attend, where each person has done something to distinguish themselves, you know people are committed at some level. The closed aspect does give it a higher level of discussion.”

**Case 2: English Teachers’ Online Community (ETOC)**

Interviews for this case report took place in August - September of 2010. The pseudonyms given to the moderator and members of the community are as follows:

Moderator: Henry; Members: Hank, Sadie, Erika, Ming, Nora, Charles, Leah, and Chase.

**Purpose.** The English Teachers’ Online Community (ETOC) is an online community for K-12 English teachers. It is described by its creator, Henry Burkhart, as “a place to ask questions and get help. A community dedicated to helping you enjoy your work. A cafe without walls or coffee: just friends.” The English Teachers’ Online Community was initially created to provide a online professional community for new English teachers. Henry had just returned from the 2008 National Council of Teachers of English (NCTE) convention where he had seen firsthand just how few new teachers were actually at the convention and how few new teachers were joining the “professional conversation.” In an effort to address this problem, he decided to experiment with creating an online community. What began in
December of 2008 as one experienced teacher’s quest to support new teachers and engage them in the professional conversation of English teachers, has grown into a successful international learning community of over 20,000 members.

**Characteristics of community members.** Members of the ETOC include both experienced and new English teachers; student teachers; and others who support English teachers including curriculum supervisors, administrators, publishers, editors, and professors. Members embrace a shared passion for teaching English. New teachers value the care, understanding, and support that more experienced teachers offer. Experienced teachers appreciate the chance to help new teachers through informal mentoring and encouragement. All of the members interviewed indicated that it is the camaraderie that keeps them coming back to the community: “It’s one of the few places in the world where you can go on a Saturday night and find other people grading papers” (Leah). When member interviewees were asked how they would describe influential members in the ETOC community, they said these members are: consistent, persistent, active, and generous. They are also the ones who think consciously about moving the conversation forward.

Henry is the primary moderator for the community. One member likened his role to that of “a shepherd in the ways that he takes care of the community day-by-day, week-by-week.” Henry believes that his role is less about directing the conversation in the community and more about setting and maintaining the tone. He uses the weekly newsletter to build a strong sense of community among members and create an atmosphere of respect and trust. Henry referred to the core group of influential members within the community as the
“guiding lights”: the small percent who actively participate in discussions and take on leadership responsibilities.

**Digital habitat.** The ETOC is built on a Ning platform. The Ning platform provides a standard set of features that can be included in all Ning communities. Of the standard set of features, the most frequently used features of the English Teachers’ Online Community include: Discussion Forums, Blogs, and Groups. Guidelines for using each of the features are clearly provided on the site. Upon joining the community, a “My Page” space is created for each member. Within this space, members’ basic profile information is displayed and members have the option of contributing additional information if they wish. Members may also use their “My Page” as a blogging platform. All of the blogs that they create within the ETOC forum reside on this page. In addition to the Ning platform, Henry is also in the process of creating a community wiki that will be linked to the ETOC. His goal is to develop a working model for well-designed knowledge-sharing infrastructure that can be built on in the future.

**Ongoing opportunities for knowledge sharing.** Multiple opportunities for knowledge sharing exist within the ETOC community. The opportunities described below are not the only knowledge sharing opportunities within the community but, according to interview data and analysis of online content, they are the most fruitful.

**Discussion forum.** The Discussion Forum for the community provides an active hive of knowledge sharing among members. As suggested in community guidelines, members often use the discussion forum if they simply have one topic for which they want to pose a question to the group about and to which they want people to respond. The 20 most recent
topics are featured on the main page of the site. By going to the Discussion Forum page, members can view all of the discussion posts that have ever been posted with the option of sorting them by latest activity, newest discussions, or most popular.

**Groups.** The 194 groups within the ETOC provide opportunities for more focused knowledge sharing among members. The 20 most popular groups range in size from 400 members to almost 2400 members. While members are free to create new groups based on perceived needs, Henry must approve the group. In part this is to avoid overlap, but also to make sure that the group has a clear focus. Most groups briefly describe the group’s purpose. For example, the Teaching Reading group provides the following description: “Share strategies, questions, and resources for teaching middle and high school students how to read different types of text.” Some groups provide not only a description, but detailed guidelines for posting as well.

**Blogs.** Blogging provides another avenue for knowledge sharing within the community. Over the past ten months (January-October, 2010) an average of 134 blogs were posted per month. Six of the core community members interviewed for this study have contributed more than ten blog posts to the community. One member, the most prolific blogger in the community, has contributed over 400 blog posts; another interviewed member has contributed over 350 blog posts. Blogging is voluntary and no one in the community is paid to blog. The main landing page for blogs includes the following sections: featured blog posts; latest blog posts; blog posts by tags; latest activity; monthly archives; and a full list of all blog posts that have been created since the community was started.
**Book club conversations.** Henry identified book club conversations as perhaps the most important and unique knowledge sharing opportunity within the community. He cites the highly-evolved criteria for the book club conversations as contributing to their success. For starters, the book must be interesting and thought-provoking, a topic that will lead to spirited discussion. Over the course of the past year, ten book club conversations have run. Only one conversation runs at a time. Critical to the success of the book club conversations is that each one is moderated by the author of the book. Henry indicated that the opportunity to interact with the book’s author is what draws people in. Lessons learned from the first few book club discussions led to the development of a set of guidelines for book club participants. These guidelines are now posted at the beginning of each book club discussion. Coming to understand the “rhythms of the year” has also become a factor in the success of the book club discussions. For example, Henry notes that summer is a good time to include a more philosophical book because people are not as hungry for the practical. Book club participation ranges from 50 participants to well over 100, depending on the topic of the book, the popularity of the author, and the time of the year.

**Webstitutes.** In the summer of 2010, ETOC held its first webstitute. The webstitute was a grassroots effort organized by a small group of leaders from within the community. These leaders, who were among the earliest members of the community, wanted to create a new model for online professional development that was accessible, useful, interactive, forward-thinking, and free. The webstitute was titled “English 2.0: Teaching and Learning in a Digital World.” Presentations were designed to provide fellow members with ideas, resources, and strategies for leveraging Web 2.0 tools in the classroom. Organizers hoped to
inspire teachers, connect them with others who share their interests, and spark collaborations that could continue throughout the school year. While Henry provided support and encouragement for the members who came up with the webstitute idea and worked to make it happen, he made a deliberate effort not to be directly involved. He commented that,

... if you feel like you’ve got to be directly involved in everything, you’re just going to wear out, you know, and it’s not going to be sustainable, so there has to be, sort of a flexibility in the structure that simultaneously allows for there to be something of a guiding intelligence that oversees the whole organization, call it a CEO of some sorts, if you want, but someone who is very comfortable letting whole groups of people go off and create what they want to create, so long as it’s consistent with the spirit of the community.

**Social bookmarking.** A Diigo group for members of the English Teachers’ Online Community exists to share resources related to teaching literature and writing. Diigo is a social bookmarking website which allows registered users to bookmark and tag web pages. The ETOC Diigo group has roughly 300 members and 1300 tagged bookmarks. The Diigo group was created and is maintained by one of ETOC’s core members. Weekly updates are sent out to members of the Diigo group to let them know about new items that have been added.

**Trust.** Members interviewed feel the ETOC is a safe environment for seeking and providing support. While results of the study did not elevate trust as a major factor in knowledge sharing among ETOC members, a few practices that helped to cultivate a trusting environment could be identified. Henry’s credibility as an author, a teacher, and the moderator of an earlier successful community not only helped to cultivate an environment for knowledge sharing, it also aided in establishing trust within the community. Based on prior knowledge of Henry and interactions with him, community members trusted his competence
and credibility, which reciprocally contributed to their willingness to join the community and share their own knowledge. All interviewees indicated that Henry’s newsletters help to reinforce their shared vision and/or their sense of community and togetherness. An excerpt from the October 3, 2010 newsletter illustrates Henry’s poetic strengthening of community:

We live in so many different places together, begin the school year at so many different points in time, it is difficult to track the year together, and yet it is there: we all feel ourselves moving into the next season, the first whiff of fall there in the mornings, the hunt for the sweater with a bit more thickness. And we can feel it as we move deeper into the waters of our work for the year: a week spent working through the larger papers kids in high school begin writing. … So as we move into the next season of the year, as the days fall like colorful leaves into the pile of the year, keep coming here, to us, to share, to celebrate, to ask for help. We are always here for you; the EC Ning never sleeps. Indeed, some of my most wonderful comments have been from those who find themselves up at the late hours, unable to sleep, just wandering the streets of the EC Ning, reading, feeling comforted by the voices, the community, the shared sense of commitment to the work.

Core ETOC members who feel a professional responsibility to mentor or help out new teachers also help to sustain trust within the community. Nora’s comment regarding the responsibility of helping other members echoed those of other interviewees: “The purpose of the site is to help one another, so I try to keep that in mind, you want to help people, you want to elevate them, you want to say things that make teaching better for them and for their students, and we all have to buy into that.”

**Case 3: Personal Learning Network for Educators (PLNE)**

Interviews for this case report took place in October of 2010. The pseudonyms given to the moderator and members of the community are as follows: Moderator: Ted; and Members: Arianna (co-administrator), Benjamin (co-administrator), Heidi, Lillian, Nhut, Carolyn, Ralph, and Carl.
**Purpose.** The stated purpose of the Personal Learning Network for Educators is to provide an online community in which members can create their own personal learning network by sharing, collaborating, and conversing with professionals in the field of education. The community was started in 2009 by Ted Whitfield, the creator of Edchat, a global Twitter network, to meet the growing needs of Edchat network members. Twitter is a real-time information network in which participants can use hash tags (#) to join and participate in specific conversations. Hashtags are a web tag that have the 'hash' or 'pound' symbol (#) preceding the tag (e.g. #edchat) and are used to help in adding tweets to a category. Twitter’s Edchat is a conversation among educators, parents, students, and other stakeholders in which challenging issues facing educational systems worldwide are discussed. Participants share perspectives and opinions, provide resources, and offer experiences. Because Twitter “tweets” are limited to 140 characters and Twitter conversations often tend to move along quickly, the organizers of Edchat wanted to create a platform in which Edchat conversations could continue and deepen and resources could be archived for later access. To this end, the Personal Learning Network for Educators was established. While the PLNE started with a critical mass of users from the Edchat network, in little more than a year, the PLNE grew to over 6,000 members with sustained and in-depth knowledge sharing from educators around the world.

**Characteristics of community members.** PLNE members share the loosely bounded common identity of being outreaching educators who want to build a digitally supported personal learning network through participation in a larger professional learning network. There was a high level of activity in the community, with members generously sharing
resources, links, tools, tags, videos, and the like. Additionally, there was substance and depth in many of the online conversations. However, it was difficult to find evidence of relationships being built among members and I was unable to discern a baseline of common knowledge.

Though Ted, the creator of the community, along with Arianna and Benjamin, two administrators for the community, work closely together to manage the community, a core group of active members could not be identified through community posts or interviews.

**Digital habitat.** Like the ETOC community, the PLNE is built on a Ning platform. The platform has been customized for the PLNE community, prominently displaying the following features on the main page:

- **Featured Blogs.** A rotating image in the top left corner displays featured blogs for the week. A simple click on one of the rotating pictures takes you to the blog site.

- **Linkages.** Accounting for roughly one third of the layout on the main page are seven sections that provide categorized links to other sites, including: Professional/Personal Learning Network Information sites; Other Educational Ning Sites; Sites for Social Media Information; Twitter Information; Educational Sites; Tutorial Sites; and Posts of Positive Educational Reform on a Wallwisher Wall.

- **Videos.** This section lists recent videos that have been uploaded by community members. All videos must meet the requirement of pertaining to building or developing a Personal Learning Network. There are over 400 videos in the community’s video library.
The structure of the site is well-aligned with its purpose of enabling individual educators to build their own personal learning networks while simultaneously building a larger professional learning community of educators.

**Ongoing opportunities for knowledge sharing.**

*Twitter.* A unique aspect of the PLNE community, and the most important driver of knowledge sharing according to the administrators of the community, is the pairing of the PLNE with Edchat, an ongoing Twitter conversation. Edchat was founded by Ted, Arianna, and Benjamin, who now co-administer the PLNE. The Twitter Edchat is a fast paced discussion focused on “hot topics” in education. Responses are limited to 140 characters. Officially, it is conducted on Twitter twice each Tuesday. Two chats are offered to accommodate the global time zones. The educational topics are chosen from a poll posted each Sunday night or the chat may feature a guest speaker. The chats are scheduled for an hour, but often carry on throughout the week. People enter and leave at will. The chat contributors hash tag all of their comments with Edchat. All chats are archived and may be accessed at a later time. Ted explained that, with Edchat, participants tweet out short links to let Edchat members know about resources, websites, podcasts, videos, or the like, that they’ve seen. Because the lifespan of a tweet is so short and not everyone is able to sign on to the Edchat conversations, administrators for the PLNE take the tweeted links and resources and post them on the PLNE site where they can be more easily searched and accessed. Additionally, the PLNE provides a forum in which Edchat topics can be discussed in greater depth.
**Webinars.** Webinars provide another opportunity for knowledge sharing within the community. Typically 2-4 webinars are offered per month with 100-200 attending each webinar. Arianna indicated that PLNE administrators try to get speakers who are “very passionate about education transformation” and who will spur lively conversation among members of the community. Participants can submit questions ahead of time for the featured speaker to address during their presentation. Arianna noted that members appreciate and enjoy the opportunity to interact with these prominent educators. Participants are usually given about a week to post their questions before the live webinar. The posted questions often spark conversation even before the webinar takes place. Following the live webinar, members continue the professional dialogue by blogging about the topic or sharing their thoughts through the discussion forum. If members are unable to attend the live event, they can watch it afterwards. The recordings typically get 500-1,000 viewings after they are archived.

**Groups.** The 76 groups within the PLNE provide opportunities for more focused knowledge sharing. The 20 most active groups range in size from 5 members to almost 300 members. Members are encouraged to create new groups that support their networking interests. Simple directions for creating a group are provided on the main page of the PLNE site.

**Blogs.** The ability for members to blog within the PLNE community is an important aspect of knowledge sharing. When asked how they encourage members to blog within the community, Arianna reported that featuring members’ blogs helps to generate more blogging: “if people see their blog featured, they get excited and are more inclined to further
engage in the community.” Arianna also said that blog posts created by members are tweeted out and publicized in various social networks as a way of increasing traffic to the blog post. Promoting content from the PLNE community on other social networks plays a key role in sustaining knowledge sharing among members.

**Social bookmarking.** The PLNE also uses social bookmarking as a form of knowledge sharing. The tagged collection of Delicious links includes 21,000 bookmarks. In the fall of 2010, roughly 800 new bookmarks were added per month.

**Trust.** Results of the study did not elevate trust as a factor in knowledge sharing among members of the PLNE community. In interviews with eight members from the community, trust was scarcely mentioned.

**Summary of Individual Case Findings**

While the domain, the size, and the opportunities for knowledge sharing of each community included in this study vary, they are all designed to support and extend teacher learning. Table 3 summarizes key attributes of each of the three communities.
Table 3

**Key Attributes of Case Study Communities**

<table>
<thead>
<tr>
<th>Attribute</th>
<th>NELN</th>
<th>ETOC</th>
<th>PLNE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domain</td>
<td>Educational policy</td>
<td>English teaching</td>
<td>Education reform</td>
</tr>
<tr>
<td>Members</td>
<td>Teacher leaders</td>
<td>English teachers</td>
<td>Range of educators</td>
</tr>
<tr>
<td>Membership</td>
<td>Invited</td>
<td>Open</td>
<td>Open</td>
</tr>
<tr>
<td>Size</td>
<td>300</td>
<td>20,000</td>
<td>6,000</td>
</tr>
<tr>
<td>Primary knowledge sharing opportunities</td>
<td>• Group discussions</td>
<td>• Group discussions</td>
<td>• Twitter</td>
</tr>
<tr>
<td></td>
<td>• Blogs &amp; articles</td>
<td>• Blogs</td>
<td>• Webinars</td>
</tr>
<tr>
<td></td>
<td>• Book reviews</td>
<td>• Book clubs</td>
<td>• Groups</td>
</tr>
<tr>
<td></td>
<td>• Collaborative projects</td>
<td>• Webstitutes</td>
<td>• Blogs</td>
</tr>
<tr>
<td></td>
<td>• Webinars</td>
<td>• Social bookmarking</td>
<td>• Social bookmarking</td>
</tr>
<tr>
<td></td>
<td>• Newsletter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderation</td>
<td>Individual - active</td>
<td>Individual - active</td>
<td>Group - distributed</td>
</tr>
<tr>
<td>Trust</td>
<td>High</td>
<td>Moderate</td>
<td>Moderate</td>
</tr>
<tr>
<td>Depth of member relations</td>
<td>Deep</td>
<td>Moderate</td>
<td>Low</td>
</tr>
<tr>
<td>Influential members identifiable</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Platform</td>
<td>Drupal</td>
<td>Ning</td>
<td>Ning</td>
</tr>
</tbody>
</table>

NELN is a small, tight, closed community of committed teacher leaders from across the country. Members are clear about the community’s purpose and strongly committed to elevating teacher voice in national discussions of education policy and practice. They appreciate opportunities to work hard on collaborative projects that culminate in the co-
authorship of white papers and books. They enjoy opportunities to share their professional opinions through blogs and magazine articles. Above all, members appreciate the varying perspectives that are brought into conversations by members with different histories and areas of expertise. Members value the quiet behind-the-scenes work of their moderator, Paul. Without his ongoing efforts to build alliances, nudge, prod, encourage and support, members indicate that the community could not exist. Success of the community is evidenced by a rhythm of participation that includes active engagement by a representative group of members; collaboration among members; internal and external publishing of content; reliability of responses by members; effective leadership; a variety of ways for members to get to know each other and express their identities; a strong core group; and a high level of trust among members.

A passion for teaching English bonds the more than 20,000 members of the ETOC community. Members buy into Henry’s vision of creating a nurturing and supportive community where new teachers feel safe asking for help and experienced teachers give freely of their expertise and experiences. Members appreciate the opportunity to create and/or join specific subgroups where they can delve more deeply into the topics that are forefront in their minds. Book clubs discussions run through the community draw large groups of members together to engage in professional dialogue with each other and with the author of featured books. Success in the community is evidenced by wide variance in topics that appeal to a variety of user interests and needs, by active participation of a relatively large proportion of the community, by members’ active involvement with content (e.g. commenting, discussing,
uploading, downloading, tagging), by rapid responses to requests for information or advice, and by in-depth conversations of philosophical issues related to teaching English.

An initial premise of this study was that each of the communities studied could be considered “communities of practice (Wenger et al., 2002); however, findings emerging from the analysis of data for this case leaves some doubt as to whether or not the PLNE community can be truly characterized as a “community of practice.” The common ground for the community is the desire among members to create their own personal learning networks. While the purpose of the community is clear, it provided only a very vague common identity for the group. Further, it was difficult find evidence of relationships being built among members. As might be intimated by the name of the community itself, its raison d’être may be less about community and more about networking.

**Cross-Case Findings**

This study was undertaken to better understand the ways in which knowledge sharing and trust are cultivated and sustained in online learning communities. The following research questions framed the study:

1. How is knowledge sharing cultivated in online learning communities for K-12 educators?
2. How is knowledge sharing sustained in online learning communities for K-12 educators?
3. How is trust cultivated in online learning communities for K-12 educators?
4. How is trust sustained in online learning communities for K-12 educators?

The purpose of this section is to answer the research questions of the study.
Cultivating an Environment for Knowledge Sharing

Cultivating implies preparing for use. For the purpose of this study, cultivating is an act by the creator and/or moderators of the community that prepares the community for knowledge sharing in a way that is similar to the process of preparing land for planting. Cross-case analysis of the data gathered for each community suggests several factors that contributed to the cultivation of a rich knowledge-sharing environment. These factors include: a clear purpose; common identity; purposeful recruitment and promotion; an experienced moderator; flexible community structure; and guidelines for participation. Each factor is discussed below.

Clear purpose. Each of the three community creators stressed the importance of having a clearly defined purpose for the community as a beginning point for creating a fertile environment for knowledge sharing. Members indicated that knowing why they are there, how they can contribute, and what they can expect from the community made it easier to contribute to the community. Of the three communities studied, the ETOC community was the most deliberate and persistent in conveying the purpose of the community. The following excerpt from the August 15, 2010 ETOC weekly newsletter written by Henry exemplifies the way in which the purpose of the community is continually put forth.

August 15, 2010
Reach and Responsibility of the Ning: Every week we hear the EC Ning discussed in increasingly important circles, which reminds us that we each have a special responsibility on here to post material that maintains and even challenges us to exceed our standards for quality and credibility. …Let me end this week's letter by reiterating what the EC Ning is and what it attempts to accomplish: we are a community of professionals who come here to help each other. To that end, we have three specific goals, which you are all charged with helping us achieve:
1. Support each other, in particular the new teachers, throughout the school year as we face, individually and as a profession, challenges.
2. Improve our teaching through ongoing discussion of and reading about not only what to teach but how to teach it in ways that will best educate our students.
3. Identify and develop the next generation of leaders within our profession by encouraging them to write, present, or otherwise use their expertise to help other teachers.

**Common identity.** In each of the three communities, members shared a common identity upon entering the community, or cultivated a common identity through their involvement in the community. Evidence from interviews with community members suggests that NELN members were tightly bonded by their shared identity as teacher leaders. Five of eight members interviewed commented on the importance of the shared identity. NELN members indicated that coming together to discuss education policy issues of great personal and professional importance to them helped to cultivate a common identity and enabled them to view each other as learning partners. The exclusivity of NELN had appeal; participants felt honored to be selected and were eager to join in the conversation with a group of like-minded people.

If you want a group of people from whom you can really draw some insightful comments and thoughtful ideas and who are going to operate with one another in a certain way, then, you know, not every community can be just open to anybody that wants to jump in. So probably the fact that the community has educators in it, totally educators, successful educators who are willing to share, that had appeal. … It’s the quality of the people that they get, it’s the expectations that they set up front, and it’s the sigh of collective relief, I think, that people have when they realize that this is going to be professional and productive, it’s not going to be, for lack of a better word, yak-yak. (Diane, NELN member)

In particular, NELN attracted me because of its people who are exceptional teachers, highly accomplished at what they do, but who also have a view of the importance of teachers having voice outside of the classroom. I was drawn to it because we’re a group of like-minded people. (Donna, NELN member)
One of the primary purposes of the ETOC community is to support new teachers. As evidenced by the posts within the community, many members of the community share the common identity of being new teachers, while many others, fondly referred to as “village elders” by interviewees, are experienced teachers who are there to provide support to the new teachers.

The presence of a distinguishable common identity was weakest in the PLNE community. However, interviewees’ comments suggest that PLNE members share the common identity of being outreaching educators who want to build a digitally supported personal learning network through participation in a larger professional learning network.

**Purposeful recruitment and active promotion.** Each of the three communities used purposeful recruitment of members and promotion of the community to cultivate an environment in which members held a shared vision of the community’s purpose, a common identity, and an appreciation for diverse perspectives. NELN began with a critical mass of users who had participated in the experimental “structured conversations.” Expanding out from this initial base of members, staff of the parent organization targeted teachers with diverse characteristics (e.g. race, gender), experiences (e.g. content area, grade level, leadership experience), and expertise (e.g. knowledge of education policy issues) to become members of the community. Publications by NELN members were also continually used to promote the community and attract additional members.

We didn’t have all of the diversity we needed within NELN forum, we were still working on diversity, still are now. Recruitment was really important. ... We tried to get the right mix and to pick folks to be in the group that would give us that dynamic tension (Paul, NELN moderator).
Henry used his credibility as a respected author and English teacher to draw thought leaders into ETOC and actively promote the community. He described a few strategies he used in the early days of the community to reach out to intellectual leaders in the profession.

I would do little behind-the-scenes things, like when I would get my English journal, everybody in the English journal’s name appears at the end with their e-mail address, so my thought would be, “Okay, so these are all people that are kind of intellectual leaders in the profession, and they’re all writing books for the EJ, and so I’ll invite them all,” so instead of posting my one comment, I would take five minutes and gather those e-mail addresses and send that, or I would go on to the National Writing Project website and cull out the e-mail addresses of all of the site directors and then send them invitations as one big mass, you know, and it certainly helps that I can trade on my name, obviously it kind of comes with a little bit more immediate credibility. (Henry, ETOC moderator)

Like NELN, the PLNE community began with a critical mass of users. The fact that the PLNE grew out of the already established Twitter Edchat network significantly contributed to the cultivation of a knowledge-sharing environment. Members who were already accustomed to engaging in professional conversation with a known group of educators simply extended and expanded their conversations on the new Ning platform. The three PLNE administrators agree that seeding the community with an established network of users helped to cultivate a knowledge sharing environment more rapidly than if they had simply grown it from a single seed. Additionally, they all emphasized the important role that purposeful recruitment and promotion played in cultivating a knowledge sharing environment.

You know, most of what you’re going to do is going to be set in the beginning. If you spend a lot of time up-front creating the right atmosphere and bringing in the right people, it’s going to build itself and it’s going to start to work itself after a while. Recruiting the right people in the community with the right focus of what you want to do is the best way to start. (Ted, PLNE moderator)
Active promotion of the community through frequent tweets also continued to drive membership in the PLNE community.

**Experienced moderator.** The moderator for each community had extensive prior experience moderating online communities or Listservs. Paul had roughly 20 years of experience creating and moderating online Listservs and communities for educators. Henry had 15 years of prior experience moderating online communities, one of which won the NCTE national intellectual freedom award. Ted brought to the PLNE community several years of experience creating and moderating an online community for his students and an online community for “technology using professors.” Each moderator believed that their prior experience in moderating online communities significantly contributed to the community’s success.

**Flexible platform.** A flexible community platform enables moderators to tailor community features to meet the needs and the interests of members. NELN was built on a Drupal platform. ETOC and PLNE were both built on a Ning platform. Both Drupal and Ning provide common structural features such as a general discussion forum, the ability to create subgroups, blogging platforms, member profiles, within-community email and other features that can be used to cultivate an environment that is fertile for knowledge sharing. The flexible platforms allowed for organic growth of the communities. Across the three communities, interviewed members indicated that the presence of subgroups within the community provide clearly identifiable areas for more focused discussion and resource
sharing, and at times, collaboration. In each community additional groups are added based on the needs and interests of the community.

**Guidelines for participation.** All three communities provide members with some form of guidelines for participating in the community. Both NELN and PLNE provide videos and screencasts on using the community. These guidelines are primarily focused on how to navigate the site. ETOC provides a written set of “guiding principles” and “common practices.”

**Sustaining Knowledge Sharing**

To sustain is to provide ongoing support or nourishment. In addition to providing a fertile environment for knowledge sharing, online communities also require continuous “care and feeding.” Cross-analysis of data from the three communities revealed several themes that provide insight into how knowledge sharing was sustained within the communities. In each of the three communities there were multiple options and opportunities for knowledge sharing. Additionally, the moderator(s) played an important role in the care and feeding of each community. Also supported by the data is the role that core members of communities played. Each theme is discussed below.

**Multiple options and opportunities for knowledge sharing.** All three communities provide members with multiple options for knowledge sharing within the community. These options range from informal knowledge sharing opportunities to more structured knowledge sharing opportunities. Interviews with members revealed that they value the range of options for participation. Depending on their comfort level with the content being discussed,
members can choose to take a central role in the knowledge exchange or a more peripheral role. With competing demands in their professional and personal lives, members’ available time to engage in the community varies. Options for participation allow them to choose whether they simply want to throw in their “two cents worth” or engage in a more time-intensive collaborative project.

Structured conversations. The cross-case synthesis of data suggests an important role for “structured conversations” in online learning communities. In each case, some form of structured conversation emerged as an important factor for sustaining knowledge sharing within the community. I am defining online structured conversations to be those that begin with an overarching question or issue of focus, proceed according to a pre-determined set of guidelines, are moderated, and take place during a bounded time frame. All members interviewed mentioned participating in some form of structured conversation within their respective communities.

The NELN community actually originated through a three-month series of online structured conversations among a handpicked group of teacher leaders. In choosing topics for the conversations, Paul noted that they chose the “big meaty teacher topics” that they knew from experience that teachers who went out to dinner and sat around the table talking could talk until dawn about. Those topics included issues such as teacher leadership, the good and the bad about teacher education, and professional development. The teachers who agreed to participate in the “structured conversations” experience received a description of what the experience would be like, the purpose of the structured conversations, and guidelines for participation. Today, NELN continues to use structured conversations in subgroups that are
tasked with a collaborative project such as writing a white paper. In these cases, often an expert from the field is brought in to lead the conversation around a particular topic or perspective on a topic.

The immensely popular book club conversations hosted within the ETOC community provide another form of “structured conversations." Each book club conversation is moderated by the author of the book. Conversations are structured around key questions that emerge from the content of the book and last in duration for three weeks. Jackson, a ETOC member and book club moderator commented on the way in which the book clubs reflect a more general model of how teachers continue to engage in lifelong learning:

There’s that semi-structured nature of a book club where, “okay, this is the thing we’re focusing on, and we’re going to have this topic of discussion, and people who are interested are welcome to come, nobody’s forcing you to be there, you’re all part of this larger social network, and so here’s this particular opportunity for you to engage in learning.”

As with the NELN community, the PLNE community originated through a series of structured conversations. The PLNE structured conversations take place weekly through a Twitter chat. Each chat focuses on question that the community votes on two days prior to the chat. Chats are moderated by the administrators of the PLNE community.

Structured conversations in all three communities center on compelling “hot topics” in education, generating and sustaining professional dialogue around issues that are forefront on the minds of educators. Members indicate that the combination of a compelling topic and a limited time frame for the conversations is appealing because they can engage in a “meaty” discussion without having to make a long-term commitment to involvement. Even within the time frame, they have the option of contributing as much or as little as they want.
I have these wonderful opportunities that seem to be coming in through NELN and right now there’s been a very in-depth conversation that fits perfectly with this whole thing about teachers taking charge of their own profession, and whether or not we should have teachers as evaluators of other teachers and things. So I’m going to be printing out that entire document, that whole conversation once it’s over, to inform myself, because these are teachers’ perspectives, and perspectives from some very talented teachers, and so it’s a tremendous resource. (Kyle, NELN member)

**Online Events.** In addition to the highly structured conversations described above, the communities included in this study also feature periodic online events lasting from one hour to three days. The most common type of event is a webinar. All three communities offer periodic webinars featuring prominent leaders in the field of education. Webinars generally last for one hour and are held in a live conferencing program such as Elluminate. In each community, members are given the opportunity to submit questions to the presenter prior to the webinar session. While generally not as interactive as the aforementioned structured conversations, members enjoy the opportunity to have a voice in the dialogue and have their specific questions acknowledge and addressed by prominent leaders in the field.

**Opportunities for collaboration.** Knowledge sharing within the three communities is also sustained by collaboration between members. In the case of NELN, collaboration may be organized by the sponsoring organization, highly structured, and designed to produce a final deliverable of a white paper or a book. NELN’s parent organization assembles teams of accomplished educators from across the nation to study important education policy issues in depth and publish their unique solutions and policy recommendations. In ETOC and PLNE, more organic collaboration among members was identified. In the summer of 2010, ETOC held its first webstitute. The webstitute was a grassroots effort organized by a small group of leaders from within the community. These leaders, who were among the earliest members of
the community, wanted to create a new model for online professional development that was accessible, useful, interactive, forward-thinking and free. Findings from the PLNE community revealed more informal collaborations among teachers.

**Role of the moderator.** In each community, the moderator plays a key role in sustaining knowledge sharing. In some instances the role of the moderator is visible to all community members. Other times, it is the behind-the-scenes work of the moderator that sustains knowledge sharing within the community.

**Visible work of the moderator.** Paul publically promotes members’ work and expertise, connecting them with *Ed Week* and *Teacher Magazine*. When conversation in the community slows down, Paul starts a new discussion strand on a variety of topics and encourages others to do the same. Paul also writes a bi-weekly newsletter entitled Writes and Cites. All members of the community who were interviewed indicated the importance of the newsletter for keeping abreast of happenings in the community. In the newsletter, Paul takes on a cheerleader persona, highlighting *Teacher Magazine* articles written by NELN Forum members, drawing attention to recent blog posts by NELN Forum members, celebrating the thousands of hits a recent article or blog post has received on Teacher Magazine, and touting multiple appearances of NELN members’ work in ASCD SmartBriefs. He applauds professional happenings in members’ lives, describes new initiatives of the parent organization, offers updates on existing initiatives, and highlights linkages to outside communities or happenings. Most entries in the newsletter contain a link to more information about the news bit, article, person, or event.
Each week, Henry crafts the EC Ning Weekly News and Notes which is emailed out to the entire community. All members of the community, who were interviewed, as well as Henry himself, mentioned this as an important tool for cultivating a knowledge-sharing environment, sustaining knowledge-sharing and building trust among members. As would be expected, News and Notes provides information on recently held events and upcoming events, but perhaps more importantly, Henry uses the newsletter to offer words of encouragement to teachers and affirm the importance of the teachers’ work; remind members of the community’s mission and responsibilities; and sustain the “small café” atmosphere within a rapidly escalating population. The following excerpts from ETOC News and Notes illustrate a pattern in Henry’s use of the newsletter for these purposes:

February 15, 2010
You have done everything to make this the place to come for help and support if involved in the teaching of English language arts here and, increasingly, through the world. Every posting adds not to the noise but the signal of our work, refining and improving our own individual and collective thinking about what we do, how we do it, and why. I look forward to learning from you every day and thank you for all you give to us all, even those who just listen, learn, and perhaps share with others offline or just put the ideas you learn here quietly into practice in your classroom.

March 7, 2010
It is clear to me from watching the topics and comments on the EC Ning as well as other forums, blogs, and news coverage, that we are living and teaching in a stressful period. It lends itself to discussing and representing our work and our profession to the public in often harsh, critical tones, as if we were all (part of) the problem. … I have been relieved to see so many turn to the community here to express their confusion and concerns about these and other difficult trends. All the more gratified to see how people have responded to others’ calls for help or support. … I know we have something special. I want our community to be, as it was originally intended, a place where we come to help each other improve, enjoy, and last, having a full, long, rewarding career.
Finally a generous thanks to all who contribute so regularly, which is everyone, really. You contribute by reading and passing along, sharing, inviting; you contribute by posting, responding in public through forums and blogs and groups, but also through direct messages, and even emails and Skypes outside of the ETOC. It's remarkable what you do, how you contribute to the growth and support of each other and our profession at large. Are people noticing? Are you making a difference? YES! I get notes from leaders of organizations, other websites, and publicly-traded online companies wanting to know the ingredients of our secret sauce every week!

In the PLNE community, Ted, Arianna, and Benjamin together play the role that Paul and Henry singularly play in their respective communities. Each of them are involved in different types of work outside of the community and are well-connected through their own personal learning networks. Arianna believes that the core group’s range of expertise and talent strengthens the infrastructure of the community and enables them to be more nimble in responding to the needs and challenges of the community than a single moderator could be. The trio frequently uses Twitter to publically promote and sustain knowledge sharing within the community, raising questions, sharing resources, and tweeting links. Additionally, they use the “featuring” capability on Ning to highlight blogs, videos, and other content as a way of generating knowledge sharing among members. Arianna noted that members get excited and become more engaged in the community when they see that their content has been featured.

**Behind-the-scenes work.** Paul’s efforts to sustain knowledge sharing within the NELN community can be easily identified through his weekly newsletters and frequent posts to the discussion forum. Less visible, however, are the numerous and ongoing behind-the-scenes efforts to sustain knowledge sharing among members. He builds alliances between members. He identifies and recruits bloggers. He recommends people for work in Teacher
Solutions and New Millennium subgroups. Paul strongly believes it is important to check in with members frequently and let them know how important their voices are. Several members of the community noted that Paul’s private emails to individual members encourage them to jump into conversation.

Paul is behind any good discussion, whether it’s online or whether it’s face-to-face, there’s some planning, behind-the-scenes planning that is going on, and Paul is that person. He has worked with online communities so long and he seems to have a knack for knowing how to gently nudge people. (Diane, NELN member)

I asked Jonathan, a NELN member, how he felt about Paul reaching out to him individually. He replied,

As a classroom teacher, I was jazzed, because nobody recognizes what we do. You don’t get a whole lot of public recognition in a school. …Nobody comes to me and asks me educational policy questions, nobody celebrates, you know, the thoughts that I have, nobody, even in a face-to-face situation, people don’t really respect my thoughts, I’m at a disadvantage because I’m a classroom teacher, you know, and so when you’re in the policy conversation when you’re a classroom teacher, people automatically assume that you can’t see the bigger picture and you don’t know what you’re talking about. So for Paul to recognize and to see value in my ideas was incredibly rewarding, and it led to more and more participation, I mean, that was cool.

Like Paul, Henry and several members of the ETOC community noted the importance of the moderator’s behind-the-scenes work.

I think, without, without blowing my horn too much, it’s a lot of the behind-the-scenes stuff that I’ve done to keep the soil tilled and you know, keep knowledge flowing. For example, connecting people and encouraging people and kind of creating the conditions such that I’m not the one who’s personally or directly responsible for members connecting by Skype on a Friday night, but to the extent that I’ve done a lot of work and research and investigation into the importance of communicating out, these things are happening. (Henry, ETOC moderator)
Several members agree, indicating that Henry does a really good job of “being present but not really seen.” Hank commented on Henry’s behind-the-scenes habits of “tapping people on the shoulder and saying, ‘I really like what you’re doing here, feel free to step forward a little more.’” Charles was the recipient of one of these taps on the shoulder when Henry emailed him directly to say, “Charles, I’d like to tell you how much I enjoy your thoughtful blog posts. You’ve become an important member of the Ning. Keep up the good work.”

No members of the PLNE community had engaged in behind-the-scenes communication with the moderators of the community. Arianna, one of the moderators noted that it is uncommon for the moderators to reach out to individual members.

**Member roles.** Within each community, members took on unofficial roles. Interview data suggest that the roles played by various members were instrumental in sustaining knowledge sharing. Through interviews with members, several recognized informal roles emerged. That of the “pot-stirrer” or “playful antagonist” was identified by four members of the NELN community, two members of the ETOC community, and the moderators for both communities. In the NELN community, members identified Jonathan as their community’s pot-stirrer:

I think there are the folks like Jonathan who are always going to say something provocative and interesting. Jonathan’s got credibility from his ability to talk about his practice, his ability to write well and intriguingly and engagingly, but he also attracts attention because he’ll come on and say, “I gave my interactive whiteboard away yesterday, the thing sucks and I don’t want to ever teach with one again,” … or he once said he thought that it was time to get rid of media specialists, we didn’t really need librarians anymore in our schools, it’s kind of a waste of money, and with the Internet and teachers can just go down there and use that. Every time he just gets smashed flat to the ground, but he keeps coming back. He likes it, he’s a feisty guy. (Paul, NELN moderator)
Additional informal roles identified by members of both the NELN community and the ETOC community include that of the “thought leader,” the “peace keeper,” and “mentor.” In particular, four of the eight ETOC members interviewed mentioned some form of mentoring as part of their role in the community. Charles identified himself as a “senior citizen” and believes that part of what senior citizens should be doing is helping young people:

I help the teenagers in my English classes, but I also try to help the young teachers. Teaching is very very difficult work for most of us, and it can be devastating work for young teachers, because it just can, it can almost destroy a young teacher. I’ve seen that, I’ve read posts on the Ning from young teachers who are just about ready to quit because it’s too hard, and so, you know, I try to offer some encouragement. … I guess I see myself as an old guy who maybe has a few things to say that can help some young teachers, yea.

Like Charles, after 31 years of teaching, Hank believes he has something to offer less experienced teachers. He views the ETOC as a new avenue for helping teachers and, as he gets closer to the end of his career, he enjoys getting on the ETOC and sharing his experiences and expertise with those who are asking for help or advice. When Sadie, a younger teacher in the community, first joined the ETOC, she was the recipient of wisdom shared by “village elders” in the community. Within her school she did not feel like she had colleagues she could turn to for feedback on lesson plans or the like; but access to seasoned teachers on the ETOC fulfilled this need. As she has gained more experience in the classroom, her activity in the community is shifting from asking for help to providing it. Henry acknowledged that the community really pays attention to these new teachers who are asking for help and “really goes into this kind of deep mentoring or deep caring of people that is quite remarkable.”
Cultivating Trust within the Community

Results of the study suggest common factors across communities that contributed to the cultivation a fertile environment in which trust could develop and grow including: the establishment of guidelines for participation and netiquette, the credibility of the moderator, and the competence of members. Interview data suggests that the cultivation of a trusting environment was a high priority in the NELN community and the ETOC community. For the NELN community and the ETOC communities, members reported that having a trusting, safe environment contributed to their willingness to share knowledge.

Guidelines for netiquette established upfront. Interview data and analysis of content from the NELN and ETOC community sites revealed that guidelines for netiquette were established upfront and members are continually reminded of them through messages from the moderator, posts from members, and references to them in community newsletters. Paul indicated that establishing netiquette rules up front was essential for developing an atmosphere of trust in NELN. These guidelines are provided to members when they join the community. Five of the eight members interviewed indicated that having the guidelines upfront gives them confidence to take risks in sharing knowledge with other members.

Henry posted “Principles and Practices” within the ETOC community to help ensure trustworthy behavior among members. Within these guidelines, Henry states that “The English Teachers’ Online Community is a community where above all else professionalism is expected, cultivated, and required. All posted content must add positively to our professional neighborhood; therefore, any person whose acts are deemed outside of this basic etiquette may be asked to leave.” Additional guidelines within the document provide
examples of what is considered acceptable practice within the community and what is not. Henry indicated that the document has evolved as questions or issues have arisen in the community. As with NELN, members of the ETOC community (also five out of eight interviewed) indicated that having those netiquette guidelines clearly posted on the community site helps to cultivate a more trusting environment for knowledge sharing.

For the PLNE community, rather than having a set of guidelines posted on the PLNE community site, Ted frequently tweets out netiquette reminders through Edchat. While Arianna also indicated that netiquette guidelines were tweeted out, six of the eight PLNE members interviewed were not aware of any netiquette guidelines for the community.

**Competence and credibility of members and moderator.** Trust in the competence and credibility of members and the moderator rose to the top as key trust-building factors for both the NELN community and the ETOC community. Members of these communities reported that the competence and credibility of the community moderator as well as fellow members of the community contributed to their willingness to engage in professional discourse, collaboration, and other forms of knowledge sharing. Data from the PLNE community did not reveal that the competence or credibility of the moderator and fellow members contributed to establishing a trusting environment.

Tim, a NELN member, stressed the importance of being able to step into an environment where people may not necessarily agree on every topic but they can still have a productive collaborative experience by drawing on the expertise and knowledge of a diverse group of highly accomplished teachers. Many of the profiles on the NELN are quite detailed. Members generously offer both personal and professional information about themselves.
Interviewees indicated that they often scan to profiles just to get a better idea of who they are talking to; but three members added that, truly, a person earns their credibility based on the ideas they post and the authenticity of their voice.

While NELN members tended to focus more on the importance of competence and credibility among fellow members, ETOC members focused more on the importance of the moderator’s credibility. Henry’s credibility as an author, a teacher, and the moderator of an earlier successful community not only helped to cultivate an environment for knowledge sharing, it also aided in establishing trust within the community. Community members trusted Henry’s competence and credibility, which reciprocally contributed to their willingness to join the community and share their own knowledge. In addition to running the ETOC, Henry teaches high school English, writes a blog, Twitters, and writes books. Henry acknowledged that, in cultivating an environment for knowledge sharing, it helped tremendously that he could trade on his name: “obviously it kind of comes with a little bit more immediate credibility which in turn serves, to some extent, as a form of quality control.” Several members mentioned being familiar with Henry’s work and professional reputation before joining ETOC. Charles said he was already accustomed to going to Henry’s teaching website regularly because Henry had a lot of great teaching ideas and useful links and resources for teachers. Ming indicated that the fact that Henry was already a name in the field immediately helped to establish the ETOC as a legitimate knowledge-sharing community. For Erika, it wasn’t just Henry’s professional reputation as a writer that gave him credibility, he is also a practicing classroom English teacher: “I really think that’s meaningful, because we believe in doing what he’s doing, and for him it’s obviously not just
talk because he’s doing it, too. Absolutely, I mean, he lives what he preaches, and that
matters.”

Public versus private. Not surprisingly, findings from this study suggest that privacy
and trust are interrelated. Among the most significant factors that helped to create a trusting
environment for NELN members is that the NELN community is a closed community.

Further, having an application process for admittance to the community served to establish an
assumed level of credibility and integrity among members. Because the ETOC community is
not a closed community, Henry believes it is important to frequently remind members that
the site is public. The following are examples of reminders and suggestions Henry has sent
out to members:

- People should not allow themselves to believe that even with Private settings
  up they are protected, really.
- People should come to realize that in a socially networked, public world, they
  must simply monitor their language as members of this community and the
  larger community of the profession.
- People can, if necessary, create safe names for themselves and/or their schools
  for a buffer and, within any posts, not refer to kids, colleagues, parents or
  admins in any way that would cause trouble or rouse suspicion.

For at least one of the ETOC members interviewed, the ability to remain anonymous within
the community helped her to feel that she could be more open and honest with her posts.

Nora indicated that anonymity is a “gift” she gives herself that allows her to speak freely
within the community without fear of retribution from members of her school community.

Sustaining Trust

Learning together requires an atmosphere of trust and openness. Findings from this
study indicate several key factors for sustaining trust among members, including: enforcing
trustworthy behavior; reinforcing a sense of community through frequent communication; social presence; sharing personal and professional information; and providing opportunities for face-to-face meetings.

**Trustworthy behavior enforced.** While members are provided with guidelines for participation in the community when they join, it is the ways in which the informal norms of behavior are put into effect over time that truly build and sustain trust. The moderators for all three communities believe that an essential part of their role in the community is enforcing trustworthy behavior among members. Both Paul and Henry likened their role in the community to that of a sheriff. After putting years of time and effort into building the community, Paul feels that an important part of his role is keeping the community safe. Just as with a true physical community, people need to feel they are protected and they can be together and carry on with their social discourse without fear of attack. When people come into the community with “their guns a blazing,” Paul says he has to be the sheriff. That, he emphasizes, is a critical part of sustaining trust. Like Paul, Henry also believes that part of his role involves “sheriffing the streets of Dodge” to make sure that members are being good community citizens.

As all of the moderators have discovered, the role of “sheriff” is a tricky one that requires striking the right balance between being too controlling and allowing the community to become a free-for-all. Paul noted that once you established yourself as the nurturing, helpful, “nice guy” moderator, it is sometimes difficult to be the “tough guy” who enforces the rules. For that reason, when firmness is needed to guide member interactions that have gone awry, Paul often begins by calling on people’s better nature with a gentle behind-the-
scenes email. Paul also uses his core group to help him model good community behavior. When someone in the community needs to be “steered” in a particular direction, he sends an email to a handful of core members and requests their assistance in modeling appropriate behavior. NELN members who were interviewed concur that it is part of their role to model and enforce appropriate behavior. Following a rash of personal attacks within the community, one of the core members posted a follow-up discussion in which they said what NELN is and what is isn’t. Kyle indicated that this post was helpful in establishing a sense of benevolence among members by stating that NELN was not a place for people to just have flame war arguments and criticize members’ credibility; it is not a place where you can slam someone if your ideas are in opposition; it is an intellectual discourse in which members bring evidence and experience to the topic.

On a few occasions, Henry has had to ban members who used the ETOC community for purposes other than those for which it is intended. Banning someone from the community pulls out all of the content that they ever created within the community in one fell swoop. More typically though, Henry will simply remind individuals or the community as a whole that all conversations and postings within the community should be consistent with the principles on which the ETOC was founded. At times when conversations have become heated or too personal, Henry will also jump in to say: “You know, we’re here to be kind to each other and to help each other, not to yell at each other.” Four members indicated that on the few occasions when Henry has stepped in, everyone listened and the inappropriate behavior stopped immediately.
**Frequent and personalized communication.** Members from both the NELN community and the ETOC community reported that frequent communication from the moderator, either behind-the-scenes or through community newsletters, helped to reinforce their shared vision and/or their sense of community and togetherness. Paul’s “cheerleader” newsletters helped to create a sense of “team pride” among members of the NELN community. Similarly, Henry’s poetic newsletters also helped to strengthen members’ sense of community.

Findings from this case suggest that efforts on the part of the moderator and core members of the community helped to increase social presence and build trust in the reliability and predictability of members. Social presence can be defined as the degree to which participants in online communication feel affectively connected to one to another (Swan & Shih, 2005). Social presence can critically influence interactions and trust among members of an online community (Preece, 2000; Prestridge, 2010; Ridings et al., 2002).

I think that Paul has picked some people and said, “Look, be sure that everybody gets a response,” that’s another way of keeping the community engaged and building trust, you know, “I’m going to post something, I’m not going to be ignored, people are going to care what I say,” so it’s part of a set of protocols that emerge that help with trust-building. If I see one that has been posted for a day or so and has no responses, then that’s a good time to click on it and post some sort of a response, so that everybody gets some kind of response. (Diane, NELN member)

In addition to serving as auxiliary enforcers of community norms for interaction, core members of the NELN community also help to create an atmosphere of trust by welcoming new members. Several core members have a standard message that they send to new members to welcome them to the community. The ongoing sense that others are present and listening helps to sustain trust among members of the community. One interviewee, the
author of an ETOC Book Club book, emphasized the importance of validating other teachers’ realities and concerns as a way of creating social presence. One technique used for validating the thoughts, ideas, or concerns someone has put in a post is to quote or paraphrase what that person said at the beginning of the response post. Quoting or paraphrasing is a way of saying “I hear what you are saying.”

**Sharing personal and professional information.** NELN and ETOC moderators and members report that the occasional sharing of personal information helps members get to know each other and increases the level of trust among members. Examples of personal information shared in the six months preceding the interviews include a sonogram picture from an expectant mother, news of a cancer diagnosis, and the touching post from the daughter of a member who passed away letting other members know how much participation in the community had meant to her mother in the final months of her life. The types of risk-taking that builds trust within a community can also involve the sharing of intellectual property. When established authors who have some vested interest in their content post resources for free within the community, it builds a sense of trust and reciprocity. Henry notes that while on the one hand, some authors could say, “Like I’m going to get on there and post my thoughts, that’s like giving away the golden goose, right? Buy my books,” that’s not what is happening within the ETOC community. Henry believes that these types of people have come to learn that they stand to benefit far more by sharing than by withholding.

**Opportunities for face-to-face meetings.** Members of all three communities indicate that having an opportunity to gather at face-to-face meetings helps to build trust and participation in the group. Face-to-face encounters enable members to connect informally
and cement some of the relationships that emerge online. Examples of face-to-face gatherings include NELN members meeting face-to-face as part of their collaborative work on white papers and books; ETOC members meeting up at national and regional conventions; and PLNE members presenting together at conferences.

**Summary of Cross-Case Findings**

Cross-case findings from this study illuminate ways in which knowledge sharing is cultivated and sustained in online communities. To a lesser extent, the study suggests ways in which trust is cultivated and sustained in online communities. In each of the three communities, cultivation of a knowledge sharing environment was rooted by: a clear purpose; a common identity; purposeful recruitment and promotion; an experienced moderator; a flexible community structure; and guidelines for participation. Across the three communities, knowledge sharing was sustained through multiple options and opportunities for knowledge sharing. The importance of engaging community members through structured conversations is strongly supported by the data. Though the moderator(s) of each community played varied roles, the significance of their roles for cultivating and sustaining knowledge sharing is also supported by cross-case findings. In two of the cases, NELN and ETOC, influential members played a key role in sustaining knowledge sharing among members.

Cross-case findings also suggest common factors across communities that contributed to the cultivation a fertile environment in which trust could develop and grow, including: the establishment of guidelines for participation and netiquette; the credibility of the moderator; and the competence of members. Findings further suggest that trust can be sustained by enforcing trustworthy behavior; reinforcing a sense of community through frequent
communication from the moderator; increasing social presence; sharing personal and professional information; and providing opportunities for face-to-face meetings.

**Limitations**

Although this study provides insights into how knowledge sharing and trust are cultivated and sustained in online communities of practice for educators, there are numerous limitations to the study. The small sample size of members interviewed – eight from each community – limits the external validity of the study. Related to this issue is the fact that members interviewed from each community were “active” members. Interviewing members who participate peripherally may have generated different findings. Additional investigations with a broader range of community members and a larger sample are needed to obtain findings that are more robust and generalizeable.

The data gathered for the study was self-reported by the interviewees and is thus subject to response bias. Bias may have entered the data through reflexivity, meaning that the interviewee gives the information that he or she thinks the interviewer wants to hear, or bias through poorly articulated questions. The ability to analyze interactions of members within the community would strengthen the reliability of the future studies. However, it is noted that because some members of online communities perceive even publically accessible sites as private, negotiation of informed consent from the thousands of members who may belong to the community would be difficult.

A community’s stage of maturity is likely to influence knowledge sharing and the trust within the community. Future research should examine how knowledge sharing and trust evolve in a community over time. Finally, only examining communities that are
considered “successful” without systematically analyzing what commonalities distinguish them from less successful communities limits the findings of this study. Matching successful communities with comparison communities that had the same basic characteristics but have not been able to cultivate and/or sustain knowledge sharing and trust among members may provide deeper insight into the practices that encourage knowledge sharing and trust.
CHAPTER 5: DISCUSSION

The purpose of this multiple-case study was to better understand the common practices that support and encourage knowledge sharing and the development of trust in online learning communities for educators. The following research questions framed the study:

1. How is knowledge sharing cultivated in online learning communities for K-12 educators?
2. How is knowledge sharing sustained in online learning communities for K-12 educators?
3. How is trust cultivated in online learning communities for K-12 educators?
4. How is trust sustained in online learning communities for K-12 educators?

In this chapter, I review the results of the cross-case analysis, expand on particularly salient findings, and examine these findings in relation to current theoretical and empirical research literature. The discussion is presented in two parts: (1) cultivating and sustaining knowledge sharing, and (2) cultivating and sustaining trust. Following this discussion I reflect on the theoretical framework undergirding the study. In concluding the chapter, I offer implications for practice and suggest future directions for research.

For ease of reference, the description of each case that was provided in Chapter 3 is included again below. Each community has been given a pseudonym, as have the participants in the study.

**Case 1: National Education Leaders Network.** The National Education Leaders Network (NELN) is the flagship community for a larger network of teacher communities
created by an organization whose mission centers on teacher leadership, research, and policy. The purpose of the community is to bring accomplished educators together to work on projects, publish their writing and action research, engage in focused online discussions with national experts, and connect with educational decision makers to advocate for best policy and practice. It is moderated by Paul Norris and includes roughly 300 members. Membership requires registration and approval by Paul Norris.

**Case 2: English Teachers’ Online Community.** The English Teachers’ Online Community (ETOC) is an online community for K-12 English teachers. It has won several national awards for effective use of social networking in education. It is described by its creator, Henry Burkhart, as “a place to ask questions and get help. A community dedicated to helping you enjoy your work. A cafe without walls or coffee: just friends.” The community includes roughly 20,000 members. Membership requires registration. Henry Burkhart is the primary moderator. There are over 200 subgroups within the community covering a variety of topics, including, for example: new teachers; teaching reading; adolescent literature; poetry; literature circles; and teaching with technology.

**Case 3: Personal Learning Network for Educators.** The Personal Learning Network for Educators (PLNE) is dedicated to the support of a personal and professional learning network for educators. It was created and is moderated by Ted Whitfield. The community includes roughly 3,500 members. Membership requires registration. There are 49 subgroups within the community covering a variety of topics, including, for example: educators on Google Wave; 21st century science educators; podcasting in the classroom; and music education.
Cultivating and Sustaining Knowledge Sharing

**Overview of findings.** Cross-case findings from the three communities that were the focus of this study revealed several factors that contributed to the cultivation of a knowledge sharing environment: a clear purpose; a common identity; purposeful recruitment and promotion; an experienced moderator; a flexible community structure; and guidelines for participation. Across the three communities, an active environment was sustained through multiple options and opportunities for knowledge sharing. The significance of engaging community members through structured conversations as a way of sustaining knowledge sharing was strongly supported by the data. Though the moderator(s) of each community played varied roles, the importance of their roles for cultivating and sustaining knowledge sharing is also supported by cross-case findings. In two of the cases, NELN and ETOC, influential members in addition to the moderator, played key roles in sustaining knowledge sharing among members.

**Purpose, collective identity, and recruitment.** This study lends further support to prior findings by Carr and Chambers (2006) and Jones and Preece (2006) that a clear purpose and a collective identity among community participants are important for cultivating a knowledge sharing environment. Each of the communities that were the focus of this study began with a clear focus that could be articulated in one sentence. The stated purpose of the community provided a grounding point for activity within the community. Consistent with Jones and Preece’s (2006) suggestion that selective recruitment of members may support the development of a shared vision, recruitment of national teacher leaders to NELN and English teachers to ETOC rooted the community’s vision and purpose in the shared domain and
practice of its members. As NELN evolved and members became immersed in writing blogs, magazine articles, and white papers around educational policy, the purpose of the community — to raise teacher voice in national conversations of education policy — became clearer to members, and their common identity more firmly established. This, in turn, created more fertile ground for knowledge sharing among members. Paul took active steps to nurture that shared vision and collective identity through his behind-the-scenes work to push and encourage teachers to write and make their voices heard. In the case of ETOC, Henry continually reiterated the purpose of the community and the shared identity of its members through weekly newsletters: “We are English teachers and we are here to nurture and support each other.” Evidence of the collective identity of members as English teachers and the shared vision to nurture and support each other could easily be identified within the community. This study contributes to the findings of Carr and Chambers (2006) and Jones and Preece (2006) by identifying specific practices that community leaders used to establish and perpetuate a clear purpose and collective identity for their communities.

**Multiple options and opportunities for knowledge sharing.** As noted at the outset of this study, existing research on online communities provides only small glimpses of insight into the specific practices that spark and sustain knowledge sharing among members of the community. Research by Duncan-Howell (2010) suggests that teachers who engage in online communities are looking for participatory learning that directly relates to practice, opportunities to share professional knowledge and engage in professional discussions, as well as the ability to enjoy collegial support and experience a sense of camaraderie and belonging. Gray’s (2004) study of coordinators of Alberta Community Adult Learning Councils
participating in an online community illustrates how story-telling and the development of a shared repertoire of stories and cases functioned as a dynamic knowledge source for members of the community. These shared stories and cases helped to sustain knowledge sharing over time. Vavasseur and MacGregor’s (2008) research on teachers’ and principals’ use of online communities to extend content-focused professional development provides another example of a specific opportunity for sustaining knowledge sharing in an online community. This study contributes to an emerging body of literature that examines specific opportunities for sustaining knowledge sharing in online communities.

 Perhaps the greatest contribution my study makes to the literature is to identify the generative potential of structured conversations, and/or other types of structured interactions, for sustaining and extending knowledge sharing within online communities. As previously defined in Chapter 4, “structured conversations” are those that begin with an overarching question or issue of focus, proceed according to a pre-determined set of guidelines, are moderated, and take place during a bounded time frame. The notion of structured conversations came to light in my interview with Paul. Intrigued with the idea of structured conversations as a construct for knowledge sharing, in my subsequent analysis of data from the ETOC and PLNE communities, I found that the book clubs of ETOC, the Twitter conversations of PLNE, and to some extent, the webinars in all three communities provided further examples of this construct. All instances of structured conversations focused on “hot topics” that were directly relevant to daily concerns of the members of the community. From a theoretical perspective, structured conversations in online communities enable sustained mutual engagement around a practice, allowing members to explore good practice, articulate
perspectives, accumulate knowledge, and create a shared context for ongoing exchanges (Wenger, White, & Smith, 2009). From a practical perspective, the combination of a limited time frame and a highly focused discussion around a hot topic with supporting resources and guidelines for participation was appealing and valuable to busy educators. This finding lends further support to the findings of Dubé, Bourhis, and Jacob (2005) who examined the impact of structuring characteristics on online communities and found that the activity of successful communities centered on topics of conversation that were highly or moderately relevant to the daily concerns of members.

Another important facet of structured conversations in online communities of practice is the record of the conversation that remains as an artifact for later reference. Wenger, et al. (2009) posit that meaningful learning in social contexts requires not only direct engagement in activities, conversations, and other forms of participation, but also the production of physical and conceptual artifacts. They refer to the words, tools, concepts, methods, stories, documents, links to resources, and the like as forms of “reification.”

Meaningful learning in a community requires both participation and reification to be present and in interplay. Sharing artifacts without engaging in discussions and activities around them impairs the ability to negotiate the meaning of what is being shared. Interacting without producing artifacts makes learning depend on individual interpretation and memory and can limit its depth, extent, and impact. Both participation and reification are necessary (p. 58).
The process of participation and reification is fundamental to the learning theory underlying the concept of communities of practice (Wenger et al. 2009). The technology undergirding each community in this study supports and contributes to both participation and reification. In each community, these structured conversations facilitated a flexible learning agenda that was rooted in the stated purpose of the community but evolved based on the learning needs and interests of the community. The conversations not only encouraged participation, they resulted in reification of the ideas and concepts that were discussed. While participation and reification can occur without purposeful structured conversation, I believe structured conversations are an important practice for cultivating and sustaining knowledge sharing within online communities.

**The role of the moderator.** Wenger (2009) characterizes the leaders of communities of practice as “social artists” whose energy, skills, and craft are a driving force in the success of the community.

Social artists have a good understanding, sometimes completely implicit and intuitive, of the social discipline that makes social learning spaces productive. They have a knack for making people feel comfortable and engaged. They generate social energy among participants. They have a nose for the cultural and personal clues to social dynamics. They produce a climate of high trust and aspirations (Wenger, 2009, p. 10).

Consistent with prior research (e.g. Bourhis, Dubé, & Jacob, 2005; Gairín-Sallán, Rodríguez-Gómez, & Armengol-Asparó, 2010; Gray, 2004; Prestridge, 2010; Wenger, McDermott, & Snyder, 2002), findings from my study underscore the importance of leadership for cultivating and sustaining a knowledge sharing environment and facilitating the development
of trust in online communities. Prior research has established the essential role that the moderator plays in online communities. My study yields a similar finding to that of Gray (2004). In her study of the experiences of coordinators of Alberta Community Adult Learning Councils who participated in an online CoP designed to support workplace learning, Gray found that the presence of a moderator who is attuned to the cultural, social, and organizational issues of a particular practice is essential for sustaining the online community over an extended period and enabling it to evolve beyond superficial interactions. In each of the communities included in this study, the moderator exhibited knowledge of cultural, social, and organizational issues related to the practice of teaching, and more specifically, the particular domain of the community. This knowledge enabled the moderators to effectively guide members of the community to richer forms of knowledge sharing. Bourhis et al. (2005) also emphasized the important role of the moderator and discussed basic characteristics of successful moderators. For example, effective moderators had the ability to build alliances, foster trust, and find innovative ways to encourage participation. While this study lends support to the findings of Bourhis et al., the Bourhis et al. study examined the role of the moderator from the perspective of leadership teams who were tasked with “choosing” or hiring a moderator for their community. In the communities that were the focus of this study, only one community, NELN, had a paid moderator. In the other two cases, the moderators were not hired based on their characteristics, but rather formed and moderated the community on their own. Through their research, Gairín-Sallán et al. (2010) delineated the specific functions of the moderator, including the organizational function, the intellectual function, the social function, and the technological function. Cross-
case findings from this study affirm Gairín-Sallán et al.’s delineation of the four functions of the moderator and further suggest that the organizational, intellectual, and social functions are the most critical.

Cross-case findings from this study extend prior research that identifies the important role of the moderator by providing rich examples of both the visible work of the moderator as well as behind-the-scenes work of the moderator. Particularly in the cases of NELN and ETOC, patterns in the findings illustrate how the moderators of the community used social artistry to cultivate and sustain knowledge sharing. For example, Paul used behind-the-scenes emails to pull multiple voices into conversations, creating a tapestry of rich discussion and contribution by members. His acknowledgements of community members’ accomplishments in monthly newsletters also sparked passion and pride among community members for their individual and collective work within the domain of their practice. Similarly, Henry’s weekly newsletters provided a canvas on which he used his own experience and identity as an English teacher to inspire members, invite meaningful participation in the community, and create a web of trust. Through their daily involvement in the community, both moderators skillfully elevated the voices of practice, engendered a strong sense of community ownership among members, and facilitated connections and relationships. Though study findings clearly indicate that both Paul and Henry are masters, almost magical social artists within their communities; the presence of social artistry, as such, within the PLNE community was less apparent. However, this is not to say that the community was without leadership or guidance. The three co-leaders of the PLNE community (Ted, Arianna, and Benjamin) described in harmony their role as a trio in cultivating and sustaining knowledge sharing opportunities and
interactions within the community. Ted was identified by Benjamin and Arianna as the “mastermind” behind the community and primarily assumed “organizational and intellectual functions” as defined by Gairin-Sallan et al. (2010). Arianna primarily assumed the “social function” within the community, but also was heavily involved in organizational and intellectual tasks. Benjamin assumed the “technological functions.” While the impact of Paul and Henry’s artistry in their respective communities was palpable and powerful, evidence of the PLNE community’s success without this apparent artistry suggests that some aspects of social artistry may potentially be met through the combined skills of a well coordinated leadership team. One lingering question left from the examination of social artistry within the communities that were the focus of this study is, what happens to the community when the artist who has so masterfully orchestrated it “retires”? Is the success of each community based on the unique artistry of its moderator?

**Member roles.** In the cases of NELN and ETOC, several unofficial roles were played by members. For example, members of the community reported that there were “village elders,” “pot-stirrers,” “thought leaders,” and “peace keepers.” Each of these roles was based on both the personalities and the knowledgeability of the members who assumed them. Knowledgeability, as described by Wenger (2009), is a form of social identity that is anchored in practice. Each member brings to the community their stories, their experiences, and their expertise. Through the ongoing exchange of this knowledge, they develop social identities within the community. Over time, these identities may evolve into informal community roles. Along with the moderator of the community, the people who assume these roles propagate a knowledge sharing environment and the development of trust. Prior
research by Ardichvili, Page, and Wentling (2003) indicated that one of the difficulties in enabling online communities is supporting and enriching individual members’ uniqueness within the context of the community and linking that uniqueness with the community’s purpose. However, emerging research (e.g. Daly, 2010) that uses social network analysis to more systematically understand the social structure and potential of informal social learning in communities offers new insights into how knowledge sharing can be cultivated and sustained through the members of communities and their social identities. Coburn, Choi, & Mata (2010) suggest that members’ knowledge of each others’ existing expertise can be a key component in network formation, resulting in networks that not only have increased expertise but also the potential to strategically access this expertise to enhance individual and community functioning. Baker-Doyle and Yoon (2010) posit that “expertise transparency” is a key driver for strengthening social networks in teacher professional development. While technology facilitates the development of expertise transparency (Baker-Doyle & Yoon, 2010), findings from their study of teachers’ social networks suggest that the size of the community also influences the potential for expertise transparency. Applied to the findings of my study, Coburn et al.’s and Baker-Doyle and Yoon’s research suggest that the small membership of the NELN community, the detailed profiles provided by members, and opportunities for collaborative authorship on white papers and books may have helped to increase expertise transparency among members and thus increase and sustain knowledge sharing.

**Community usability.** Findings from this study reveal that “usability” is a common concern among moderators and members of the three communities. The usability of an online
community is concerned with the features and functions that enable users to interact successfully with technology across the human-computer interface (Jones & Preece, 2006).

Prior research has shown that knowledge accumulated by a community can easily become “a junkyard of disorganized insights” (Wenger et al., 2002, p. 102). In examining why some online communities succeed while others fail, Schlager, Fusco, and Shank (2002) noted that current Internet tools are not designed to support the ebb and flow of discourse and collaboration that characterize professional practice. In concluding their study of knowledge management support for teachers eight years ago, Carroll et al. (2003) suggested that further research was needed on processes for capturing and retrieving sharable knowledge online. Results of my study suggest that archiving sharable knowledge and providing search mechanisms for retrieving it continues to be a persistent difficulty. Members from all three communities expressed frustration with current systems for archiving and searching for information within the community. This frustration was most prevalent in the NELN community where members indicated that frustration with the inefficiency of the platform functionality is an increasing deterrent to participation in the community. As sharable knowledge in online communities continues to grow exponentially, this inefficiency may become an increasing barrier to communities’ capability for realizing their full potential. Research by Preece (2000) began to identify usability determinants of success but further empirical research is needed in this area.

Cultivating and Sustaining Trust

Social trust involves a calculation whereby a person decides whether to engage in an action with another individual that incorporates some degree of risk (Bryk & Schneider,
Cross-case findings from this study suggested common factors across communities that contributed to the cultivation of a fertile environment in which trust could develop and grow, including, the establishment of guidelines for participation and netiquette; the credibility of the moderator; and the competence of members. Findings further suggest that trust can be sustained by enforcing trustworthy behavior; frequent and personalized communication; sharing personal and professional information; and providing opportunities for face-to-face meetings.

Tschannen-Moran and Hoy (2000) posit that building trust requires attention to the five facets of trust. In order to be regarded as trustworthy, a person must demonstrate benevolence, reliability, competence, honesty, and openness. Findings from this study reveal evidence of all facets of trust being demonstrated by the moderator and members of the community; however, competence was frequently mentioned as the most important dimension of trust among members of the online communities. Community members were more likely to trust other members of the community if they perceived that the person was competent within a particular knowledge domain. Further, findings from my study indicate that members’ trust in the competence of other members and in the credibility of the moderator increased their willingness to engage in knowledge-sharing activities.

My finding that the moderator plays an important role in cultivating a trusting environment by enforcing trustworthy behavior is consistent with findings from Hew and Hara’s (2007) study of the motivators and barriers of teacher online knowledge sharing, as well as implications from Fang and Chiu’s (2010) study of knowledge-sharing continuance intentions in online communities of practice. This study builds on prior research by also
illuminating the role of “sheriff” that community moderators often play. As sheriff of a community, community moderators assume responsibility for enforcing trustworthy behavior. They earn their right to wear a sheriff’s badge through their competence, credibility, and reliability. My study makes a further contribution to the literature by describing specific strategies moderators used for enforcing trustworthy behavior. For example, when firmness is needed to guide member interactions that have gone awry, Paul often begins by calling on people’s better nature with a gentle behind-the-scenes email. Paul also uses his core group to help him model good community behavior. When someone in the community needs to be “steered” in a particular direction, he sends an email to a handful of core members and requests their assistance in modeling appropriate behavior. While this study identified some of the practices of moderators as they assumed this role, future research that examines this role more closely and delineates specific sheriffing tactics may be particularly useful to practitioners who are creating and stewarding online communities.

Moolenaar and Sleegers’ (2010) latest research using social network theory to examine social networks, trust, and innovation explicates the relationships between social network characteristics and trust. Their findings suggest that dense networks of teachers engaged in a common exchange of work-related information and discourse contributes to the development of trust. In reflecting on the findings from this study, it is not surprising that trust was most salient in the NELN community where teachers had the opportunity to work collaboratively in small groups focused on particular problems of practice. Trust also tended to deepen when members of the ETOC community worked together to host a summer webstitute or engaged collaboratively in thinking about problems of practice raised in book
club conversations. My findings, that structured interactions around problems of practice provide an important vehicle for knowledge-sharing, lend support to Moolenaar and Sleegers’ recommendation that educational practitioners invest time and energy in building strong networks of teachers that focus on work-related discussions. It is through these interactions that teachers have the opportunity to build trust that leads to increased knowledge sharing. Further, my findings in general affirm findings from previous studies of online communities (e.g. Fang & Chiu, 2010; Lin, 2006; Ridings, Gefen, & Arinze, 2002; Usoro, Sharratt, Tsui, & Shekhar, 2007) that establish trust and knowledge sharing as mutually reinforcing processes.

**Reflections on the Theoretical Framework**

This study was guided by Wenger’s (1998) social theory of learning and the theoretical construct of communities of practice (Lave & Wenger, 1991; Wenger, 1998). Though the framework proved useful to an extent, there were limitations that are worthy of note. This theoretical framework was chosen as a lens for examining online communities because of its relevance to the study of the informal and social aspects of creating and sharing professional knowledge. Central to the communities of practice framework is the process of “legitimate peripheral participation” whereby less experienced members of the community learn through social interactions with more experienced members and experts of a specific knowledge domain (Lave & Wenger, 1991). While the communities of practice framework and the notion of peripheral participation provided a useful lens for examining aspects of the ETOC community, the notion of peripheral participation was less useful in
examining interactions within the NELN and PLNE communities where members of the community did not necessarily move along a trajectory from inexperienced to more experienced educational practitioners. Another weakness of the communities of practice framework is that it only enabled me to examine macro aspects of the community rather than the micro aspects (specific practices that cultivate knowledge sharing and trust) that I set out to study. Bozarth (2008) examined the usefulness of Wenger’s framework in understanding a community of practice. Based on in-depth analysis, her findings revealed several ways in which the framework proved ineffective or incomplete. Among the limitations found was whether the framework is applicable to all CoPs. I concur with Bozarth’s finding that the CoP framework may not be applicable to all CoPs.

Barab, Schatz, and Scheckler (2004) and Levine (2010) propose that the combination of activity theory (Engeström, 1987) and the communities of practice framework might provide a more robust analytical lens for examining ongoing teacher collaboration and learning. Levine (2010) notes that while activity theory does not comprise a conception of teacher community, it does offer conceptual tools for examining different forms of human interaction. Activity theory examines the rules, division of labor, community, and the artifacts that mediate a subject’s ability to achieve the object (intended outcomes) of their activities (Engeström, 1999). This combination would provide a macro lens for examining the community as a whole and a micro lens for examining activities within the community. Consistent with examining both macro and micro levels of activity within a community, Engeström and Sannino (2010) suggest that theory of expansive learning may also provide a
useful framework for examining communities. Engestrom explains that the core idea behind expansive learning is qualitatively different from both acquisition and participation.

In expansive learning, learners learn something that is not there yet. In other words, the learners construct a new object and concept for their collective activity, and implement this new object and concept in practice (p. 2).

Future research on online learning communities for educators may find the application of activity theory and the theory of expansive learning more useful theoretical frameworks for examining the specific practices and outcomes of online communities.

Social network theory and social capital theory may also serve as useful theoretical frameworks for further examining knowledge sharing and the development of trust in online communities. A network perspective examines the web of relationships within a network and analyzes how those relationships support or constrain opportunities (Daly, 2010). The application of social network theory to the study of online communities for teachers is further considered in the section of this chapter on “Recommendations for Future Research.”

**Implications for Practice**

Collectively, the cases of this study provide a better understanding of online communities as social learning spaces. While the findings do not result in a recipe for creating and sustaining successful communities that could be implemented in isolation of the myriad of contextual factors from which they arose, they do have implications for practitioners. The following suggestions, based on the prior discussion of salient findings, are
offered as points of consideration for practitioners who are creating and/or stewarding online communities of practice.

Cultivating and sustaining knowledge sharing. This study underscores the importance of leadership in online communities. Without the social artistry and guidance of a single leader or a team of leaders, online communities will unlikely reach their full knowledge sharing potential. In addition to formally recognized moderator roles within the community, the findings of this study also suggest that influential members of the community may play an integral role in the social artistry of a community. Their energy, involvement, and unique contributions can create and sustain a rich environment for knowledge sharing interactions. Supporting the development of informal member roles within the community by increasing expertise transparency may help to increase knowledge sharing and the deepening of trust among members. Patterns in the findings from this study suggest that structured interactions among members can serve to both anchor the vision and collective goals of the community, while simultaneously creating new knowledge frontiers for exploration by members. With the proliferation of knowledge that is accumulating in online communities, community creators should focus time and resources on the archiving this information in searchable useable forms. More efficient tagging systems and search engines are needed for the organization of knowledge repositories. Based on the major findings of the study related to cultivating and sustaining knowledge sharing, Table 4 delineates specific implications for practice.
Table 4
*Cultivating and Sustaining Knowledge Sharing: Implications for Practice*

<table>
<thead>
<tr>
<th>Major Findings</th>
<th>Implications for Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collective identity, clear</td>
<td>• Determine the target audience for the community; engage in targeted recruitment of members.</td>
</tr>
<tr>
<td>purpose, recruitment</td>
<td>• Identify the common interests and concerns related to practice that members share.</td>
</tr>
<tr>
<td></td>
<td>• Determine the purpose of the community as it relates to the common interests and problems of practice that members share.</td>
</tr>
<tr>
<td></td>
<td>• State the purpose of the online community on the community website.</td>
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<tr>
<td></td>
<td>• Frequently reiterate the purpose of the community through ongoing communications such as weekly or monthly newsletters.</td>
</tr>
<tr>
<td></td>
<td>• Identify avenues for participation, indicating ways in which they directly relate to the purpose of the community.</td>
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<tr>
<td>Leadership and effective</td>
<td>• Select a well-connected community leader who has competence and credibility within the field.</td>
</tr>
<tr>
<td>moderation</td>
<td>• Select a community leader who is attuned to key issues, passions, and concerns of the group.</td>
</tr>
<tr>
<td></td>
<td>• Select community leader with excellent online communication skills and experience moderating online communities.</td>
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<td></td>
<td>• Recognize the time commitment needed to lead the community; allow and compensate for that time accordingly.</td>
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</table>
Table 4 Continued

<table>
<thead>
<tr>
<th>Major Findings</th>
<th>Implications for Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple options and opportunities for</td>
<td>• Provide a range of opportunities for members to engage in the community. Options should</td>
</tr>
<tr>
<td>knowledge sharing</td>
<td>include informal knowledge-sharing opportunities such as online discussion forums, as</td>
</tr>
<tr>
<td></td>
<td>well as more organized opportunities such as webstitutes or other collaborative projects.</td>
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<tr>
<td></td>
<td>• Provide members with opportunities to participate in structured conversations that</td>
</tr>
<tr>
<td></td>
<td>centered on hot topics, are limited in duration, and result in tangible resources,</td>
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<tr>
<td></td>
<td>links, documents, or the like.</td>
</tr>
<tr>
<td></td>
<td>• To increase the impact of members’ experiences in the community, directly link</td>
</tr>
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<td></td>
<td>knowledge-sharing opportunities to problems of practice.</td>
</tr>
<tr>
<td>Member roles</td>
<td>• Acknowledge and support informal member roles that emerge.</td>
</tr>
<tr>
<td></td>
<td>• Increase expertise transparency through detailed user profiles to facilitate development</td>
</tr>
<tr>
<td></td>
<td>of unique member identities.</td>
</tr>
<tr>
<td></td>
<td>• Provide opportunities for collaboration in which members are invited to share their</td>
</tr>
<tr>
<td></td>
<td>specific expertise</td>
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<tr>
<td>Community usability</td>
<td>• Capture and archive artifacts of knowledge sharing among members for future use by</td>
</tr>
<tr>
<td></td>
<td>members within the community and potentially outside of the community.</td>
</tr>
<tr>
<td></td>
<td>• Develop efficient tagging systems and search engines for knowledge repositories.</td>
</tr>
</tbody>
</table>

**Cultivating and sustaining trust.** Trust is a key facilitating factor for knowledge sharing in online communities. Trust builds and maintains exchange relationships which can lead to quality knowledge sharing (Bryk & Schneider, 2002). While many of the practices
that cultivate and sustain knowledge sharing in online communities reciprocally help to establish and deepen trust among members of a community, there are additional practices that exhibit promise for increasing and sustaining trust. Based on the findings related to trust from this study, implications for practice are offered in Table 5 below.

Table 5

*Cultivating and Sustaining Trust: Implications for Practice*

<table>
<thead>
<tr>
<th>Major Findings</th>
<th>Implications for Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guidelines for participation</td>
<td>• Establish guidelines for participation in the community upfront and post these guidelines on the community website.</td>
</tr>
<tr>
<td>Trustworthy behavior</td>
<td>• Enforce trustworthy behavior.</td>
</tr>
<tr>
<td></td>
<td>• Call on core members of the community to model desired community behavior and interaction.</td>
</tr>
<tr>
<td>Competence and credibility of members</td>
<td>• Provide mechanisms and opportunities for members to share their expertise and experiences.</td>
</tr>
<tr>
<td>Social presence</td>
<td>• Reinforce a sense of community through frequent and personalized communication.</td>
</tr>
<tr>
<td></td>
<td>• Provide opportunities for face-to-face meetings.</td>
</tr>
<tr>
<td></td>
<td>• Increase expertise transparency</td>
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</tbody>
</table>

**Recommendations for Future Research**

The potential of structured conversations and/or other structured interactions in online communities revealed through this study suggests possibilities for future research. My findings are consistent with the view that the social interactions and work-related discourse between educators that lie at the heart of successful educational innovation are a valuable
resource that has only just begun to be tapped (Moolenaar & Sleegers, 2010). The use of design-based research (DBR) methodology to study the potential of structured conversations in different online community contexts and for different purposes would provide tangible examples of knowledge sharing among educators, better ties between theory and practice, and would acknowledge learning in context (Collins, Joseph, & Bielaczyc, 2006; Dede, Ketelhut, Whitehouse, Breit, & McCloskey, 2009). Design experiments centered on the use of structured conversations could occur within a single community, such as those highlighted in this study, or across multiple communities. For example, members of various communities of content-specific professional organizations (e.g. National Council for Teachers of Mathematics, National Council for Teachers of English, National Science Teachers Association) may engage in structured conversations around a hot topic of interest such as “cloud computing” or “student-owned devices.” Design experiments centered on structured conversations could involve multiple stakeholder groups. For example, structured conversations within an online community whose purpose is to promote universal design for learning (UDL) might draw in parents, teachers, students, administrators, and researchers. In combination with design experiments, an interaction analysis model (e.g. Gunawardena, Lowe, & Anderson, 1997) could be used to examine social construction of knowledge and determine the quality of the learning experiences in which community members engage. Gunawardena (1999) posits that if online communities are to be used as a versatile medium for adult learning, then “careful attention must be paid to the design of interaction that can foster the negotiation of meaning, the validation of knowledge, and the construction of knowledge through social negotiation” (p. 2).
While results of this study shed some light on informal member roles within online communities, additional research is needed to better understand the role of influential members in cultivating and sustaining knowledge sharing and trust. Use of Social Network Analysis (SNA) as a methodological tool may be helpful in analyzing the interactions and connections of influential members. Recent research by Baker-Doyle and Yoon (2010, 2011) used SNA to examine the ways in which informal teacher networks maximized teachers’ access to practitioner-based social capital (PBSC). Practitioner-based social capital is defined as the resources, information, and support for effective teaching available through a teacher’s social network. I liken PBSC to the types of knowledge sharing and trust that have been the focus of this study. Baker-Doyle and Yoon (2011) suggest that using SNA to investigate PBSC can reveal the distribution of content knowledge in a network of teachers and enable researchers to better understand how to foster and sustain knowledge sharing. They further emphasize that teachers’ “self-organization [into informal collaborative groups] should not mean unexamined organization” (p. 125). They suggest that researchers go below the surface of informal networks and develop a better theoretical and empirical understanding of how teachers learn with and from others. Future research should identify influential members in online communities and use SNA to better understand how they function within the context of a particular community and perhaps across communities. Within this analysis, it may also be fruitful to examine subgroups of influential members. Daly (2010) suggest that subgroups are an important relational structure through which knowledge readily flows. The online communities that were the focus of this study were relatively large. In particular, ETOC has well over 20,000 members. Using “whole network analysis” in which the network is
analyzed at the whole level (De Lima, 2010) is not feasible for this size community. A more appropriate level of analysis for examining the role of influential members in online communities would be egocentric network analysis. De Lima explains that egocentric network analysis consists of a focal actor (“ego”) and a set of alters who have ties to the ego. Researchers typically study a sample of ego networks within a given population (e.g. a large online community). Penuel, Riel, Krause, and Frank (2009) suggest that when coupled with interview and observational data, social network data can provide valuable information on the ways in which the social structure of a teacher network supports or impedes sharing of knowledge and expertise. A strength of social network analysis is that the data collected preserves the interconnected nature of the network being studied (Daly, 2010).

**Concluding Thoughts**

As noted in Chapter 1, an impetus for wanting to better understand successful online communities grew out of my experience in setting up an online community for 1:1 educators in North Carolina. While there was great enthusiasm for the creation of the community, actual community use did not measure up to expectations. In concluding this study, it seems appropriate to use the findings of the study as a lens for evaluating aspects of the NC 1:1 online community. The purpose of the NC 1:1 community is clear. It is a community for 1:1 educators to share and discuss ideas related to planning, implementing and sustaining effective 1:1 learning technology programs. Members of the community were purposefully recruited to the community and willingly joined. However, in light of this study’s findings, without question, the most significant shortcoming of the NC 1:1 online community is the absence of leadership and effective moderation. There is no one behind the wheel driving the
community. There is no social artistry; no one to generate social energy, build alliances, foster trust, and move the community beyond superficial interactions. A competent and credible moderator could potentially breathe new life into community and cultivate a rich environment for knowledge. Beyond the advertisement of webinars hosted by the NC 1:1 Learning Collaborative (of which the NC 1:1 community is a part), there are no structured activities or opportunities for knowledge sharing within the community. Providing these types of opportunities may help to cultivate and sustain knowledge sharing among members. For example, structured conversations that tease out different dimensions of the NCLTI Framework for Planning and Implementing 1:1 Programs could engage administrators in more closely examining the aspects of planning needed to successfully implement a 1:1 program. Teachers involved in the implementation of 1:1 programs share many fears and concerns about teaching in a 1:1 classroom and issues of classroom management. Structured conversations around problems of practice related to teaching in a 1:1 classroom could increase knowledge sharing and also cultivate trust among members. Social presence within the NC 1:1 community is noticeably missing. More frequent and personalized communication is one strategy that could be employed to help increase social presence. In the current structure of the community, it is difficult to discern members’ areas of expertise. More detailed member profiles, opportunities for engagement in collaborative projects, and opportunities for face-to-face meetings may potentially contribute to the development of expertise transparency and informal member roles. This in turn could also increase social presence. While the Ning platform on which the community is built provides mechanisms for archiving artifacts, a more intuitive and efficient system is needed for archiving and
searching for community artifacts. For example, over a year ago, a principal from a 1:1 school posted their Acceptable Use Policy (AUP) within a discussion thread, within a group, within the community as an exemplar for other schools to use as a reference. Trying to find this resource now is nearly impossible. Having a more efficient tagging system and search engine for our knowledge repository would help to facilitate knowledge exchange. Lastly, the need for enforcing trustworthy behavior in the NC 1:1 community has not yet become salient due to the inactivity in the community; however, establishing guidelines and norms for participation upfront may help to deter unwanted behavior from the beginning.

Online learning communities have great potential to provide a form of ongoing professional development and support for teachers. Situated in the context of teachers’ everyday work, they facilitate informal knowledge sharing, the transfer of expertise and experiences, and the exchange of ideas in ways that contribute to teachers’ continual professional learning. They enable teachers to gain equitable access to human and information resources that may not be available locally and reduce feelings of disconnectedness or isolation. In addition to enabling members to share existing knowledge, online communities provide an environment for new knowledge creation. As our world becomes increasingly digital and connected, it is essential that we find ways of leveraging the power of social networks to support, encourage, and sustain professional learning. This study contributes to our base of knowledge for understanding successful online communities by identifying specific practices across multiple communities that cultivate and sustain knowledge sharing and trust.
REFERENCES


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doi:10.1177/0022487108328488


doi:10.1145/606272.606290


Gunawardena, C. N. (1999). *The Challenge of Designing and Evaluating "Interaction" in Web-Based Distance Education*.


APPENDIX
## Appendix A

### Overview of Studies

Table A Overview of Studies Included in Chapter 2 Literature Review

<table>
<thead>
<tr>
<th>Study</th>
<th>Purpose</th>
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<tr>
<td>Ardichvili, A., Maurer, M., Li, W., Wentling, T., &amp; Stuedemann, R. (2006). Cultural influences on knowledge sharing through online communities of practice.</td>
<td>Explore cultural factors influencing knowledge sharing strategies in online communities. Corporate Online communities.</td>
<td>Qualitative study; N = 1 online community Semi-structured interviews</td>
<td>Factors such as the degree of collectivism, competitiveness, the importance of saving face, and in-group orientation had different levels of importance among cultural contexts of 3 different countries.</td>
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<td>Ardichvili, A., Page, V., &amp; Wentling, T. (2003). Motivation and barriers to participation in online knowledge-sharing communities of practice.</td>
<td>To contribute to the understanding of factors determining the success of online knowledge-sharing communities of practice by exploring the reasons for the members’ active participation in these communities, and barriers to this participation.</td>
<td>Qualitative study N = 3 online communities Semi-structured interviews (N = 30)</td>
<td>When employees view knowledge as a public good belonging to the whole organization, knowledge flows easily. However, even when individuals give the highest priority to the interests of the organization and their community, they tend to shy away from contributing knowledge for a variety of reasons including, fear of criticism, or of misleading the community members. To remove barriers to K-S, there is a need for developing various types of trust.</td>
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<td>Babinski, L. M., Jones, B. D., &amp; DeWert, M. H. (2001). The roles of</td>
<td>To examine the roles of faculty and peers in an online community by</td>
<td>Qualitative study. N = 1 online</td>
<td>First-year teachers were more likely to respond with messages that relate to a personal experience while the faculty were more likely to share knowledge or encourage reflections.</td>
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<td>facilitators and peers in an online support community for first-year</td>
<td>examining their responses to problems posted by first-year teachers.</td>
<td>community Micro content analysis</td>
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<td>teachers.</td>
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<td>of all online posts.</td>
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<td>Barab, S. A., MaKinster, J. G., &amp; Scheckler, R. (2003). Designing</td>
<td>Focuses on the challenges encountered in attempting to support the</td>
<td>Qualitative N = 1 online</td>
<td>Designing for online communities involves balancing and leveraging complex dualities from the “inside” rather than applying some set of design principles from the “outside.” This research provides an illuminative case study from which others can more readily identify patterns occurring in their own interventions and navigate the challenges they face more intelligently.</td>
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<td>System Dualities: Characterizing a Web-Supported Professional</td>
<td>development of an online community of practice for grad 5-12 math and</td>
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<td>Development Community</td>
<td>science teachers. Examines the interplay among a variety of variables</td>
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<td>that characterize the dynamics of building a social network through</td>
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<td>which participating teachers will seek to share and improve their</td>
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<td>pedagogical practices.</td>
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<td>Barab, S., Schatz, S., &amp; Scheckler, R. (2004). Using activity theory</td>
<td>To apply activity theory as an analytical lens for characterizing the</td>
<td>Qualitative N = 1 online</td>
<td>Activity theory and sociotechnical interaction network are synergistic theoretical frameworks that, when taken together, can provide a richer view of design activity and community functioning than either can offer in isolation.</td>
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<td>to conceptualize online community and using online community to</td>
<td>process of designing and supporting the implementation of an online</td>
<td>community Naturalistic inquiry.</td>
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<td>conceptualize activity theory.</td>
<td>community while conceptualizing the online community as a sociotechnical</td>
<td>Interview data, notes of</td>
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<td>interaction network.</td>
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<td>Beenen, G., Ling, K., Wang, X., Chang, K., Frankowski, D., Resnick, P., et al. (2004). Using social psychology to motivate contributions to online communities.</td>
<td>To use social psychological theories of social loafing and goal-setting to examine design principle for addressing under contribution in an online community.</td>
<td>Quantitative. N = 1 online community Experiment</td>
<td>Members of an online community contributed more content when they were reminded of their uniqueness and when they were given specific and challenging goals.</td>
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<td>Bourhis, A., Dubé, L., &amp; Jacob, R. (2005). The success of online communities of practice: The leadership factor.</td>
<td>To investigate how the actions taken the leaders of online communities may influence their success.</td>
<td>Mixed methods. N = 8 online communities. Field notes and online questionnaires.</td>
<td>Finding show that the leader of an online community has an important influence on its success. Three crucial elements for successful leadership: (1) the amount of time the leader can devote to the community; (2) the leader’s selection based on his/her personality, enthusiasm, and skills; and (3) the presence and selection of a coach. The most successful communities in the study had very involved leaders who possessed the ability to build political alliances, to foster trust, and to find innovative ways to encourage participation.</td>
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<td>Carr, N., &amp; Chambers, D. P. (2006). Teacher professional learning in an online community: The experiences of the national quality schooling framework pilot project.</td>
<td>To examine current barriers to the realization of the potential of an online community to foster teacher professional learning.</td>
<td>Qualitative. N = 1 online community Semi-structured interviews</td>
<td>Findings suggest a combination of organizational and personal factors contribute to low use of the community by teachers. Organizational barriers include: reflective sharing of practice not valued; time not allocated for reflective sharing of practice; online communication not integral to teachers’ lives; and access to technology limited. Personal barriers include: reluctance to share personal practices; preference for f2f communication; perceived permanence of text.</td>
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<td>Carroll, J. M., Choo, C. W., Dunlap, D. R., Isenhour, P. L., Kerr, S. T., MacLean, A., et al. (2003). Knowledge management support for teachers.</td>
<td>To examine how the concepts, tools, and techniques of organization knowledge management used by business organizations can be applied to the professional practices and development of teachers.</td>
<td>Qualitative. N = 1 online community</td>
<td>Findings describe the development of a knowledge management support system emphasizing long-term participatory design relationships between technologists and teachers, regional cooperation among teachers in adjacent school districts, the integration of communication and practice, synchronous and asynchronous interactions, and multiple metaphors for organizing knowledge resources and activities.</td>
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<td>Chapman, C., Ramondt, L., &amp; Smiley, G. (2005). Strong community, deep learning: exploring the link.</td>
<td>To explore the constructivist understanding that shared practitioner research leads to deeper learning.</td>
<td>Qualitative N = 2 online communities, Grounded analysis</td>
<td>A strong similarity in the community and learning graphs suggests an association between the two. Recommendations point to the importance of building collaboration and community, integrating formative assessment, and freeing the learning-facilitator from tasks that the community can fulfill, so that they can focus on their primary role of facilitating quality learning.</td>
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<td>Chiu, C.-M., Hsu, M.-H., &amp; Wang, E. T. G. (2006). Understanding knowledge sharing in online communities: An integration of social capital and social cognitive theories.</td>
<td>To investigate the motivations behind people’s knowledge sharing in online communities. Social Cognitive Theory and Social Capital Theory are integrated to construct a model for the investigation. The study holds that facets of social capital – social interaction ties, trust, norm of reciprocity, identification, shared vision and shared language – will influence individuals’ knowledge sharing in VCs. It is also argued that outcome expectations – both community related and personal – can engender knowledge sharing in VCs.</td>
<td>Quantitative N = 1 online community, Online survey (N = 310)</td>
<td>Results identify the motivations underlying individuals’ knowledge sharing behavior in online communities. Community-related outcome expectations (knowledge contributor’s judgment of likely consequences that his or her K-S will produce to the VC) play an important role underlying knowledge sharing in terms of both quantity and quality. Social interaction ties, reciprocity, and identification increase individuals’ quantity of K-S but not knowledge quality. Trust and shared language did not have a significant impact on quantity of K-S.</td>
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<td>Duncan-Howell, J. Teachers making connections: Online communities as a source of professional learning.</td>
<td>To examine the professional development experiences, attitudes, and skills of the members of online teacher professional learning communities.</td>
<td>Quantitative. N = 3 online communities Online survey (N = 98)</td>
<td>Results showed that teachers were committing 1-3 hours/week participating in the online community. Teachers were primarily seeking learning that focused on practical classroom strategies. 87% of respondents considered participation in the online community to be a meaningful form of PD.</td>
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<td>Fang, Y. H., &amp; Chiu, C. M. (2010). In justice we trust: Exploring knowledge-sharing continuance intentions in online communities of practice.</td>
<td>To understand what triggers VCoP members to voluntarily and continuously contribute knowledge and effort either to help another in need or to benefit the community. Three steams of research – justice, trust, and organizational citizenship behaviors – are integrated into 1 model to analyze the antecedents of knowledge-sharing continuance intentions in VCoPs.</td>
<td>Quantitative. N = 1 online community; Online survey (N = 142)</td>
<td>Findings indicate that altruism and conscientiousness have significant effects on members’ knowledge-sharing continuance intentions. Altruism can be encouraged in knowledge contributors by the conduct of other potential contributors. In VCoPs, the individuals’ beliefs in other members’ abilities (expertise and skills), integrity, and benevolence increase the individuals helping behaviors, which in turn determines the extent of knowledge contribution.</td>
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<td>Farooq, U., Schank, P., Harris, A., Fusco, J., &amp; Schlager, M. (2007). Sustaining a community computing infrastructure for online teacher professional development: A case study of designing Tapped In.</td>
<td>To present a case study of successfully and iteratively designing and sustaining a community computing infrastructure through the use of four design interventions.</td>
<td>Mixed methods&lt;br&gt;N = 1 online community&lt;br&gt;Online observations recorded through field notes, surveys, activity logs, and interviews.</td>
<td>Four design interventions described: (1) contact and bug forms; (2) needed features group; (3) task list; (4) help desk. Value of interventions lies in their integrated use as participatory design mechanisms to enhance end user participation and interaction with designers.</td>
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<td>Feng, J., Lazar, J., &amp; Preece, J. (2004). Empathy and online interpersonal trust: A fragile relationship.</td>
<td>To examine the impact of empathy on interpersonal trust in online textual environments. (Empathy: the ability of accurately inferring another person’s feeling and responding compassionately to another person’s distress)</td>
<td>Quantitative.&lt;br&gt;N = 1 online community&lt;br&gt;Experiment</td>
<td>Empathic accuracy and response type have a significant influence on online interpersonal trust. Communication partners who talked in an empathic accurate and supportive way were most trusted by the participants. Empathic accuracy itself does not guarantee trust. In order to win other people’s trust online, a person not only needs to correctly infer the other’s feeling, but also provide supportive response. Additionally, online interpersonal trust is closely related to the degree of liking. People who are more liked by others also gain more trust from them. Findings suggest that people can become more likable online by providing more information and stories about themselves. Online trust may be influenced by the type of online communities and discussion topics.</td>
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<td>Gairín-Sallán, J., Rodríguez-Gómez, D., &amp; Armengol-Asparó, C. (2010). Who exactly is the moderator? A consideration of online Knowledge Management network moderation in Educational Organisations.</td>
<td>To define the specific characteristics of the moderation of online networks for Knowledge Creation and Management in the educational field.</td>
<td>Qualitative s. N = 3 online communities Interviews and discussion groups.</td>
<td>Findings indicate that a consideration of the moderator’s inherent objectives in online environments and the tasks derived from these objectives leads to the acquisition and development of administrative and technical (organizational) knowledge and competences as well as other more complex knowledge and competences related to pedagogical, intellectual and social factors, without ignoring the need for them to understand and be familiar with the workings of CSCL where they will intervene.</td>
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<td>Gareis, C. R., &amp; Nussbaum-Beach, S. (2007). Electronically mentoring to develop accomplished professional teachers.</td>
<td>To identify, analyze, and describe the nature of professional conversations among mentor and novice teachers in an asynchronous, group-based, online mentoring environment.</td>
<td>Qualitative. N = 1 online community Descriptive case study based on content analysis of online posts.</td>
<td>Findings suggest that participants communicate in a networked fashion. Analysis of the functions of posts indicates that communications were supportive and confirming. The content of postings was substantively related to professional competencies.</td>
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<tr>
<td>Gray, B. (2004). Informal Learning in an Online Community of Practice.</td>
<td>To understand to what extend participants’ experiences in an online environment constituted a community of practice. Additionally, the study sought to understand the nature of the informal learning that occurred, motivations for participation, and the role played by the moderator in the community.</td>
<td>Qualitative study. N = 1 online community Online postings, live chat transcripts, e-mail correspondence, interview data, and participant survey.</td>
<td>Findings suggest that the online environment served as a tool for informal learning situated in the context of members’ everyday work experience. Motivations to participate included an opportunity to learn new skills, a means of social &amp; professional connection to colleagues, and a mechanism to reduce the isolation that was inherent in the job function &amp; geographical location. Findings also suggest that the moderator played an integral role in enhancing the functioning of the community by providing technical support, maintaining group process, nurturing the social aspects of the community, and facilitating learning.</td>
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<td>Hew, K., &amp; Hara, N. (2007). Empirical study of motivators and barriers of teacher online knowledge sharing.</td>
<td>To understand knowledge flows among teachers by examining what types of knowledge was shared by teachers, as well as what motivates or hinders teachers to share knowledge online.</td>
<td>Qualitative. N = 1 online community Online observations, semi-structured interviews (N = 20)</td>
<td>Findings suggest that two motives of community involvement – collectivism, and principlism appear to be the main motivators for knowledge sharers to share knowledge. Lack of knowledge and competing priority appear to be the main barriers.</td>
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<td>Hou, H.-T., Sung, Y.-T., &amp; Chang, K.-E. (2009). Exploring the behavioral patterns of an online knowledge-sharing discussion activity among teachers with problem-solving strategy.</td>
<td>To design and conduct an online problem-solving knowledge-sharing discussion activity for teacher communities. Additionally, to explore, through empirical observations, the influences and limitations of the activity in terms of knowledge-sharing, then propose feasible suggestions for teacher educators who want to promote teachers’ knowledge-sharing.</td>
<td>Mixed methods. N = 1 online community Quantitative content analysis, sequential analysis, and qualitative original protocol analysis (N = 495 teachers)</td>
<td>Findings suggest that the application of a problem-sharing knowledge-sharing activity has facilitative benefits on in-depth discussions. These discussion help to externalize teaching-related knowledge.</td>
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<td>Hsu, M.-H., Ju, T. L., Yen, C.-H., &amp; Chang, C.-M. (2007). Knowledge sharing behavior in online communities: The relationship between trust, self-efficacy, and outcome expectations.</td>
<td>To explore the knowledge sharing behaviors within the online communities of professional societies, this study proposes a social cognitive theory-based model that includes knowledge sharing self-efficacy and outcome expectations for personal influences, and multidimensional trusts for environmental influences.</td>
<td>Quantitative. N = 39 online communities Structural equation modeling and confirmatory factor analysis (N = 274 participants across the 39 communities)</td>
<td>Results indicate that self-efficacy has both direct and indirect effects on knowledge sharing behavior, implying that self-efficacy plays a critical role in guiding individuals’ behavior. Personal outcome expectations have a significant influence on knowledge-sharing behavior, while community-related outcome expectations do not. Findings also reveal that economy-based trust and information-based trust must be established before identification-based trust can be developed. Identification-based trust plays a critical role in knowledge sharing behavior.</td>
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<td>Hur, J. W., &amp; Brush, T. A. (2009), Teacher participation in online communities: Why do teachers want to participate in self-generated online communities of K-12 teachers?</td>
<td>To examine reasons for teacher participation in online communities of K-12 teachers.</td>
<td>Qualitative N = 3 online communities Interviews (N = 23) and analysis of online posts</td>
<td>Findings indicate 5 reasons for participation: (1) sharing emotions; (2) utilizing the advantages of online environments; (3) combating teacher isolation; (4) exploring ideas; and (5) experiencing a sense of camaraderie. Findings imply that when designing teacher professional development programs, more emphasis needs to be placed on teachers’ emotional sharing and promotion of self-esteem.</td>
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<td>Har, J. W., &amp; Hara, N. (2007). Factors cultivating sustainable online communities for K-12 teacher professional development.</td>
<td>To discover factors related to fostering a sustainable online community for K-12 teachers.</td>
<td>Qualitative N = 1 online community Interviews, analysis of online postings, and participant observations.</td>
<td>Twelve factors, including 8 support factors and 4 hindrance factors, were identified. Factors were categorized into 3 subgroups: internal, external, and outcome factors. Findings revealed that internal factors, such as having a sense of ownership and autonomy and acknowledging the value of participation played a significant role in the growth of the community. It was also noted that the value of teachers' participation was related to their belief that active involvement in the community improves student learning. Teachers also reported that participation is a valuable part of their PD.</td>
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<td>Jeppesen, L. B., &amp; Laursen, K. (2009). The role of lead users in knowledge sharing.</td>
<td>Study introduces a model of knowledge sharing in an online community that suggests that knowledge contributions will be made by those who possess the relevant knowledge. For them, matching a ready-made solution to a problem is low cost. It is hypothesized that lead users – due to their characteristics – are likely to possess more relevant solution knowledge and thus be centrally involved in contributing knowledge.</td>
<td>Mixed methods. N = 1 online community Surveys, content analysis of web logs, interview with key respondents</td>
<td>Results support hypothesis by showing that lead user characteristics relate positively to making contributions to the community. In addition, it was found that search and integration of knowledge from different external sources of relevance to the community positively moderates knowledge contributions by lead users.</td>
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<td>Jones, A., &amp; Preece, J. (2006). Online communities for teachers and lifelong learners: a framework for comparing similarities and identifying differences in communities of practice and communities of interest.</td>
<td>To present a framework that supports the analysis, development and maintenance of online and blended communities. To apply the framework to two community case studies that differ along several key dimensions.</td>
<td>Qualitative N = 2 online communities</td>
<td>The analysis draws attention to the differences between the two types of communities. It also highlights the advantages and weaknesses of the framework with respect to these two case studies.</td>
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<td>Lin, F. R., Lin, S. C., &amp; Huang, T. P. (2008). Knowledge sharing and creation in a teachers’ professional online community.</td>
<td>To identify factors in individual, group, organizational, and environmental contexts which affect knowledge sharing and creation in a professional online community.</td>
<td>Qualitative. N = 1 community Grounded theory</td>
<td>Resulting model articulate causal conditions, action/interaction strategies, consequence, and contextual environments. The concept of knowledge buckle is derived to connect the knowledge transfer among socialization, externalization, and combination activities.</td>
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<td>Lin, H.-F. (2006). Understanding Behavioral Intention to Participate in Online Communities.</td>
<td>To identify the attitudinal, social, and perceived behavioral control factors that influence members intentions to participate in online learning communities.</td>
<td>Quantitative. N = 3 online communities Structural equation modeling (N = 165 community members)</td>
<td>Results indicate that attitude and perceived behavioral control significantly influence member behavioral intentions, while subjective norms do not.</td>
</tr>
<tr>
<td>Lin, M. J., Hung, S. W., &amp; Chen, C. J. (2009). Fostering the determinants of knowledge sharing in professional online communities.</td>
<td>To investigate how the contextual factors (norm of reciprocity and trust) and personal perceptions of knowledge sharing (knowledge sharing self-efficacy, perceived relative advantage, and perceived compatibility) can influence online community members’ willingness to share knowledge with other members and their loyalty to their communities.</td>
<td>Quantitative. N = 3 online communities Online survey (N = 350) Confirmatory factor analysis.</td>
<td>Results show that trust significantly influences knowledge sharing self-efficacy, perceived relative advantage and perceived compatibility, which in turn positively affect knowledge sharing behavior. Furthermore, the study finds that the norm of reciprocity does not significantly affect knowledge sharing behavior.</td>
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<tr>
<th>Study</th>
<th>Purpose</th>
<th>Methodology</th>
<th>Findings</th>
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<tbody>
<tr>
<td>Mathwick, C., Wiertz, C., &amp; De Ruyter, K. (2007). Social capital</td>
<td>To empirically examine the determinant of social capital and the</td>
<td>Mixed methods. N= 1 online</td>
<td>Results demonstrate that social capital is a latent construct, and intangible resource that is determined by the normative influences of voluntarism, reciprocity, and social trust.</td>
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<td>production in an online P3 community</td>
<td>consequences of its accumulation in a online community.</td>
<td>community</td>
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<td>Nonnecke, B., Andrews, D., &amp; Preece, J. (2006). Non-public and public</td>
<td>To examine the nature of lurking, why people lurk and the differences in</td>
<td>Quantitative. N = 375 online</td>
<td>Results indicate significant differences between people who lurk and those who post in an online community. When people lurk they are observing, which in no way is a negative behavior. This introverted or passive behavior affects lurkers’ attitudes about the benefits of the community, their expectations, and opinions of themselves and others who lurk. In general lurkers are less optimistic and less positive than those who post.</td>
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<td>online community participation: Needs, attitudes and behavior</td>
<td>attitudes between lurkers and posters.</td>
<td>communities Survey (N = 1188)</td>
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<td>Preece, J., Nonnecke, B., &amp; Andrews, D. (2004). The top five reasons for lurking: improving community experiences for everyone. (same data as study above)</td>
<td>To understand why people prefer not to contribute to online communities.</td>
<td>Quantitative. N = 375 online communities Survey (N = 1188)</td>
<td>Results indicate the main reasons why lurkers lurk were concerned with: not needing to post; needing to find out more about the group before participating; thinking that they were being helpful by not posting; not being able to make the software work; and not liking the group dynamics or the community was a poor fit for them. Two key conclusions were drawn: (1) there are many reasons why people lurk in online discussion communities, and (2) most important, most lurkers are not selfish free-riders. Ways to improve online community experiences include: improved software and better tools, moderation and better interaction support.</td>
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<tr>
<td>Prestridge, S. (2010). ICT professional development for teachers in online forums: Analyzing the role of discussion.</td>
<td>To examine the role of engaging teachers in constructive dialogue within an ICT (information and communication technologies) professional development activity.</td>
<td>Mixed methods N = 1 community (16 teachers)</td>
<td>Results suggest that collegial discussion was found to be important in developing and maintaining community. Critical discussion was vital for its role in transforming teachers’ beliefs. Factors that inhibit critical discussion include: the opportunities for teachers to “lurk” or disengage at any given time and the ease with which misunderstandings or comments can silence participation. Alternatively, the role of the leader and the change of leadership are found to have a positive impact on discussion.</td>
</tr>
<tr>
<td>Ridings, C. M., Gefen, D., &amp; Arinze, B. (2002). Some antecedents and effects of trust in online communities.</td>
<td>The study seeks to examine the emergence of trust in an online environment, the factors that lead to its development, and its importance to information exchange.</td>
<td>Quantitative N = 36 online communities Online survey (N = 663)</td>
<td>Trust had a downstream effect on members’ intentions to both give information and get information through the online community. Apparent dimensions of trust were increased through perceived responsive relationships in the community, by a general disposition to trust, and by the belief that others confide personal information.</td>
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<td>Schlager, M. S., Farooq, U., Fusco, J., Schank, P., &amp; Dwyer, N. (2009). Analyzing online teacher networks: Cyber networks require cyber research tools.</td>
<td>To examine the role of bridges or brokers in online communities. Bridges are people who belong to 2 or more groups. Study investigates how online participation varies between bridges and nonbridges in synchronous and asynchronous communities.</td>
<td>Mixed methods N = 1 online community</td>
<td>Bridges have greater content and ASO participation than nonbridges in both synchronous and asynchronous online environments. Results also reflect a general upward trend for participation by higher order bridges.</td>
</tr>
<tr>
<td>Schwen, T. M., &amp; Hara, N. (2003). Community of practice: A metaphor for online design?</td>
<td>Cross-case analysis of 4 online communities using the Communities of Practice framework.</td>
<td>Qualitative N = 4 online communities Cross-case analysis</td>
<td>Results identify 5 problems that should be considered before developing an online CoP: prescriptive vs. description distinction; ready-made versus communities in the making; knowledge of possession versus knowing in practice; mid-level social theory versus micro learning theory; and motivated members versus unwilling subjects. Additionally, authors suggest that CoP is not likely to be forced, but is emerging, and designers need to be aware of the characteristics of existing CoP to nurture them.</td>
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<td>So, W. W., Hung, V. H., &amp; Yip, W. Y. (2008). The digital video database: A online learning community for teacher education. Australasian Journal of Educational Technology</td>
<td>To investigate how an online digital video database and community supported pre-service teachers in constructing knowledge concerning good practices of teaching.</td>
<td>Qualitative N = 3 participants</td>
<td>Findings provide insight into how comments and feedback flowed within the learning community, and how the videos in the form of learning objects helped to generate various categories of teaching knowledge. A follow-up focus group discussion provided useful data regarding the possibilities and limitations of creating a learning community centered on sharing constructed learning object in an online digital database.</td>
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<td>Usoro, A., Sharratt, M. W., Tsui, E., &amp; Shekhar, S. (2007). Trust as an antecedent to knowledge sharing in online communities of practice. <em>Knowledge Management</em></td>
<td>To examine the role of trust in knowledge sharing within the context of online communities of practice.</td>
<td>Quantitative N = 1 online community Online survey (N = 75)</td>
<td>Trust across 3 dimensions – competence, integrity, and benevolence – are positively related to knowledge sharing in the online community. Trust base on the perceived integrity of the community was found to be the strongest predictor of knowledge sharing behavior.</td>
</tr>
<tr>
<td>Vavasseur, C., &amp; MacGregor, S. (2008). Extending content-focused professional development through online communities of practice.</td>
<td>To examine how the professional development of middle school teachers is facilitated through their participation in content-focused online communities of practice.</td>
<td>Mix methods N = 1 online community</td>
<td>Findings suggest that the online community provided teachers with enhance opportunities to share ideas, to discuss issues, and to make new connections with colleagues as well as with their principal. In addition, teachers gained curriculum-based knowledge, developed enhanced self-efficacy with respect to implementing technology, and collaborated on the development of interdisciplinary curriculum units.</td>
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<tr>
<td>Wasko, M. M., &amp; Faraj, S. (2005). Why should I share?</td>
<td>The purpose of the study is to understand why individuals participating in online communities of practice help strangers by providing advice or sharing information when there is no immediate benefit to the contributor – free-riders are able to acquire the same knowledge as everyone else. Theories of collective are applied to examine how individual motivations and social capital influence knowledge contribution.</td>
<td>Mixed methods. N = 1 online community Archival, network, survey, and content analysis data used to test model of knowledge contribution. Partial least squares structural equation analysis used to test the hypotheses.</td>
<td>People contribute their knowledge when they perceive that it enhances their professional reputations, when they have the experience to share, and when they are structurally embedded in the network. Surprisingly contributions occur without regard to expectations of reciprocity from others or high levels of commitment to the network.</td>
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<tr>
<td>Wu, J. J., Chen, Y. H., &amp; Chung, Y. S. (2009). Trust factors influencing online community members: A study of transaction communities.</td>
<td>To investigate the underlying driving forces that cultivate both the trust and returning behavior of online community members.</td>
<td>Quantitative N = multiple communities (381 participants)</td>
<td>Findings suggest that the shared values of online community members have a positive impact on both trust and relationship commitment. Second, satisfaction with previous interactions not only increases the level of trust in online community members, but also enhances relationship commitment and member stickiness. Third, website privacy policies enhance the level of trust significantly. Finally, trust shows a positive and significant effect on both the stickiness and the commitment of online community members.</td>
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<td>Young, M. L., &amp; Tseng, F. C. (2008). Interplay between physical and online settings for online interpersonal trust formation in knowledge-sharing practice.</td>
<td>To explore and interpret the interpersonal trust held by teachers as they are involved in knowledge sharing practice within both the complex society of school life and their professional online community of practice.</td>
<td>Qualitative N = 1 online community Phenomenological case study</td>
<td>Findings revealed 3 important facets of the interpersonal trust formation process in the online learning community: the social role of the teachers; the rigid and tight professional community; and the keys to breaking through.</td>
</tr>
<tr>
<td>Yu, T.-K., Lu, L.-C., &amp; Liu, T.-F. Exploring factors that influence knowledge sharing behavior via weblogs.</td>
<td>To explore the factors that facilitate voluntary knowledge sharing in an online community.</td>
<td>Quantitative N = 3 online communities Online survey (N = 442)</td>
<td>In addition to the positive effects of fairness and openness on community sharing culture, the study also found that enjoying helping, sharing culture and usefulness/relevancy are strongly linked to member knowledge sharing behavior.</td>
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Appendix B
Interview Protocols

Protocol for Moderator Interviews

Hello, my name is Sherry Booth. I am a doctoral student in Curriculum and Instruction at North Carolina State University. Thank you for taking time to talk with me about your the [name of community] online community. I am interviewing moderators and members from three different online communities as part of my dissertation research. This online community was selected for focused study because of its success. The purpose of my study is to better understand the specific practices of successful online learning communities for K-12 teachers. In particular, I am interested in learning how knowledge sharing is cultivated and sustained, and how trust is cultivated and sustained. I hope that my work will provide greater understanding of how future online learning communities for educators can be developed, supported, and sustained.

I would like to begin with a few disclosures:

- Your participation in this study is voluntary. You have the right to be a part of this study, to choose not to participate or to stop participating at any time.
- This interview will be recorded in order to have a complete record of our discussion. The discussion will be kept completely confidential. I will use code numbers in the management and analysis of the interview data and your name will not be associated with any discussion results. Audiotapes will be destroyed or erased at the completion of the study.
- I expect our discussion to last no longer than 60 minutes.

Again, thank you so much for your time today. Your responses will provide an invaluable service to assist in identifying key practices of successful learning communities.

STRUCTURE OF COMMUNITY
1. Why was this community created?

Among the most difficult challenges often faced by virtual communities is fostering and sustaining knowledge sharing. By knowledge sharing I’m referring to the give and take exchange of knowledge between members (viewing and posting knowledge). I’d like to ask you a few questions about how you first established a supportive environment for knowledge sharing.

2. In setting up the community, how did you structure it for knowledge sharing?
   - In what ways, if any, is the content of the community saved, organized and/or made available for future use?
In what ways has the structure of the community evolved or changed over time?
3. What are the written (or unwritten) rules or norms for knowledge sharing in this community?
   • How are these conveyed to the members?
4. What, if any, incentives for participation exist?
5. What information do you gather about the activities and workings of the community to make sure it stays healthy? For example, do you track participation or usefulness of content? How do you, in turn, use that data?

CARE AND FEEDING OF COMMUNITY
Now I’d like to talk a little about the ongoing “care and feeding” of your community.
6. What specific strategies do you use to encourage members to participate in the community?
   • Of the strategies you’ve experimented with, which have been most successful? Why?
   • How do you determine the “right” level of facilitation? In what ways are different levels of participation supported and facilitated (e.g. from lurkers to active members)?
   • Often teachers are hesitant to post in online communities because of a lack of confidence – what methods do you use to build their confidence?
   • Often teachers are unwilling to share their knowledge (“intellectual property” – i.e. lesson plans). How do you encourage sharing while respecting ownership?
7. How do members become aware of each other’s knowledge?
   • How do you tap the knowledge of members?
   • What enables members to judge the competence or credibility of other members?
8. What strategies do you use to create a sense of community among members?
9. Time-wise, how much care and feeding does this community require? Is the care and feeding of this community part of your job?

MEMBER ROLES
Next I have a few questions about the different roles that members of the community play. In particular, I’m interested in knowing more about the influential members of your community.
10. As you think about the members of this community, how would you describe the characteristics of influential members?
   • In what ways do knowledge-sharing practices of influential members differ from those of other members (even members that might be considered “active” in terms of the quantity of posts)?
11. What official or unofficial roles do different members of the community play?
   • As the moderator, are there specific strategies you use to support members in developing an identity within the community? (e.g. a leadership role)
12. How do you determine that someone is a leader?
   • Are leaders in the community formally recognized? If so, how?
   • Are they rewarded? If so, how?

TRUST
How is trust cultivated and sustained?
The personal relationships and the trust that develops between members of a community tend to significantly influence the amount of knowledge sharing that occurs in the community. I’d like to ask you a few questions related to the development of relationships and trust.

13. What do members risk by sharing their knowledge or expertise in this online community?
14. What practices increase members’ confidence that their well-being or their reputation will not be harmed by participating in knowledge sharing activities?
   - How do you encourage respect among members?
15. What practices increase members’ confidence that they can rely on you or on each other?
16. Are there formal mechanisms in place to ensure trustworthy behavior of individual members? If so, what are they?
17. Are you aware of any incidents when trust was broken (relational trust or institutional trust?) If so, how was it repaired?

WRAP-UP
A few final questions to wrap up our interview:
18. At what point did you know you truly had a “community”?
19. When does a community become self-sustaining?
20. What advice or “lessons learned” would you offer someone starting an online community?
21. Are there any other questions about knowledge sharing in online communities that I should have asked you?
Protocol for Member Interviews

Hello, my name is Sherry Booth. I am a doctoral student in Curriculum and Instruction at North Carolina State University. Thank you for taking time out of your busy schedule to talk with me about your participation in the [name of community] online community. I am interviewing moderators and members from three different online communities as part of my dissertation research. This online community was selected for focused study because of its success. The purpose of my study is to better understand the specific practices of successful online learning communities for K-12 teachers. In particular, I am interested in learning how knowledge sharing is cultivated and sustained. I hope that my work will provide greater understanding of how future online learning communities for educators can be developed, supported, and sustained.

I would like to begin with a few disclosures:

- Your participation in this study is voluntary. You have the right to be a part of this study, to choose not to participate or to stop participating at any time.
- This interview will be recorded in order to have a complete record of our discussion. The discussion will be kept completely confidential. I will use code numbers in the management and analysis of the interview data and your name will not be associated with any discussion results. Audiotapes will be destroyed or erased at the completion of the study.
- I expect our discussion to last no longer than 30 minutes,

Again, thank you so much for your time today. Your responses will provide an invaluable service to assist in identifying key practices of successful learning communities.

I’d like to begin by asking you some general questions about this community.

1. What drew you to this community initially?
2. For you personally, what purpose does this community serve? (why do you continue to come back to the community?)

Among the most difficult challenges often faced by virtual communities is fostering and sustaining knowledge sharing. By knowledge sharing I’m referring to the give-and-take exchange of knowledge between members (viewing and posting knowledge). I’d like to ask you several questions about how knowledge sharing is cultivated and sustained in this community.

3. What types of knowledge do you typically seek from this community?
4. Is it easy to find or get the knowledge or information you are looking for? Why or why not?
5. Can you tell me about a recent incident in which you were inspired or encouraged to share your own knowledge or expertise?
6. What is the role of the moderator in this community?
• In what ways does the moderator build alliances?
• In what ways does the moderator foster trust?
• In what ways does the moderator encourage participation?
• In what ways does the moderator support you in contributing knowledge to the community?

7. Are there expectations or norms for knowledge sharing in this community? If so, please describe.
8. What enables you to judge the competence or credibility of other members?
9. What different roles do members of the community play?
10. As you think about the members of this community, how would you describe the characteristics of influential members?

The personal relationships and the trust that develops between members of a community tend to influence the amount of knowledge sharing that occurs in the community. I’d like to ask you a few questions related to the development of relationships and trust.

11. How willing are you to disclose information about yourself to other members of the community?
12. What do you risk (personally or professionally) by sharing your knowledge or expertise in this online community?
13. Can you tell me about a time when posting something in this community felt “risky” to you personally?
14. What encourages you to take risks in sharing knowledge?
15. Are there mechanisms in place to ensure trustworthy behavior of individual members? If so, what are they?
16. Can you think of an incident in the community in which your trust was broken?
   • Was the trust rebuilt? If so, how?

17. Are there any additional questions related to knowledge sharing or trust that I should have asked you?
Appendix C

Code Families

HU:  Booth Dissertation 062010
File:  [C:\Users\Sherry Booth\Documents\Scientific Software\ATLAS...\Booth Dissertation 062010.hpr6]
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Date/Time:  11/28/2010 11:58:15 AM

Code Family: A priori codes
Created: 08/16/2010 04:23:43 PM (Super)
Codes (53):  [altruism] [behind-the-scenes communication/back channels] [benevolence: confidence that well-being will be protected] [characteristics of influential members] [competence: trust in skills or abilities] [confiding of personal information] [content organized and saved for future use] [Cultivating: clear norms and expectations] [Cultivating: guidelines for netiquette provided] [Cultivating: incentives for participating] [Cultivating: member directory/member profiles] [Cultivating: members actively recruited] [Cultivating: presence of a core group of centralized individuals] [Cultivating: shared vision and identity] [effective leadership provided] [effective moderation] [honesty: trust in another's integrity, character, authenticity] [K-S: accepting or sharing affective concerns] [K-S: accepting or sharing affections] [K-S: accepting or sharing ideas] [K-S: cultivating] [K-S: mentoring] [K-S: offering directions] [K-S: raising questions] [knowledge sharing among core group] [lack of confidence] [learning as belonging (community)] [lurking allowed or encouraged] [members made to feel unique] [members recognized and/or praised] [members' self-esteem or self-confidence boosted] [moderator's credibility] [moderator builds alliances] [moderator fosters trust] [moderator provides encouragement and/or validation] [moderator provides support or mentoring] [network density/interconnections between members] [openness: relevant info not withheld] [opportunities for f2f meetings] [opportunities to participate in live online events] [principism] [relational trust] [reliability: predictability; knowing what to expect] [social presence/perceived responsiveness] [storytelling] [subgroups created] [sustaining] [tacit knowledge] [time requirement] [trust among core group] [trust and knowledge sharing reinforcing] [weekly or monthly newsletters] [willingness to take risks]
Quotation(s): 513

Code Family: Cultivating an environment for knowledge sharing
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Codes (47):  [attitude of moderator] [behind-the-scenes work of the moderator] [characteristics of VLC members] [Community reputation] [confiding of personal information] [content organized and saved for future use] [Cultivating knowledge sharing] [Cultivating: application process] [Cultivating: clear norms and expectations] [Cultivating: communication presented in an appealing way] [Cultivating: deliverable and/or agenda for participating] [Cultivating: desired interaction modeled] [Cultivating: guidelines for content provided] [Cultivating: guidelines for netiquette provided] [Cultivating: incentives for participating] [Cultivating: member directory/member profiles] [Cultivating: members actively recruited] [Cultivating: presence of a core group of centralized individuals] [Cultivating: seeded community] [Cultivating: shared vision and identity] [Cultivating: structure of community] [Cultivating: structured conversations] [Cultivating: subgroups] [Cultivating: training provided for facilitating] [dynamic tension] [example of deliverable] [example of involving multiple subgroups in a discussion] [expectations for knowledge sharing] [featured activity] [informal structures in place to ensure trustworthy behavior] [initial draw to community] [initial vision] [Intriguing thread/title] [members made to feel unique] [moderator's credibility] [moderator's prior experience] [moderator promotes community] [network density/interconnections between members] [open versus closed community] [opportunities for f2f meetings] [opportunities to participate in live online events] [population strategically selected] [purpose for going to community (member perspective)] [purpose of community (moderator perspective)] [social presence/perceived responsiveness] [subgroups created] [subgroups promoted]
Quotation(s): 399

Code Family: Dimensions of trust
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Codes (9):  [benevolence: confidence that well-being will be protected] [competence: trust in skills or abilities] [Cultivating: clear norms and expectations] [Cultivating: guidelines for content provided] [Cultivating: guidelines for netiquette provided] [honesty: trust in another's integrity, character, authenticity] [openness: relevant info not withheld] [reliability: predictability; knowing what to expect] [willingness to take risks]
Quotation(s): 149

Code Family: Influential members/core group
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Quotation(s): 224

Code Family: Member practices
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Codes (18): [confiding of personal information] [desire to encourage/support new member] [member's thinking is changed/influenced] [member identifies self as influential] [member roles] [member roles -- discussion starter] [member roles -- discussion sustainer] [member roles -- Peacemaker] [member roles -- provocative commenter] [member roles -- support/facilitate conversation] [member roles -- thought leader/perspective pusher] [member roles -- thread starter] [member roles: create social presence/reply to posts] [members celebrate each others' accomplishments] [members made to feel unique] [members recognized and/or praised] [members self-esteem or self-confidence boosted] [willingness to take risks]
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Code Family: Moderator's role
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Quotation(s): 154

Code Family: Moderator practices
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Quotation(s): 154

Code Family: Observations of knowledge sharing
Created: 08/18/2010 11:49:02 AM (Super)
Codes (29): [K:S: accepting or sharing affective concerns] [K:S: accepting or sharing encouragements] [K:S: accepting or sharing ideas] [K:S: accepting or sharing resources] [K:S: blog clubs] [K:S: book reviews] [K:S: challenges thinking] [K:S: changes thinking] [K:S: collaboration on a project or presentation] [K:S: engaging in professional conversation] [K:S: explicit knowledge] [K:S: looking for feedback on an idea] [K:S: mentoring] [K:S: new techniques] [K:S: Ning/Twitter pairing] [K:S: offering directions] [K:S: offering inspiration] [K:S: opportunity for open reflection] [K:S: philosophies] [K:S: productive conflict] [K:S: raising questions] [K:S: seeking information] [K:S: seeking inspiration] [K:S: sharing different perspectives] [K:S: tacit knowledge] [K:S: videos] [storytelling] [weekly or monthly newsletters]
Quotation(s): 237

Code Family: Practices that increase or sustain knowledge sharing
Created: 09/12/2010 04:57:02 PM (Super)
Comment: Codes (49): [altruism] [attitude of moderator] [behind-the-scenes communication/back channels] [behind-the-scenes work of the moderator] [characteristics of VLC members] [Community reputation] [competence: trust in skills or abilities] [confiding of personal information] [content organized and saved for future use] [desire to encourage/support new member] [effective leadership provided] [effective moderation] [example of deliverable] [example of dipping into larger community to form a subgroup around a specific topic] [example of involving multiple subgroups in a discussion] [group dialogues] [honesty: trust in another's integrity, character, authenticity]
impact of community] [institution provides support] [Intriguing thread/title] [K-S: book clubs] [K-S: book reviews] [K-S: norms/expectations] [K-S: website] [lurking allowed or encouraged] [member's thinking is changed/ influenced] [members celebrate each others' accomplishments] [members made to feel unique] [members recognized and/or praised] [members self-esteem or self-confidence boosted] [moderator's credibility] [moderator acts as cheerleader] [moderator builds alliances] [moderator facilitates discussion] [moderator keeps the community fresh] [moderator learns about the knowledge and expertise of members] [moderator nudge] [network density/interconnections between members] [open versus closed community] [openness: relevant info not withheld] [opportunities for f2f meetings] [opportunities to participate in live online events] [reliability: predictability; knowing what to expect] [similar to small f2f conversation] [social presence/perceived responsiveness] [sustaining] [sustaining K-S through extensions to outside world] [trust and knowledge sharing reinforcing] [weekly or monthly newsletters]
Quotation(s): 387

Code Family: Practices that increase trust
Created: 08/16/2010 03:09:37 PM (Super)
Codes (16): [benevolence: confidence that well-being will be protected] [building trust] [competence: trust in skills or abilities] [confiding of personal information] [Cultivating: clear norms and expectations] [Cultivating: guidelines for netiquette provided] [Cultivating: shared vision and identity] [honesty: trust in another's integrity, character, authenticity] [informal structures in place to ensure trustworthy behavior] [lurking allowed or encouraged] [moderator builds alliances] [moderator fosters trust] [opportunities for f2f meetings] [relational trust] [reliability: predictability; knowing what to expect] [social presence/perceived responsiveness]
Quotation(s): 212

Code Family: Social participation (Wenger)
Created: 08/18/2010 12:44:05 PM (Super)
Codes (8): [learning as belonging (community)] [Wenger: Community] [Wenger: Domain] [Wenger: learning as becoming] [Wenger: learning as belonging] [Wenger: learning as doing] [Wenger: learning as experience] [Wenger: Practice]
Quotation(s): 25