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Developing Our Human Capital:
A Mixed-Method Study of Teacher Use of Online Communities

A dissertation submitted in partial satisfaction of the
requirements for the degree Doctor of Education

in

Educational Leadership

By

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2010
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2010
DEDICATION

This dissertation is dedicated to my family. Their relentless support during each and every step of the way provided the inspiration to complete this work.

To my brother - Pete Peterson - you are the best brother and friend. I thank you for your sacrifices of time to support this work, and for giving me a quiet place in your home and heart, to work with no distractions, food when needed, and hot tea. Having been through this process yourself, you and Allison knew exactly what to do.

To my oldest son - William Stoughton Clark - You will thrive in the process of pursuing your Ph.D., I assure you. You are an exceptional thinker and writer. Your thoughts, put to paper, will capture your reader’s imaginations, and inspire them. I delight in looking forward to this next step in your life’s journey. I am so very proud of you.

To my daughter - Rebecca Isabel Clark - You are living your lifelong dream to become a Medical Doctor. With your astute mind and outstanding people skills I know you will be a superb doctor, to whom patients will entrust their lives. I feel so blessed as I watch your life unfold in so many wonderful ways.

To my youngest son - James Schuyler Clark - The world will be your oyster as you pursue your passion for music and technology after graduation this year. Adventure and perhaps graduate school await you. You bring immense joy to us all with your remarkable life observations, keen insight, and capacity for brilliant creativity. Bravo!

To my husband - Edward Schuyler Clark - thank you for being so supportive of my lifelong dream to pursue this course of study and degree. There were many sacrifices along the way. Thank you for being there for me.

To my mom - Rebecca Peck Peterson - who has flawlessly supported me every step of my life’s journey, and has instilled in me the value of hard work. I believe I have lived up to those values and have passed them on to our family’s next generation.
Never tell people how to do things.
Tell them what to do and they will surprise you with their ingenuity.

*General George S. Patton*
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ABSTRACT OF THE DISSERTATION

UNIVERSITY OF CALIFORNIA, SAN DIEGO
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Developing Our Human Capital:
A Mixed-Method Study of Teacher Use of Online Communities

by

Rebecca Peterson Clark

Doctor of Education in Educational Leadership

University of California, San Diego, 2010
California State University, San Marcos, 2010

Professor Janet Chrispeels, Co-Chair
Professor Carolyn Hofstetter, Co-Chair

This study examines teacher use of online communities and the effects they have on teaching and learning in the classroom. Research suggests that different types of communities positively influence organizational and individual learning for professional practice. The Internet has made available many types of online communities connecting an ever increasing number of individuals through more specialized interests. At the same time little is known about the depth of the individual experience in gaining knowledge and learning new skills in this online
venue, and particularly what transfers to practice. The purpose of this study was to
examine the use of online communities, through the perceptions of the user, as an
important tool to improve and support professional practice. This study used two
research themes to identify and describe this experience through the lens of the
individual teacher experience. First, two existing models of organizational learning
(Professional Learning Communities and Communities of Practice) were used to
frame the value of communities to professional learning. Second, three theories of
human development (self-efficacy, social, and human capital) were used to uniquely
situate the individual teacher experience. Convenience samples of teachers in one
large urban school district who use online communities were surveyed about their
online community use (n=44). From this sample, a select group of teachers
completed an open-ended semi structured electronic text based interview (n=10), and
of these teachers some participated in a semi structured open-ended one on one
interview (n=7). Additionally (11) online community sites identified by study
participants were observed. The mixed method approach allowed for the collection
and analysis of both quantitative and qualitative data. Analysis of the data shows
teachers do perceive that using online community contributes to practice. This was
particularly evident for building human capital in the form of increased knowledge
and skills, and building a more student centered practice. Self-efficacy and social
capital were also increased as a result of using online communities. A model is
provided to show the cycle of online community use and points of benefit to the
individual user of online communities.
CHAPTER 1

Introduction

Online technology and the growth of online communities has provided teachers with opportunities to learn and grow in their professions in ways that were unheard of just a few years ago. At the heart of this new wave of emerging and rapidly developing technology is the expansion of innovative online communities with many different focuses and offerings (Johnson, 2001). A look back in time shows that significant contributions have been made to the educational community from professionally focused communities even before the emergence of online communities (Stoll & Louis, 2007). This history helps to make sense of the contributions that online communities can make now and in the future to support high quality teaching and learning in our 21rst century classrooms.

Communities, whether through recognizable structures such as in a Professional Learning Community (PLC) or Community of Practice (CoP) are significant ways for teachers to expand knowledge and skills to enhance professional practice (Louis & Kruse 1995). Studies have also shown that school site based professional learning communities (PLC) have been proven to significantly contribute to school effectiveness, teacher capacity, and student achievement (Louis & Marks, 1998; Olsen & Chrispeels, 2005; Cansdale 2001).

Professional Learning Communities (PLC’s) are a recent addition to the organizational structure of education and school reform to increase school effectiveness and vitality. They emerged from a trend in the 1970’s of school based curriculum development through encouragement of “teacher researchers”
(Stenhouse, 1975), and “reflective practice” (Schon, 1983). This progressed to “thinking schools” (Bolan, 1977) and then in the 1980’s self-evaluating schools. The trend of increasing effectiveness continued into the 1990’s with the concept of the professional learning community taking shape as a way to support teacher professional learning in the context of the school community. The essential elements of PLC’s are identifiable within schools (Hord, 1998; Louis & Marks, 1998; DuFour & Eaker, 1998; Stoll, Bolam, McMahon, Wallace, & Thomas, 2006). They include:

- Shared beliefs, understandings and norms
- Interaction, participation, and reflective talk
- Interdependency, sharing, de-privatized practice
- Collective responsibility: student learning and caring for teachers, students, and school leaders
- Collaboration and meaningful relationships

Further, there are many different forms and structures a PLC’s may take. There are highly structured communities such as Whole Faculty Study Groups (Murphy & Lick, 2004) in which the entire school follows a goal and structured plan involving smaller groups of teachers who concentrate on specific aspects of teaching and learning. A more loosely constructed PLC may take the form of learning teams (Lick, 2006). These teams may be permanent or not, and address specific goals of the site. Another example of a PLC is site-embedded professional development with colleagues as discussed in Chrispeels, Andrews, and Gonzales (2007), and Cansdale (2001). In this PLC context, teachers work together in interdisciplinary teams or
grade level groups for the purpose of enhancing their teaching and learning skills together.

The contribution and importance of PLC’s in education is well documented. They provide increases in: collaboration among colleagues, teacher efficacy, capacity, social and human capital, and student achievement. Increased collaboration may be exemplified through planning together to create lessons, assessments, rubrics, and analyzing student work. Increased teacher efficacy may be reflected in stronger teaching practices, improved classroom management, increased collegiality with staff. Increased capacity may be seen in improved motivation, skills, and organizational conditions and culture (Stoll & Louis, 2007). Contributions to increase school effectiveness, building teacher capacity, and increasing student achievement have also been noted (Kruse, Louis, & Brynk 1995). Social and human capital outcomes may be identified through increases in: student achievement, enhanced teaching and learning, reduction in school variation of teaching, and increased teacher retention. When comparing these contributions to online communities we find similar collaborative opportunities, although they are largely driven through individual interest.

While teaching and learning have been enhanced through PLC structures and efforts, new innovations through technology tools and particularly through online venues has a considerable amount to add to this process. The exponential growth in technology has provided a proliferation of technology based options which have untapped potential for teaching and learning communities. More specifically, the growth and use of the Internet and development of various forms of online
communities present one such possible place to expand knowledge and skills. The advent of Web 2.0 has dramatically shifted the use of the Internet from an information-mining tool to an interactive communications medium. This interactivity makes available communications through text, voice, and virtual face-to-face, and enhance broader availability of information - limited only by purposeful understanding and use of the virtual medium.

New web 2.0 interactive tools have been developed in a range of categories. For example, two categories are collaboration (Google docs), and social media (blogs, wikis, podcasts, Myspace, Facebook, Twitter). These and other tools, such as virtual streaming, expand the audience and replicate many of the types of interaction that previously occurred in the face-to-face environment.

There are many online communities with different purposes in which people access knowledge, meet to produce materials and work together, or do a variety of other activities. A few differences are important to mention here in order to understand that distinctions do and will continue to exist between online communities. For example, one frequently identified use of Internet community is distance learning (such as an online course). Another may develop community through use of technology (blogs, wikis, forums, Moodle and WebCt) within classrooms and within groups with common interests. These tools, embedded in various communities create different ways in which participants may build knowledge and network with other professionals in their field.

In education, online communities allow for students, educators or others with common interests to interact in a non-co-located place, from which the purpose and
use is determined by the online community or user (Brook & Oliver, 2002; Parr & Ward, 2006). Yet, while the essence of community may be present, and the offering of knowledge substantial, the actual transference to practice remains illusive.

A gap exists in educational research that focuses on professional use of online communities. Thus, a new and unresolved problem has emerged: in what ways can the new online environment be used to make the experiences, and positive outcomes traditionally associated with successful models such as PLC’s or CoP’s, just as, or even more successful for users of those environments.

This study describes and analyzes how teachers in one large urban school district used online communities to enhance their professional teaching practice both personally and in the classroom. The findings in this research add to a better understanding of online community use by adding new knowledge about: the characteristics of the participants who use them, the contributions made to teacher knowledge and skills, learning and instructional practice.

Statement of the Problem

Professional Learning Communities have been one proven model for school effectiveness. Research suggests that organizational structures and collaboration in professional communities at school sites improve teacher capacity and student achievement (Louis & Marks, 1998). Separately, research links teacher efficacy with increases in teacher capacities, motivation, student achievement, and school morale (Bandura, 1997, Woolfolk & Hoy, 1990, Goddard, Hoy & Hoy, 2000). Further, social and human capital has also been shown to play a distinctive and important
part in PLC’s (Mulford, 2007; Losada, Marcial, Heaphy & Emily, 2004; Nahapiet & Ghoshal, 1998).

For a more specific example, Mulford (2007) discusses the importance of building social and human capital in professional learning communities, and summarizes a study of 24 schools in England that identifies four approaches to social and human capital that emerge from PLC’s. These include strategies that focus on teacher learning through observation of practice, collecting and analyzing data, relating curriculum to student interests, and developing leaders. The concept of PLC’s combined with the theoretical constructs of self-efficacy and social and human capital, as positive outcomes of PLC’s, may prove to be two necessary and mutually dependent ingredients for school improvement, reform, and building of effective schools. If professional communities are central to teacher professional growth and work lives, then the need to foster them becomes evident.

While there is ample research on, and evidence of, the relationship between PLC and contributions to school effectiveness, self-efficacy and teacher effectiveness, and social and human capital, there is far less literature on the relationship between online communities use and contributions to practice. Yet, the results of prior studies have given indications of the potential online communities may have on practice. Authors such as Brook and Oliver (2002), Parr and Ward (2006), and Vavasseur and MacGregor (2008), have studied the development of online communities to support a sense of community, professional dialogue and support, and content focused professional development. Other authors such as Seddon, Skinner and Postlethwaite (2007), Jones and Preece (2006), Sieckennius de
Souza and Preece, 2004, Bieber et al. (2002), and Bishop (2006) have proposed frameworks and models to use to study online communities. Still others have criticized existing frameworks for learning oriented sites because of a lack of a conceptual framework that addresses social interaction and social capital development (Ng & Hung, 2003; Thomas, Kellogg & Erikson, 2001; Crave, Bouron & Ladame 2006).

Further research has been conducted on specific online communities as case studies. Authors including Duncan (2005), Riverin and Stacey (2008), Farooq, Schank, Harris, Fusco, and Schlager (2009), Carr and Chambers (2006) have studied education oriented online communities and highlighted some key features of those specific communities that made them successful or in some cases unsuccessful. Carr and Chambers for example found users of the community in agreement that potential was there for online information resources, but that the nature of the community, which was developed by education authorities for teachers, did not share the same interests or goals as the end users (teachers). This study suggests that a combination of the intended purpose of the sites, and meeting the needs of the users are both necessary if the sites are to be successful.

There is a significant portion of the existing research that has addressed the community aspect of online communities, the design and frameworks of online communities, and the nature of specific OLC’s through case studies. (This research will be further discussed in Chapter Two.) Still, not enough is known about the use of online communities on contributions to practice, especially when self-selection user driven choice of communities is taken into account.
Statement of Purpose

Technology growth, particularly in the online venue has created opportunities to support teaching and learning in the classroom. The purpose of this study was to analyze the ways online communities contribute to teacher learning and instructional practice. There is a significant need to explore these outcomes as ever increasing pressure in the K-12 environment occurs in two areas: greater accountability for student achievement and intensified demands on the teaching practice. The success of traditional PLC’s, on professional learning in education, and CoP’s in organizations or common interest groups provided the foundation for understanding the importance of community. The growth of online communities created a new resource and research interest. The theoretical frameworks of self-efficacy, social and human capital guided the analysis of use of online communities by study participants.

Research Questions

This study was focused on K-12 educators using and participating in online communities and specifically investigated the use, self-perceptions of participants, and contributions made to strengthen teaching knowledge and instructional practice. This is a new area of research within the research of online communities. The overarching research question guiding this study is: In what ways does use of online communities by educators contribute to teacher practice? Four research questions were explored.
1. What are the characteristics of teachers who use online learning communities?
2. What are teacher’s perceptions of their self-efficacy as a result of using online communities?
3. What are teacher’s perceptions of their social and human capital as a result of using online communities?
4. In what ways do online communities contribute to teacher knowledge and practice?

Theoretical Framework

This study used two existing models of organizational learning (Professional Learning Communities and Communities of Practice) to inform and frame the value of communities to professional learning and to link that value to online communities. PLC’s offer a model that is deeply rooted in educational organizations, as discussed in an earlier section, and PLC’ have been largely successful in many ways.

CoP’s are more loosely defined than PLC’s, and may more readily be applied to many different organizations, not exclusively to education. Generally, a CoP has members that share a common concern or interest, have participation and sharing by members, and offer knowledge that is pertinent to those who are a part of the community. The degree of sophistication may vary depending on the interest and practice of the community. The presence of CoP’s has been identified in the online environment and some current research has referred to these as Virtual Communities of Practice (VCoP) (Ardichvili, 2008; Barab, Makinster & Scheckler, 2003). The contribution of CoP’s to this study is in providing a model that supports professional practice through a community using identifiable structures.
The theoretical frameworks supporting this research are grounded in self-efficacy and social and human capital. Several authors have described several key areas in which efficacy impacts teaching and learning (e.g., Bandura, 1997; Goodard, Hoy, & Woolfolk Hoy, 2000; Louis & Marks, 1998; Pajares, 1996). These authors have studied individual teacher efficacy (affecting how teachers address the educational process), collective school efficacy (teachers work within the social system rather than in isolation), and collective instructional efficacy (creating a positive climate for learning).

Of particular interest to this study is the potential linkage between online communities and increased efficacy. If increased efficacy occurs as a result of using OLC, then the notion of increased efficacy through OLC is an important outcome element.

Coleman (1988) suggests that social and human capitals are supported by a social structure that facilitates actions by people. In essence social capital is recognized as productive and good relationships among people. Human capital is recognized as individual increases in knowledge and skills. Further, Coleman identifies three distinct aspects that make social capital possible. These include linkage between interpersonal obligations and expectations, use of social contacts as information channels and effective norms. Of importance is that social capital is considered a distinct and rich organizational resource, and a lack of social capital results in negative individual and organizational effects. Social capital supports self-efficacy by making possible positive interpersonal connections, building relationships, and developing greater trust – all of which enhance organizational and
personal learning and growth. Social capital theory suggests that for members of the organization, something of value has been produced and is an available resource. If increased social and human capital occurs as a result of using OLC, then the notion of increased social and human capital developed through OLC is also an important outcome element.

Significance of Study

The use of technology in education continues to grow dramatically as technologies emerge, and educators discover new ways to use it. Some teachers use technology in many different ways to enhance instructional practices, and to increase their knowledge base through self-directed professional knowledge building. This may be evidenced by increased membership and apparent participation in online communities. While this growth in online communities has occurred, little research has been done to determine the extent of how use of these communities actually contributes to teacher learning and practice.

The literature review presents research on two forms of professional communities to provide an indication of how communities can and do support teaching and learning and provides a better understanding of what online communities potentially may offer. The review also includes literature on online communities to present some of the current research available about online communities. The review includes literature on self-efficacy, social and human capital as theoretical foundations to support individual growth. The convergence of these three areas of research in the context of online community use was intended to provide a framework for understanding the characteristics of teachers who use the
online communities, the sites they use, and the contributions made to practice from use of those sites. The results found in this study provide four new contributions to education research, practitioners, and policy makers:

1. Provide a greater understanding of the characteristics of teachers who use online learning communities.
2. Description of the ways participation contributes to knowledge and instructional practice.
3. New areas for further research that alters how we view ongoing professional learning support for teaching and learning, effects to self-efficacy and building organizational social capital and individual human capital.

This study is important because the findings are beneficial for educational leaders to more effectively support teachers, and teachers to more effectively utilize the many aspects of online communities available. This is crucial as increasing demands on budgetary expenditures continue to limit or eliminate resources at the site, district, state, and federal level, while concurrently increased options are growing online that may support some professional needs and goals.

This study is one of the first to look at online community use from the teachers’ point of view of how use contributes to their practice. The results of this study may be used to better inform use of online communities while keeping the goal of supporting and improving teaching and learning intact. Professional educators including teachers, administrators, and researchers may find this study instrumental to more effectively support teachers’ use, and desired outcomes of
online community use. Some of these outcomes may include benefit to individual
and organizational teaching and learning, and ultimately student achievement.

Chapter 1 has discussed the context of the problem, purpose of the study, and
the research questions. Chapter 2 is next (following the definition of terms) and
discusses the review of the literature that guided this study.
Definition of Terms

*Capacity:* Stoll et al. (2006) define capacity as “a complex blend of motivation, skill, positive learning, organizational conditions and culture, and infrastructure of support.”

*Community of Practice (CoP):* As defined by Wenger, McDermott and Snyder (2002) include the domain (set of knowledge or issues which attract people to the community); the community (people who care about these issues); and the practice (what is developed to effect the domain). Thus, a group of people may come together to form a community of practice to enhance their knowledge around one area of interest, regardless of the organization they are affiliated with.

*Collaboration:* Two or more people working together toward a common goal. Features of collaboration include: sharing knowledge, teamwork, coming to consensus, problem solving.

*Computer-Mediated Communications (CMC):* A communication that is facilitated thorough the use of two or more networked computers. Examples include: instant messaging, e-mail, chat rooms, text messaging, and more recently added, video and other social communication, and use of web 2.0 tools.

*Efficacy:* Bandura (1997) defines efficacy as: “beliefs in one’s capacities to organize and execute the courses of action to produce given attainments” (p.3). This paper uses this definition.

*Face-to-face Communication (F2F or FtF):* Face-to-face occurs when communication with others includes visual and verbal cues such as body language
and vocal intonation. These factors are not present in text communications.

Traditionally F2F occurs while in the physical presence of others, however this definition may be altered as technology advances have made available teleconferencing, which would include the visual aspect of communication.

Human Capital: A resource represented by individual strengths and capabilities. Human capital is built by increases in skills and knowledge that enable actions (Coleman 1988).

*Online Community/Virtual Community or e-community:* A group of people that communicate for social, educational, professional or other purposes using a computer network or other communication media such as telephone, email, blogs, or text messaging rather than face-to-face environments.

*Professional Learning Community (PLC):* While PLC’s may be defined in different ways, and referred to with different labels, such as “learning community” and “learning organization” or “professional communities”, here, PLC describes school administrators and staff that are united in their commitment to growing their professional knowledge base and enhancing their effectiveness as professionals for the benefit of improving teaching and learning. In the context of schools, this has traditionally occurred during face-to-face structured time in which participants collaborate, have open practices, participate in shared decision-making, and discuss specific artifacts such as student work, assessments, and lesson plans.

Key elements of PLC's, in particular, have a shared focus on: vision or values; defined focus (student learning); collaboration; a move away from isolation of practice; dialogue through reflection, inquiry, and learning; and finally a focus on
sustainability (supportive and continuous improvement). This research suggests that PLC's are defined by the qualities described, and those qualities are embedded in the performance and function of a professional learning community.

*School Effectiveness:* One of the challenges of schools today is defining school effectiveness. Effectiveness may be measured internally or externally. Often measurement is defined by specific objectives, such as those provided in NCLB. Objectives can also be found in school and district mission statements. Absence of goals and mission statements make measurement of effectiveness more difficult. Being effective requires a goal people can relate to in concrete ways and measure steps toward achievement of that goal. Efficacy does provide one measure of people doing their job well, which can affect school effectiveness.

*Social Capital:* defined by the productive interconnected relationships among people that result in: mutual obligation and expectations, availability of a broad range of social connections and information channels, and apparent social norms. Social capital is considered a distinct resource. Social capital is built by the relationships among people that result in greater trust, more resources, and stronger community (Coleman 1988).

*Social Networking:* a social structure of individual or organizations that share commonalities such as ideas, vision, friendship, values, and other relationships.

*Web 2.0:* This refers to the advances in Internet capabilities, which are defined by interactivity, and access in communications and sharing of information. Some examples of these capabilities are found in wikispaces, Google docs and similar web based tools. Web 2.0 enhances the nature of web use from use of the Internet as an
information mining and retrieval tool to a more interactive tool in which users have control over their data, add value, participate, contribute and add to collective intelligence.
CHAPTER 2

Review of Literature

The focus of this study was to explore the ways online community (OLC) use contributes to teaching and learning in the classroom. Specifically, this study identified the characteristics of teachers who use online communities to support their professional work, and the contribution use of these communities made to practice. This chapter includes a review of the literature that served to help guide the study. Two areas were reviewed: communities (e.g., Communities of Practice, Professional Learning Communities, and online communities), and theoretical frameworks (e.g., self-efficacy, social and human capital). The sources of literature for all areas included peer reviewed journal articles, papers, dissertations, and books. Literature included works published from 1997 to the present and included both empirical and other studies, and one study from 1955. Key words in the search included variations of community (professional learning community, community of practice, virtual community, learning community professional community) and K-12 education, self-efficacy, social and human capital. Sources were identified and retrieved through online resources and access through the University of California library and online services.

This chapter consists of two basic sections. The first section explores the concept of educationally focused communities as successful models to support education practice. Of importance here is to understand the constructs, rather than the specific definitions of successful communities in the educational context and how those communities have been structured, work, and contribute to practice.
Definitions of community continue to be defined. Many articles and studies about communities, whether online or in a face-to-face environment, begin with a discussion followed by a contextual definition of community which is relevant to the particular study. For example, Preece and Maloney-Krichner (2003) discuss community and offer that community tends to be named by the activity, people, or technology that supports them. Communities thus can be defined by technological or social focus. Venkatesh (2003) discussed the history of community and offers that infrastructure, social support, and action can constrain or support a community, and that communities are formed around community experiences, issues, and institutions, as well as members needs. Kirschner and Lai (2007) discuss community as a process people participate in around a common interest, and willingness to collaborate with others over an extended period of time. This study was not guided by definitions of communities, rather, by characteristics that were important within communities.

Two community models were selected for this study and literature review: Community of Practice (CoP) and Professional Learning Communities (PLC). CoP, as defined, offers a model and characteristics of a community, which provide for members specific resources about a specific area of interest. CoP was chosen for this study because the model is widely recognized and readily applies to online communities. It may be limited, however, in that it does not encompass the structural elements that have been shown to specifically support an education community. In this review the importance of CoP is the concept of what makes a successful community rather than the specific definitions or how they may apply to education.
PLC’s on the other hand provide more specific information, such as achievement and structures that are geared specifically to the needs of an educational community. A more extensive review of PLC’s is included here because the literature offers a great deal of insight about the effectiveness of PLC’s to support educators. Even though historically PLC’s have been situated in face-to-face environments, prior to, and at the time of this study, they provide many examples that are valuable to better understand the specific needs and historical successes of education based communities.

This section includes a review of the CoP model and then PLCs in schools. CoP and PLC are two successful models for traditional communities in education. They are important to know about for this study because they provide a clear foundation of the significance communities have, especially in supporting professional teaching and learning in school classrooms. Part of this review also includes online communities, and online use. Woven throughout the PLC literature review are researcher comments on the ways that understanding PLC’s is helpful to understanding and linking online communities to contributions to teaching and learning.

The second section of this review looks at the complementary theories of self-efficacy, social capital, and human capital as they uniquely situate teacher’s individual experiences. More specifically, this study was interested in the contributions of online community use to practice, from the teacher’s unique perspective. These theories frame that focus. Of importance here is to understand the
influence these communities have on teacher experiences as can be measured by these theoretical constructs.

The two types of community models and then online communities will be discussed next, followed by a review of the theories of self-efficacy, social and human capital. The first community under discussion here is the community of practice (CoP).

*Communities of Practice*

The concept of communities of practice emerged in social anthropology literature in describing social learning and apprenticeships. The notion of a community of practice moved from theory to practice through the research, work, and the writing of Etienne Wenger, Richard Mc Dermott and William Snyder. Communities of Practice (CoP) are found and have been studied in business, social, educational, professional and other communities. They are recognized and continually are evolving into more understood and complex forms of social and professional networking, knowledge building, and organizational communicating and learning. As the concept evolved, Lave and Wenger (1991) provide descriptions of both newcomers to communities and becoming experienced members. This suggests variations in membership status in communities.

CoP have been defined in this way: “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, McDermott & Snyder, 2002). They have also been defined in this way: “Informal clusters and networks of employees who work together, sharing knowledge, solving common
problems and exchanging insights, stories and frustrations” (Lesser & Storck, 2001). And they have been defined in this way; “Groups of people informally bound together by shared expertise and passion for a joint enterprise” (Wenger & Snyder, 2000). Together these definitions include common concerns, common set of problems, or common interests. They also include participant interaction and learning.

A CoP seems to be a community that is designed to be built around a problem or need (suggesting it is a place to get answers to solve a problem) versus a community that is built for sustainability of the community itself and their common purpose. CoP come from an understanding of craft and craft knowledge, therefore, the community may often cuts across locations. In this way, CoP’s may lend themselves better to online communities than communities that rely on face-to-face contact.

In a CoP there is less of a focus on accountability, action orientation, sustainability, professional growth and development, or goals and outcomes. However, a CoP may be used to gain specific knowledge, and benefits from the community social capital (Schlager & Fusco, 2003). In this article, the authors discuss the importance of the community on teacher learning and professional practice and provide eight characteristics for a successful CoP to function online. The authors suggest that technology, to be effective in building a successful CoP, needs to support the existing professional community. Formation of CoP may be very specific, and generally begin with a need to gain information. Individual CoP’s can evolve over time, as Wenger, McDermott, and Snyder (2002) have identified in
five key stages of development within a CoP model. The stages of CoP development include:

- Potential: the knowledge needs are defined.
- Coalescing: what and how knowledge should be shared.
- Maturing: shift from sharing to purposefully organizing knowledge.
- Stewardship: keep the community on the cutting edge.
- Transformation: community may close, become institutionalized, or change focus.

Adding to the theory of Communities of Practice offered by Wenger and others, several authors found that merging CoP to the online environment deserved some caution. In five different papers, each a review of various studies, the authors noted specific areas of further need. Schwen and Hara (2003) offered a comparative study of four cases of CoP in industry and law and concluded that an online community best supports an established CoP, rather than creating an online CoP for the community it serves. Barab (2003) offers a design theory that combines the importance of usability and sociability to offer a more effective community for the members of the community.

In the context of education, and work in refining the social and technical infrastructure of Tapped In (an online education community) Schlager and Fusco (2003) found that there was a need to understand the structure and process of school/district community before designing online networks and technologies to deliver training. In this article, the authors suggest that to provide an effective training opportunity in an online environment, designers of technology delivery would better
serve teachers if they understood the existing community of practice that teachers work in. Eight ways that social and technical infrastructure could be used to support education focused online communities are provided. These include the learning process encountered by the community members from the newcomer to the longer-term members. History and culture are also identified as a feature for designers of communities to be aware of both to blend in past history and norms and to facilitate change. Group formation was also found to have a specific need in the online environment. Facilitating groupings of members from smaller focused groups back to the whole community benefits from a level of fluidity so members can easily move from one place to another. Understanding social networks within the community may help to understand the information flow. Who is participating and how they participate may be considered important to support community leadership. Consideration should be given to tools and artifacts that are introduced to the community as compared to what the community is already using. Finally consideration should be placed in what defines the practice so that the community is specifically supported.

Chalmers and Keown (2006) add to the discussion of effective professional development for secondary teachers in New Zealand through use of CoP. The authors discuss findings of other literature. They found that social development was import to develop intellectual development, which in turn supported implementation of ideas in the classroom. When this occurred, pedagogy and personal ideas changed and a sense of ongoing support occurred for members. One way to offer social development, for example, was through online web discussion forums. A model of
online space showed that professional (new knowledge), personal (reflective thinking) and social spaces (dynamics of the community interlinked participation) add to effective professional development in using online communities of practice.

Together these articles support that basic assumption that a CoP is a viable way to initially look at online communities, however some new features and structures need to be taken into account when considering an education environment. Although a CoP provides value to understanding a community, it seems less developed as compared to a Professional Learning Community, as way to look at online educational environments. The second community examined is the professional learning community. This will be discussed next.

**Professional Learning Communities**

Professional Learning Communities (PLC’s) have a multitude of different, but generally similar traits. Table 2.1 shows five general areas of PLC traits that different authors describe. The left hand column shows five common themes or elements found in PLC’s. These include shared beliefs, interaction and participation, meaningful relationships, interdependence, and concern for the individual. The remainder of the table shows specific authors and a brief summary of the terms they use that fit into the each of the five elements. For example, while all authors are in agreement that shared beliefs are an important characteristic of PLC’s, they describe them with slight variations. Hord (1998) for example, lists shared vision while Louis & Marks (1998) describes shared values. As the table below shows, authors generally describe the key elements of PLC’s in similar, yet slightly dissimilar ways.
Nonetheless, the five themes can be generalized from the authors to provide the five key elements of PLC’s.

Table 2.1 Elements of Professional Learning Communities by Author

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<tbody>
<tr>
<td>Shared beliefs and understanding</td>
<td>Shared Vision</td>
<td>Shared values</td>
<td>Shared mission, vision, and values</td>
<td>Shared values and vision, beliefs and understandings</td>
</tr>
<tr>
<td>Interaction and participation</td>
<td>Shared personal practice</td>
<td>Focus on student learning</td>
<td>Collective inquiry</td>
<td>Collective responsibility for student learning – accountability</td>
</tr>
<tr>
<td>Meaningful relationships</td>
<td>Supportive and shared leadership</td>
<td>Collaboration</td>
<td>Collaborative teams</td>
<td>Reflective professional inquiry</td>
</tr>
<tr>
<td>Interdependence</td>
<td>Collective learning</td>
<td>De-privatized practice</td>
<td>Action</td>
<td>Collaboration</td>
</tr>
<tr>
<td>Interdependence</td>
<td>Application of learning</td>
<td>Reflective dialogue</td>
<td>Continuous improvement</td>
<td>Group and individual learning promoted</td>
</tr>
<tr>
<td>Concern for individual</td>
<td>Supportive conditions</td>
<td>Results oriented</td>
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These conditions for a successful PLC are important to consider when looking at an online community that educators are using and are supported by. The importance here is placed on relationships with others in the community. These relationships are built on shared purposes and collaboration (to name two conditions) to create a community that is better designed to support teaching and learning in the classroom.

Although PLC’s may be described in different ways, and referred to with different labels, such as “learning community” and “learning organization” or
“professional communities”, there is enough evidence of similarity in the definition to reflect a general commitment by communities to growing professional knowledge and effectiveness for the benefit of teaching. In essence, if you know what the features are, and understand that they result in good outcomes and experiences for students and teachers, then these features can be used more purposefully with hopes of positive rewards.

There is extensive literature on PLC’s: their effectiveness, design, and outcomes. In fact the characteristics of most of the literature of PLC’s focus on three perspectives: achievement (linking PLC’s to student outcomes), structures (creating and managing), and case studies (descriptions of PLC’s). Of importance here is the careful consideration of community in environments that are concerned with teaching and learning. This is particularly true when the goal is to strengthen academic outcomes, and implement best community structure. These will be discussed here, and serve to support the value that PLC’s bring to education.

**Achievement.** Several authors have linked some element of PLC structures to student achievement. For example, Goddard and Tschannen-Moran (2007) link teacher collaboration and student achievement. This study included data from 47 elementary schools, with 452 teachers and 2,536 fourth grade students. A survey was administered to teachers using a six-point teacher collaboration scale that included five key themes of collaboration including: planning for school improvement, selecting instructional methods, evaluating curriculum, determining professional needs, and planning professional development activities. Student achievement data was gathered from state administered tests and provided descriptive and correlation
data. The results of this study show that there were significantly higher levels of student achievement in those schools with greater levels of teacher collaboration.

In another study, Louis and Marks (1998) link professional learning groups with student performance. Five elements of professional learning community were used to identify community in these study groups. These included: shared values, focus on student learning, collaboration, de-privatized practice, and reflective dialogue. In this study, Louis and Marks investigate the link between PLC, classroom organization for teaching and learning, and student performance. The study focused on relationships between teachers in their schools over a three-year time period. There were 24 schools in this study, with an even split of eight school at each school level (Elementary, middle, and high school). There were 910 teacher-completed surveys, 25 - 35 classroom observations, and over 5,000-student work samples were evaluated. Although teachers’ work was organized in slightly different ways in the high schools, middle, and elementary schools, elements of professional communities were evident in all schools. For example, team teaching, common goals and shared beliefs, philosophy of instruction, and curriculum planning were evident in all schools. Professional relationships within the school were associated with pedagogy and social support for both each other and for student achievement. The study findings compare favorable with Goddard’s study (described above) in that there was a positive relationship between organizing teachers work in a professional learning community and organizing classrooms for learning and student performance.
Louis and Marks (1998) address the influence of PLC on the organization of the classroom (teaching and learning) and the effect of school community and classroom organization on student achievement. Data were collected nationally and the survey results of 910 teachers, and 5,943 students from 24 sites, represented an equal balance of elementary, middle and high schools. Response rates were 69% - 100%. One hundred and forty-four observations were made of teachers and students, 5,100 samples of student assessment work were analyzed, and a case study of each of the 24 schools was included. Student achievement was measured by authentic assessments involving higher order thinking and understanding. The results found a positive relationship between PLC and strong student outcomes.

There were two limitations I found to the Louis and Marks (1998) study. First the ability to generalize these findings to schools may be problematic, particularly in public schools, which are now accountable to NCLB assessments. NCLB came into being after this study was done. Secondly, the school sample was of non-representative urban schools that were engaged in reform efforts. While this is a constrained sample, it does add to further understanding of accountability, school development, and the influence of PLC and positive organization on student learning and achievement.

In their research article on achievement, Rowan, Chiang, and Miller, (1997) use data analysis from the National Educational Study of 1988 to explore the effects of teachers’ ability, motivation, and work situation on student achievement in mathematics from 8th to 10th grade. The sample included 5,381 students and 2,077 teachers. The effect of work environment on student achievement is of interest in
this synthesis. Of ten variables studied in this one area, two showed a positive relationship to work environment and school restructuring to student achievement. Those variables were teacher control over decision-making and shared common planning. The schools with high scores in both variables show that students achieve more. These findings are consistent with conclusions in other articles linking motivation, social dynamics, positive organizations and improved outcomes, particularly in student achievement. Further research will be needed to evaluate the specific structures implemented and resulting organizational dynamics on student learning.

While the research shows that site based PLC’s are very effective ways to improve school effectiveness, a contrasting strategy of top down directives has negative effects on school communities. For example in one study, Leithwood, Steinbach, and Jantzi (2002) evaluate teacher motivation and governmental accountability in Ontario, Canada. This qualitative study used interview data from 48 teachers and 15 administrators in five secondary schools to determine motivation to implement government mandated accountability policies. The research revealed that government mandated accountability had a significant negative motivational effect on teachers and a negative effect on administrators.

As the policies filter down through the system, the lack of motivation increased. The policies seemed out of alignment with teachers’ motivations (need for change and personal goals), were perceived as having faulty intentions (political motivation) and caused negative emotions (frustration, stress, annoyance, anxiety, insult). Administrators had similar negative comments with additional concerns
around the need for adequate training, and a questioning of the intentions of
government reform. The non-alignment in motivations behind the policy and teacher
motivations seemed to create conflict in implementation of the new policy. Of
interest is the implication that government policy to reform education should be
aligned with teacher and administrative support at the school level where the
educational experience occurs. The top down mandates, as a structure to improve
schools, did not result in higher student achievement or increased school
effectiveness.

Together these articles suggest that PLC’s, at a site level that share a
common goal, shared beliefs, philosophy of instruction and curriculum planning
seem to generate positive outcomes. PLC’s seem to better support achievement goals
through targeted purpose and goals. This is in contrast to CoP’s, which have not
been linked to achievement outcomes in research. However, the two community
models do compare in their design needs. The words of caution by Schwen and Hara
(2003), Barab (2003) and Schlager and Fusco (2003) suggest that the design of the
online CoP should take into account the needs of the existing community, this,
combined with top down design or mandates (Leithwood, Steinbach, & Jantzi,
2002), and the importance of teacher input in decision making (Rowan, Chiang &
Miller, 1997) suggests that a community is more likely to have successful outcomes
when the design of the community takes into account and supports the need and
purpose of the existing community.

Structure. Effective PLC’s have structures in place to facilitate professional
work. For example, successful PLC’s create time within the school day for teachers
to collaborate: to dialogue about the professional aspects of their work with teaching and student learning. They also address the need for physical proximity – assigning teachers at grade levels or common departments to be close together. This makes it easier for teachers to meet. Keeping these time and space structures of PLC’s is important and should not be ignored as shifts in educational focus and trends in school operations occur. Even though these structures differ slightly across schools, they are vital for teachers to benefit from professional dialogue that enhance their practice.

PLC’s appear in many organizational forms. For example, in his research DuFour (2003 & 2004) identified common PLC themes: site based professional development, learning, growth, and application of learning. These occur through continual collaboration with professional peer groups. While there are many models and methods to organize PLC’s there are two models in particular that exemplify successful implementation of professional learning communities. Both require leader commitment to the structures, content, and purpose of the community.

One structural model is Whole Faculty Study Groups (WFSG), (Murphy & Lick, 2004). The idea behind WFSG is to engage the entire faculty in smaller groups of 3-5 members to study specific areas of student needs so that faculty can better meet those needs through continual and consistent collaboration around shared instructional goals. There are also strategies given for grouping teachers. WFSG is a structured model in which school culture is analyzed and specific structures are put into place for study groups or learning teams to meet, study, and work toward improved student outcomes. The guiding focus question for the work is: “What are
students learning and achieving as a result of what teachers are learning and doing in study groups?” Since the WFSG involves the entire faculty, and has broad implications for administering to the school, this model requires clear commitment, support, and direction from the principal. The site leader must create the conditions for learning through allocation of resources and time for collaboration to occur. This extends to getting support from the district to the sites, committing to professional communities, and providing resources for the purpose of creating conditions for learning.

Another important structural model described by Lick (2006) is “learning teams”. These teams are comprised of a group of 4 - 6 people who work together to reach identified goals at the site. They differ from WFSG in that the entire school may not be involved in learning teams. Learning teams may be temporary, permanent, or organized around different purposes, for different situations, and under varied requirements. A principal may decide the focus of the team, such as studying the connection between student learning and achievement.

In his research article about learning teams, Lick (2006) outlines elements that when integrated into learning teams are more likely to result in positive outcomes. These include: relationships among the team members, alignment between resources, and creating an atmosphere in which people care. Embedded in defining, structuring, and implementing learning teams is the idea of focused goals for change, understanding the concepts of the nature of collaborative work and needed supports, and designing and implementing a structure to enable team work to occur and be evaluated. These implementations are important and require allocation
of resources because without them teams may not be successful. Goddard and Goddard (2007) and Riley (2001) also concur with the positive impact of teacher teamwork to student achievement.

The structures described above included whole faculty and smaller learning teams, with the focus of professional learning applied to practice. The link to online community here is that there may be benefit to the type of structures available to users of OLC, based on the type of community or the types of options for participation available. Similar sorts of structures are also discussed in online community design.

Case Studies. Professional Learning Communities have also been studied by their contribution to teacher and school site collaboration. Two illustrative case studies of PLC’s in American elementary schools, and one in Iceland found that PLC’s contribute in a significant way to improved teaching practice. Cansdale (2001) described the positive effects of professional communities, defined as site embedded professional development, which was instrumental in terms of increasing teachers’ perceptions of their instructional practice, work with colleagues, and planning for professional learning. The data was collected from 12 randomly selected teachers in one school in a large urban school district in Southern California. The data revealed that teachers significantly improved their content knowledge and instructional approaches as a direct result of site based collaboration and professional development.

In another case, Riley (2001) examined collaborative planning and decision-making in elementary school grade level team meetings in the mid-South. This study
conducted over a period of three years with fourteen teachers in a suburban district found that site leadership from the principal and from team leaders was critical in effecting higher performance. Observations of team meetings focused on effective planning practices and the impact of team leadership on planning. A valuable insight provided in this case was that poor team leadership resulted in team divisiveness that diminished productivity. A limitation to this study was the small sample size, and selectivity of sample (convenience).

In a third case study, Adalbjarnardottir and Runarsdottir (2006) addressed increased international globalization that brought with it increased multicultural immigration. The repercussions of this can be felt and seen particularly in schools as staff and students come together for the common purpose of education. Adalbjarnardottir and Runarsdottir (2006) describe the experience of one elementary school principal in meeting the challenges and impact of increased immigration in Iceland.

This principal focused on building positive, collaborative and trusting relationships in his school to support his vision around pedagogy. He used outside resources and school staff to analyze ways to improve the school. He created a team of staff members to meet staff concerns. He found a teacher to take the role of program leader for the intercultural program. He emphasized collaboration with all members of the school community: teachers, students, staff, and parents. This article provided a detailed account of the linkage between leadership and commitment to professional communities, and school effectiveness.
These case studies represented three areas in which PLC structures supported teaching and learning. These included: collaborative and effective planning, leadership, and focus on a common challenge. In an OLC, if opportunities exist to collaborate and plan for a common purpose combined with strong leadership, then teaching and learning outcomes may be supported.

**Summary of CoP and PLC**

The literature provides a structural focus for PLC’s. It differentiates between site based learning and district or state directed staff development. There are several structural models of professional communities that provide the means by which teachers can enhance teaching knowledge and improve student learning and achievement. The research indicates that structural models combined with leadership and collaborative work leads to effectiveness. These models build alignment within collaborative planning and team learning, a vital necessary condition for successful PLC’s (Senge, 1990).

In contrast to site based PLC’s, district directed professional development provides a less effective choice for professional development. District provided professional development occurs periodically during the school year, or in different workshops beyond the workday or off the school site and lack the continuity of job embedded growth opportunities for staff. This draws a distinction between the idea of learning (staff development) and working (teaching). Additionally, DuFour (2003) points out that site based professional learning communities differ from district directed work in that PLC’s are designed with a focus, and use site-specific methods to achieve their goals. Autonomy is provided to the site to determine what
best meets the needs of the staff and students at that site. PLC’s are constantly focused on supporting the shared vision with a purposeful and ongoing commitment.

In the allocation of resources, district provided professional development requires the least amount of consideration by the site for resource allocation, but provides the least benefit. Both PLC and learning teams require more planning, implementation and time, but provide the greatest results in school effectiveness for staff and students.

Communities of Practice (CoP) approximate Professional Learning Communities, although their design and purpose is slightly different. The unique qualities found in CoP are not entirely dissimilar to PLC’s. The differences are subtle, yet very important. Table 2.2 shows where the similarities of characteristics are found in both CoP and PLC’s. Also identified are characteristics that are not found in CoP that are vital to PLC’s. The table below identifies general characteristics found in each of the two communities.

Table 2.2 Characteristics Comparison of PLC’s and CoP’s

<table>
<thead>
<tr>
<th>Professional Learning Community</th>
<th>Community of Practice</th>
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<tbody>
<tr>
<td>Shared beliefs and understanding</td>
<td>Shared concern, problems, or common interest</td>
</tr>
<tr>
<td>Interaction and participation</td>
<td>Participant interaction, sharing</td>
</tr>
<tr>
<td>Meaningful relationships</td>
<td>Not included</td>
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<tr>
<td>Interdependence</td>
<td>Participant interaction, sharing</td>
</tr>
<tr>
<td>Concern for individual</td>
<td>Not included</td>
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Originally, CoP were based around situated learning and occurred in a co-located environment, although currently, many elements of CoP are found in online environments as well. Research is beginning to emerge around the notion of a virtual, or online community of practice. There may be some similarities in the stages of development of CoP and PLC’s. However there are differences.

For this study, the elements of what makes a traditional education community work, through either a PLC or a CoP model, helped to identify the necessary essentials for a successful community. For example, both CoP and PLC place importance on the participants within the community, on a common purpose, and on some level of interaction. These foundational understandings, rooted in face-to-face environments, also provided a way to characterize what was important to members of the community. It is these ideas, rather than the limitations of labels and definitions of type of specific community that have been proven to be successful for communities that were used to inform this study of online communities.

Online Communities

The literature on PLC’s and CoP’s reveal that the concept of communities is important. Communities clearly support important aspects of teaching and learning, and communities have a positive impact on the social and work lives of members. PLC’s have been shown to be good for teachers and for students. CoP’s have been shown to make a positive impact on building knowledge and social capital, both good resources for school organizations.

Compared to ample literature about professional learning communities, there is far less literature on online communities within the K-12 educational environment.
This may be partially due to the fact that online communities are a relatively new idea, and areas of research need about them are surfacing and growing.

The emergence of online communities is of particular interest considering the growth and use of Internet based technologies, and possibilities for educational use. For example, the advent of Web 2.0 has dramatically shifted the use of the Internet from an information-mining tool to an interactive communications medium with the added dimension of global access. Current research of the online environment provides exploration of the many aspects of distance learning, e-learning, computer-mediated instruction, and some interaction within online virtual spaces. In essence, the research focus is on the structures, academic use, and technical aspects. Additionally, much of the research is related primarily to the specific use of technology tools as instruments to enhance the teaching and learning process, with some research on uses of technology for enhancing teaching. Little research exists that explores the concept of online (professional and learning) community use in this new virtual environment and the contribution these communities make to educational practice from the point of view of the users.

However, this review is not related to the teaching and learning process or to the specific uses of technology tools as instruments to enhance the teaching and learning process and outcomes, collaborative projects, or design. Rather, the goal was to identify literature that specifically addresses communities in an online environment. A range of material including academic literature, published articles, dissertations, and Internet websites provided a foundation from which to research the current state of online communities as related to professional education use. The
search provided an insight to various types of online communities, and discussions of elements of online community models. These are discussed next.

The introduction of virtual CoP (VCoP), has revealed yet another layer of complexity. Online features, tools, and computer mediated interactions extended and changed the way access was and is made available, especially by expanding the accessibility by participants from co-located to non-co-located, intra-organizational and inter-organizational. In essence, a VCoP could easily become global, and maintain different interactivity levels that traditional face-to-face CoP environments did not offer. These moves toward a virtual environment of CoP hold promise for PLC’s to do the same. The options for inter-connectivity and for enhancing professional dialogue and practice are evident in this new medium.

Communities in online environments are growing in various capacities and for various purposes. Time spent searching the Internet reveals that there are lots of different types of online environments that serve a variety of purposes for a variety of people including professionals, students, and a wide range of others. Yet, entrance into, participation in, and outcomes from these communities may be problematic. The following nine articles together provide insight into elements that support or constrain participation in the virtual environment.

Creating a virtual environment may be no easy task. Consideration must be given to the critical elements and obstacles for collaborative work to occur successfully. For example, Buss (2001) conducted a Delphi study including seven panelists who sought to identify successful and unsuccessful elements of tele-collaborative projects in multiple sites using computer mediated communication
The study contained three distinct iterations. First, with telecommunications and collaboration in mind, the panelists were asked six open-ended questions regarding successful and unsuccessful elements of projects they were involved with.

The results generated 140 statements. These were reduced to eighty-six unique statements, which were used to create the second round of the questioner. Panelists were asked to rank the successful elements using a 5-point scale from essential (5) to non-essential (1). Panelists were also asked to rank unsuccessful elements using a 5-point scale. The results of this second round were used to determine what the panelists agreed upon. The final round included 100 items: 86 of the original items and 14 new items.

The results of this study revealed that essential elements for a successful telecommunications project include being teacher, student, and project related. Also important are having a good design and having hardware and software tools to enable CMC. Unsuccessful elements that created obstacles included issues with technology, teacher time constraints, and teacher and student willingness to participate. This study is important because it clarifies specific elements that are critical to a successful collaborative virtual environment.

Ravitz (1997) discusses literature from both the constructivist and instructional systems design (ISD) literature to identify common stages of development for building online communities for K-12 teachers using networked connections. A model is presented with extensive descriptions and examples for each stage of development. The key components of the model include people, process, product, and participation. Ravitz is clear in explaining that the participation
of people in this process is important, particularly since as it applies to commitment in the process. This study, and model development for instructional design is of value as it provides insight into the process and components necessary to design an online community.

Ng and Hung (2003) add to this growing effort to design successful online communities to include support of social interaction within the community. The authors build understanding of the importance of this by using activity theory as a foundation and then build a conceptual framework for online communities. They used an informal ethnography in which observations of the community were made. Fourteen principles for design were identified as contributing to the success of the online community. Further, the authors identified three design features, or elements, that result in a more successful environment. These include a defined purpose for the community, opportunities to gain knowledge by providing different ways for members to participate and clarity in rules for participants within the community.

Part of developing online communities is in understanding what drives the human-computer interaction that results in varying levels of social participation. Bishop (2006) explores the notion that some people participate more than others and people participate at different levels of involvement. He constructs a framework based on social desires of participation. There is a range of identified levels of participation. Beginning with the least participatory, these include: lurkers, novices, regulars, leaders and elders. Important in the discussion is recognizing that online community users share similar goals and values, which may account for initial and evolving levels of participation. In addition to identifying these different levels of
participation, Bishop adds to the understanding of participation by suggesting a change from a needs-based framework to a desire-based framework. Thus, people may be encouraged to participate by focusing on their desires. While some of the framework is empirically supported, it has not yet been tested, which is a limitation to this study.

Participation in virtual communities has also grown into online knowledge sharing, the roots of which come from face-to-face communities. In a review of literature on online learning, communications, and knowledge management, Ardichvili (2008), provides another framework from which to better understand motivators, barriers, and enablers to successful sharing and learning. Online participation and sharing knowledge is complex, and determines the degrees of willingness to share. Competition and cross-cultural differences, for example, may influence participant’s willingness to share. Ardichvili describes specific motivational elements that result in greater motivation and sharing: personal benefits, sense of community and belonging, shared values and vision. Barriers that may hinder participation include less than positive interpersonal dynamics, unclear procedures, technical challenges, and cultural differences.

Seddon, Skinner, and Postlewaite (2008) explored sustained engagement and motivation in online communities in a case study and produce a new model for motivational factors and collaboration. Their article describes collaboration over a six-year period between groups of teachers from eight schools in Europe representing students between the ages of five and eighteen years of age. The article sought to understand sustainable online communities and motivational models
through analysis of email data and group interviews. The teachers were participants in the research process: reflecting, researching and analyzing their collaboration both individually and in whole group discussions. Participants were given motivation models that were used to analyze motivational flow. The study found that motivation was most successful when both self-determination (choice and control) and success (self-efficacy) occurred.

Lin and Lee (2006) provide an empirical study to determine success in online communities. This study uses the DeLone and McLean information systems success model as a theoretical framework and proposes a new framework to evaluate successful online communities. Although the study focuses on non-educational communities, these key elements of the model are readily transferable to the educational context: system quality (desired characteristics), information quality (accuracy and usefulness), and service (quality design, trust). The future research directions include recognizing that there exist a variety of methods that may be employed to further study the success of online communities. These may include, for example, longitudinal studies, focus groups, and interviews.

While the rapidly evolving world of the online environments continues to grow at an exponential rate, increasing awareness of this option as a tool for growing professional communities in education has also grown and provided ways for professional educators to build their own professional learning communities, professional development, and distance learning opportunities. Barnett, Norton and Byrd (2007) discuss one professional learning community of twenty-three teachers from across the United States. In this study, the Teacher Leaders Network, (which
was founded to expand the role of teachers in school reform), shows a progression of participation that reflects the analysis of what makes a successful online community. This is of particular interest as it identifies specific elements, which are unique to the school/education setting. Specifically, these teachers posted, dialogued, and supplemented on-site work. They also mentored new teachers (which improved retention), encouraged, and gave specific ideas for classroom implementation. This added significant value to participants and in some cases resulted in changed practice. All of these characteristics are also present in a successful face-to-face environment of a PLC.

In another case study of a different online community, Farooq et al. (2009) discuss the community, but through the lens of design. The case was Tapped In, an education online community. The focus was on socio technical interventions that facilitated ease of use and developed social capital from the user to the designer. They conclude that three design interventions provided ways to give feedback: discussion, prioritization of tasks, and a help desk. These interventions lead to development of social capital bonding defined by connectedness between the user and the designer.

Summary of online communities

While there is literature, ever evolving, around online communities and learning, there are gaps in the literature. The majority of the literature focuses on design and use of specific tools or sites, with a few studies about specific online communities. There is a gap in research that links the specific characteristics or elements in an online environment that have been shown to be effective for schools
as is the case with PLC’s. There is very little research on the use and outcomes of OLC use from the point of view of the teacher user: how they use them, and what they get out of using them. One important distinction in the use of online communities is that most of the participation in the online world is self-selected, and on demand, while participation in face-to-face traditional PLC’s is mandatory. There is very little research on the characteristics of teachers who use OLC, and how they got started. These gaps present an important reason to study online communities in order to better understand the users, their participation, and the outcomes of online community use. This is important in order to effectively supplement and enhance the specific use of online communities with the goals of the teachers who use them.

Online communities appear to add individual benefit and enhanced learning. They also seem to add a broader benefit through participation and access to the online community social capital and to participant transference of knowledge to the school site and individual classrooms. However, this has not been specifically researched or documented in literature.

There are both subtle and sometimes clear distinctions between various forms of interactivity and outcomes within online environments and communities. These distinctions determine the nature of the online community. The notion of a virtual community similar to PLC’s in education does not currently exist, but a CoP seems more likely. However, further investigation may identify existing characteristics of PLC’s that have been or may be transferred in some capacity to virtual environments. It is possible that this virtual environment has new characteristics of a learning community in addition to the traditional characteristics
and features of the original PLC’s, which may support or provide better online use and outcomes.

This section discussed communities as successful models to support education practice through communities of practice and professional learning communities, the purpose of which was to provide a discussion of communities as successful models to support education practice. Online communities were also discussed to provide background for this study. The next section discusses the complementary theories of self-efficacy, social, and human capital as they uniquely situate teacher experiences.

Theoretical Frameworks

The purpose of this study was to explore the use of online communities as an important tool to support teaching and learning in the public classroom. One of the ways to uniquely situate this experience from a teacher’s perspective is to describe the benefits they may achieve through increased self-efficacy, broadened social capital, and increased human capital through greater knowledge and skills attainment. These theoretical frameworks are discussed next.

Self-Efficacy

Self-efficacy presents a complement to situate individual teachers experiences in community, and as such is relevant to this study. In current literature, Banduras’ definition is most frequently cited. He defines self-efficacy in this way: “Perceived self-efficacy refers to beliefs in ones capabilities to organize and execute the courses of action required to produce given attainments.”
Efficacy studies are rooted from a psychological theoretical framework, which can be traced to two dominant frameworks. First, in 1954, Rotter linked integrated learning theory and personality theory to create social learning theory. A formula: behavior potential is a function of expectancy and reinforcement value \( BP = fn (E + RV) \), established the link between individual interpretation and subsequent behavior (Rotter 1954; Mearns, 2007). Adding to this foundation, Bandura found social modeling powerful in learning. This idea of social modeling then linked social learning theory and psychological modeling. This work led to social cognitive theory of human function in which self-reflective and self-regulatory behaviors were identified, thus establishing that behavior is not just an outcome of environmental influences. The triadic reciprocal causation model was formed in which behavior, internal personal factors (cognitive, affective, biological), and external environment form a triadic relationship. The idea that people engage and produce as well being products of their environment set the stage for Bandura and Walters (1963) to further research self-efficacy for human motivation, well-being and accomplishments. Bandura found that efficacy (that is, self belief in capabilities) influences productive thinking, self debilitation, pessimism, optimism, level of motivation, perseverance, vulnerability to stress, depression, and life choices. In addition to self-efficacy, Bandura posits that the social aspects of humans led the way to the study of the notion of collective efficacy.

There are consistent themes that emerge in people who have strong self-efficacy. For instance, Bandura found children who have strong self-efficacy do better than those who do not. Self-efficacy contributes to a sense of personal well-
being and accomplishment. Having high self-efficacy results in higher involvement, taking on challenges, having stronger persistence. Thus, high efficacy can be a predictor of capabilities, and attainment of goals. On the other hand, perceptions of low or diminished self-efficacy result in dwelling on deficiencies, lower aspirations, increased stress and depression, undermined use of competencies, sense of failure, decreased effort and increased self-doubt. People who are highly efficacious are different than those who have low self-perceptions of their efficacy. Perceived high efficacy results in a circular link between perseverance, developing skills, and motivation to accomplish the task, while low self-efficacy does the opposite.

Bandura (1986) describes a gap in psychological theories and research between knowledge (what I know) and performance (what I do). The notion of efficacy addresses the relationship between knowledge and action by considering the self-perceptions of one’s capabilities and the resulting motivation and behavior. Further, the phenomenon of efficacy (Bandura 1986) is described as a person’s sense of effectiveness in controlling the events affecting their lives. After further work in self-perceptions of effectiveness, Bandura (1997) identifies one of the effects of self-efficacy as a predictor of personal goals and performance. Generally, a stronger sense of self-efficacy shapes and influences responses and reactions to obstacles and demands by increases in effort, (failure is attributed to insufficient effort). Low self-efficacy attributes failures to perceptions of inability and results in stress and depression. Sources of self-efficacy are described as resulting from mastery experiences (repeated successes), vicarious experiences (observing similar people
performing successfully), verbal persuasion (talk people into believing in capabilities) and physiological state (state of mind).

*Characteristics of Efficacy Research*

Efficacy is determined through self-perception. As such, efficacy research is grounded in psychological theory and has been conducted by using a variety of surveys that individual participants respond to. Rotter (1954) set in motion several measures of efficacy based on the concept of expectancies and reinforcement. The first reference to teacher efficacy occurred in a RAND research study (Tschannen-Moran & Hoy, 2001). There were only two questions on this study and both linked teacher efficacy to student achievement. These items were measured with a 5-point Likert scale from “strongly agree” to “strongly disagree”. The nature of the questions reveals relevance to one aspect (motivation) of teacher efficacy: “I can’t do much about motivating a student, it depends on their home environment”, and “If I try hard I can motivate even the most difficult student”. In another study, Rose and Medway (1981) designed a 28-item measure of Teacher Locus of Control with a forced choice format describing student success and student failure. A scenario was given: “Suppose you were teaching a student a particular concept in math and the student had trouble understanding it”. Respondents answered one of two choices which linked teacher success/failure in addressing the problem or students success/failure in addressing the problem. Guskey (1981) structured his survey instrument to measure responsibility for student achievement by asking (teacher) participants to give a weight to each of two questions on a survey. The questions measured responsibility for student success or failure. The Webb Efficacy Scale (Ashton et al.
1982) was also a forced choice survey, but only had 7 items. Participants had to decide if they agreed with one or the other of two statements for each item.

Banduras’ work set in motion a number of studies of measurement instruments based on his concept of self-efficacy. Gibson and Dembo (1984) designed an instrument with 30 statement items using a 6 point Likert scale from “strongly disagree” to “strongly agree” to measure teacher efficacy. For example: “When a student gets a better grade than he usually gets, it is because I found a better way of teaching”. The survey results revealed two emerging efficacies: personal teaching efficacy and general teaching efficacy.

Measures of efficacy have been designed to measure different aspects of teaching and learning. For example, Riggs and Enochs (1990) designed an instrument with 25 statement items using a 4 point Likert scale from “strongly agree” to strongly disagree” to measure science teaching efficacy belief. In another study, Ashton et al. (1984) designed an instrument using 50 vignette items describing teaching problem scenarios which included motivation, discipline, instruction, planning, evaluation and work with parents. The scale was self-referenced from “extremely ineffective” to “extremely effective”. The scale was also norm referenced: “much less effective than most teachers” and “much more effective than most teachers”.

In a significantly different survey, Bandura (1997) designed a Teacher Efficacy Scale with 30 items measured on a 9-point scale anchored at “nothing”, “very little”, “some influence”, “quite a bit”, “a great deal”. This instrument measured efficacy in the many roles teachers hold, rather than only analyzing the
teaching role. Seven subscales include: influence on decision making, influence on school resources, instructional efficacy, disciplinary efficacy, enlisting parental involvement, enlisting community involvement, and creating a positive school climate. This represents a significant difference in measurement, as Bandura’s instrument indicates a broadening of understanding of the tasks that teachers engage in, and that efficacy may not be entirely uniform across the different types of tasks a teacher performs.

As measurements of efficacy grow, increasingly specific outcomes can be measured. In one study, Schwarzer and Daytner (1999) designed three instruments to measure general efficacy, collective teacher efficacy, and teacher self-efficacy. The format includes responses to statements using a 4 point scale anchored at “not at all true”, barely true”, “moderately true”, and “exactly true”. Looking at student achievement as a measure of efficacy, Guskey (1981) developed a scale to measure responsibility for student achievement. This scale was composed of 30 items. Participants gave a weight to each of two choices using a distribution of 100. Four types of causes were given for teacher success or failure with students: teaching abilities, effort in teaching, task difficulty, and luck. Guskey concluded that positive and negative outcomes were separate. Teachers were more likely to claim responsibility for positive outcomes, and less likely to have influence on negative outcomes.

Combined, all of the instruments mentioned in this review provide an understanding for the components of efficacy measurement scales; making a strong
foundation for measurement and the importance of efficacy as it relates to performance.

Over time, definitions of teacher efficacy have evolved. Guskey and Passaro (1994) describe the evolving history of efficacy. The earliest reference found by Woolfolk and Hoy (1990) in ERIC of use of the term teacher efficacy was in a study by Barfield and Burlingame (1974). In this study, efficacy was defined as “a personality trait that enables one to deal effectively with the world.” RAND researchers later defined efficacy as “the extent to which the teacher believes he or she has the capacity to affect student performance”. (The RAND study based their efficacy score on two questions.) Ashton (1984) defined self-efficacy as “teachers belief in their ability to have a positive effect on student learning”. Bandura (1997) defines efficacy as “the exercise of control over actions and the thought process, motivation and affective and psychological states that result in a belief about what one can do under different conditions with the skills one possesses.” For teachers, perception of efficacy then is linked to their ability to teach their subject matter, having a well-managed classroom conducive to learning, enlisting parental involvement, and diminishing negative social influences that hinder academic pursuits.

While most efficacy scales revolve around the instructional components of teachers work, Banduras’ scale extend to tasks and influence that teachers engage in beyond the classroom. Efficacy scales have been designed, tested, and redesigned since 1981. Between 1981 and 2002 there have been many scales designed to
address teaching efficacy. However, the research is lacking measure instruments for principal efficacy.

While there is less research on principal efficacy, measures of principal efficacy seem to be developed from previous instruments created primarily for measuring teacher efficacy. For the purposes of this review, I have selected principal’s sense of self-efficacy as described by Tschannen-Moran and Gareis (2004). This article addresses three key measures of principal self-efficacy, and provides results generated through a new instrument. The article provides important understanding of the site leadership link to school effectiveness. When principals have a strong sense of self-efficacy, site leadership is more likely to have an overall positive impact on the school. Site leadership is increasingly viewed as critical to schools as high stakes accountability and improvement reform efforts are taking center stage. Measuring principal’s self-efficacy is an important new area of research, and this article added to the existing base of literature that addressed principal leadership in schools. The results from this research have implications for increased understanding of the motivations, behaviors and needs that support self-efficacy in principals, which in turn have impact on teachers and staff. This can inform principal training, professional development, and district level support.

The theoretical framework of efficacy applies to the analysis of principals’ beliefs in their ability to conduct the broad range of tasks required in managing and leading a school site is linked to how well they actually do their work. For example, principals with higher efficacy tend to be flexible, consistent in their work, and less likely to consider their inability to solve problems as professional failures.
Conversely, principals with lower self-efficacy are more likely to not identify successful strategies to confront problems, blame others, and have higher stress levels and burnout. This framework strongly guides the focus of this study (Tschannen-Moran & Gareis, 2004) in evaluating different measures of principal efficacy, and analyzing the results of those measures to provide the rational for implications of further research.

This research article also provides a brief history of measures of principal efficacy beliefs, attribution theory, and measures of locus of control. The strengths of this research are the purposeful selection of past measures: adapting, testing, and then evaluating three distinctly different instruments. The first study adapted an earlier measure developed in Australia by Dimmock and Hattie (1996) on principal self-efficacy that provided vignettes of typical situations that might occur on a site. The measure was adapted to represent nine situations in the context of American schools. A ten-point scale from “Totally Not Confident” to Totally Confident” allowed for degrees of responses. Through use of factor analysis and Cronbach’s alpha reliability, this instrument was determined to stability and reliability.

The second instrument from Goddard et al. (2000) adapted a measure of teacher efficacy to principal efficacy using 22 items and a Likert six point scale from 1 “strongly agree” to 6 “strongly disagree”. This study measured the perceptions of principal capabilities and difficulty of the task. Factor analysis using principal axis factoring with Varimax rotations reflected disappointing results. Additionally, in this study, principal acknowledgement of working in a difficult school environment brought scores down, whether or not the respondent felt he or she had the skills or
motivation to meet those challenges. The factors did not represent a significant variance and suggests the measure not to have validity or reliability. Both of the attempts to test principal efficacy were conducted with the same sample principal population: a sample size of 104 principals in Ohio. The second study added 53 principals and vice principles from Virginia to the Ohio group. Several examples of representative questions provided clear examples of the measurement tool.

The third measure was an adaptation of three previous measures. These included Teacher Self Efficacy Scale (TSES) (Tschanen-Moran & Woolfolk Hoy, 2001), work alienation (Forsyth & Hoy 1978), and principal trust in teachers and clients (Tschanen-Moran & Gareis, 2004). A nine point scale 1 “none at all” 9 “a great deal” was used to record principal responses to 50 items including context questions phrased by “to what extent can you…(facilitate learning in your school)?” The measure also included work alienation and demographic variables. This study provided some success in comparing responses over different contexts, although through principal axis factoring the questions were reduced from 50 to 18.

Three factors surfaced from this study: handling the management aspect of the principal-ship; self-efficacy in instructional leadership, student learning, and school vision; and moral leadership. The author points out the limited and disappointing response rate of 28% (544 principals from a total of 1,925 surveys mailed). The article concluded with reasonable and understandable implications for specific ways to increase principal efficacy, including the providing of mastery experience, role-play scenarios, and positive support.
The research studies in efficacy inform the problem of school improvement as they provide the theoretical frame and instrument measures of efficacy, which in turn link strong efficacy to better school outcomes. Students and teachers who feel highly efficacious perform, achieve, and have a more positive outlook on their school community than those who do not feel efficacious. The evolution of the notion of efficacy, and the continually refined instruments to measure efficacy provide a more informed knowledge base to better understand the complexities of school improvement, particularly as it applies to managing, encouraging, and developing the people that comprise the learning community.

Summary Self-Efficacy

School effectiveness depends to a significant degree on efficacy, and conclusions from empirical studies make it clear that efficacy matters. PLC’s provide structures and environmental conditions that support the distinct roles of teachers to teach, students to learn, and leaders to lead. The end result may well be that as a result of PLC’s; teachers and leaders sense of efficacy is enhanced thus creating a flourishing and effective learning community. Professional learning communities provide the structure from which to create a vibrant learning community, the purpose of which is to enhance teacher effectiveness for student benefit. If it can be established that efficacy is supported by PLC’s then it adds strong justification to create and maintain PLC’s to increase school effectiveness. However, in absence of a strong site based PLC, perhaps other sources of community, such as through an online community, can be encouraged to achieve similar outcomes.
Social and Human Capital

Social Capital studies are rooted in sociological theoretical frameworks, although economists and sociologists both use social capital to describe and explain social action. Sociologists describe action by people as governed by social norms, rules and obligations. Economists view taking action independently, and through self-interest (Coleman, 1988).

Social capital is one of three general forms of capital, and it is important to distinguish between the three in this discussion. Physical capital refers to material resources; human capital refers to capacities including skills and knowledge held by individuals: social capital refers to interconnectivity or relations between persons (Coleman, 1988). Further, Coleman describes social capital as defined through two key elements. It has social structures and these social structures facilitate actions of people within that structure. Social capital is viewed as a resource such as other forms of capital, and as such it is productive and facilitates achievement. Similarly, Lin (2001) describes social capital as: “Resources embedded in a social structure which are accessed and or mobilized in purposive actions”. Sobel (2002) adds to the discussion of effective social capital by introducing trust as a key element for the individual in the social context. All three forms of capital are important, and are viewed as resources, which may add value or detract from the organization. In terms of traditional and virtual environments, the concept of social capital as a valuable resource is important because its presence indicates value to members and participants through creating human capital.
Coleman (1988) identifies three key elements of social capital: obligations and expectations, information channels, and social norms. Obligations and expectations are viewed as a complex set of human interactions, which rely on trust and reciprocity. Using the analogy of bank deposits, a person with a great deal of social capital may have a large number of “credit slips” with others that they may draw on at any time. Through individual action, supporting others, “credit” is accumulated. The more “credit slips” a person accumulates, the greater the social capital, or interconnectivity is available to them.

Another important access of social capital is through information channels. These interactions do not result in “credit slips”; rather information channels with people you know provide resources that you can use to acquire information. For example, an artist may ask an expert in a different field such as finance, for information regarding investing. The exchange of information also builds a set of obligations, but only through information sharing.

Social norms also play a role in building social capital in a community. Rules that inhibit bad behavior or actions create a safer and more trusting environment. For example, a community that inhibits crime is a safer place to be. However, these social norms, which are designed to build trust, and create safe environments may on the other hand hinder or reduce innovations and acts of positive deviancy. Closed social networks (within the social structure) where there are strong relationships and associations are important for social capital because they build trust and increase obligations and expectations (Coleman, 1988).
One example provided by Coleman is inter-family relationships in which parents of different families have a strong association and friendship with each other to monitor each other’s children thus providing a network of support. In this context, Coleman analyzed the effects of social capital in two different contexts. One was the effect of social capital on high school drop out rates and the other social capital within families and the community outside the family. In both cases, the more social capital available to the students the lower the drop out rate. The more social capital is available within the family and community, the stronger the formation of human capital. In this study Coleman found drop out rates were significantly lower in Catholic high schools compared to other private and public high schools. The Catholic high schools had embedded elements of social capital that were significantly more evident than the other schools.

Social capital is important, and different in measurement than human capital. If human capital (skills and knowledge) is not available or shared then social capital is not built. For example, if a child grows up in a household with two highly capable parents, yet the parents are not physically available through work or other obligations, then the child’s benefits from their human capital are limited and there is a lack of social capital within the family. This idea is important to transfer to the analysis of other communities, such as online community environments because it appears that members who are able to develop social capital are much more likely to be more successful in their participation, learning, self-efficacy, and ultimately contribution to the community.
Compared to social capital, in a separate study, Losada et al. (2004) discussed the importance of connectivity within highly functioning business teams. Interactions were analyzed with two business teams, the teams that interacted more, both positively and negatively, had more successful outcomes than those that had little or mostly negative interactions. The more successful teams had developed a greater inter-connectedness than the less successful teams. The successful teams generated higher social capital than the less successful teams.

Social capital has implications for any community, and particularly for virtual communities. DiMaggio et al. (2001) review and discuss social implications of the Internet from several research articles with respect to the impact of social capital. While they point out that there is little research on the character of online relationships and the performance of virtual communities, pre-existing tendencies toward sociability and communications may be amplified from traditional to virtual environments.

Nahapiet and Ghoshal (1998) define a structural environment that includes three key dimensions: cognitive, relational, and structural. Both cognitive and relational elements relate to interpersonal relationships such as shared values, narratives, language, trust, respect and friendship. Structural defines the connectivity of the network such as network ties, configuration, and connectivity. Further Crave et al. (2006) identify the need for a framework to analyze Professional Virtual Communities in business settings and point out that this model is important because it provides a framework from which to differentiate levels of productivity in virtual communities.
While there are various papers that address social capital in virtual communities, there is very little literature that is empirically based, and reveals the nature of social capital within an online community. Social capital in this context remains an area of research need. For the purposes of this research the social capital framework will be included as an important element to better understand positive outcomes of communities in an online environment. This is of particular value for teaching and learning to move to a more shared public practice from which teachers can gain professional insight and ideas otherwise not available to them.

Summary and Implication for Research

There are several conclusions to be drawn from these studies to support this study, the purpose of which was to examine the use of online communities and the effects on teaching and learning in the classroom. First, professional communities, designed as PLC’s or CoP’s, serve a distinct purpose in enhancing the profession they are organized around. Second, professional communities are beginning to evolve in the online environment, and offer the added dimension of a more global community than co-located communities. This expands the available knowledge and practices to a greater number of people. Third, because online communities are new, there is a lack of literature that explores the benefits they provide to users of them. What needs to be explored further is the occurrence, if any, of the relationship between professional community individual experiences and transference to practice in professional education oriented online communities.

In Chapter 3, the mixed methods research approach used in this study is described. This research method was used to examine K-12 educators participating
in online communities and specifically investigates the use, contributions to practice and self-perceptions of those participants in the context of using the online community.
CHAPTER 3

Methodology

This chapter describes the research design used to investigate characteristics of teacher’s use of online communities and the ways use of these communities contributes to teacher knowledge and practice. The self-efficacy and social and human capital theoretical frameworks were used with the intention of focusing on teacher perceptions of the ways that using online communities contribute to their knowledge, experience, and instructional practice. This study used a mixed methods design to gather data to address the research questions: (a) What are the characteristics of teachers who participate in online communities? (b) How do teachers describe their perceptions of self-efficacy after using online communities? (c) How do teachers describe their perceptions of social capital after using online communities? (d) In what ways do online communities contribute to teacher knowledge and instructional practice?

Research design

The research design used for this study was a triangulation mixed methods design as described by Creswell (2005) and Creswell and Plano (2007). Three key features of this research design, as described in a study by Russek and Wanberg (as cited in Creswell, 2005) included equal opportunity of both qualitative and quantitative data; both types of data were collected simultaneously, and data were used to show convergence, inconsistency, and complementary results. In considering data triangulation Yin (2003) describes addressing construct validity through using
multiple sources of data to arrive at a conclusion. In this study, quantitative and qualitative data and results were used to interpret the findings. Quantitative data were gathered through a survey. Qualitative data were gathered through open-ended questions and prompts, interviews, and observation of online community sites used by participants. Figure 3.1 shows the Mixed Methods Triangulation design used in this study.

Figure 3.1. Mixed Methods Triangulation Design (Creswell, 2005)

Research Context – Study Participants

The study was carried out in one large urban school district in southern California. During the course of this study the district employed approximately 7,000 K-12 teachers.

This district was selected because of its historic and strong commitment to supporting teacher’s growth. In past administrations, innovative new teaching strategies where implemented district wide at all grade levels with extensive support
given in multiple ways to reach rigorous objectives for teacher learning and goals for student achievement. These practices were then embedded in instructional practices.

During the 2008-2009 school year for example, the focus of the educational technology department was: using technology in instruction and to engage students. That year the department has provided over 400 hours of professional development to over 1,900 teachers and administrators. An overview of the planned professional development also included several courses in collaborative and interactive tools such as Google tools, wikis, podcasting, and blogging (retrieved 2-20-09 http://www.edtech.sandi.net/). Combined this suggested an embedded interest by teachers and administrators to use technology to enhance instructional practices, and support from the district to do so. At the time of the study, classroom teachers had technology tools available to them including Internet access, laptops, document cameras, and projectors. This state of affairs made this district a good candidate for this study.

Working with the Curriculum and Instruction Department, a convenience sample for this study was generated using existing distribution lists that were made available from the district office. The combined total distribution list consisted of approximately 2,300 teachers. These distribution lists provided email access to 33% of all teachers in the district. The list provided a pool of teachers from which a sample of users of OLC could be identified. The lists included teachers from all three levels of schooling: elementary, middle, and high school. There were several distribution lists. The high school list consisted of 1,200 math, science, and English high school teachers. The middle school list consisted of 200 English and all math
middle school teachers. The list of English teachers was generated from teachers who had attended English Language Arts Units of Inquiry workshops taught by district resource teachers. The elementary school teacher distribution list included 805 teachers who were scheduled to attend district sponsored literacy professional development. An additional distribution list included 152 teachers (59 elementary teacher and 93 high school teachers) who attended history and other related trainings. The initial survey was administered to these teachers.

An introductory letter, with a link to the survey was provided through email to each of the directors of elementary, middle, and high school. These electronic letters including the survey link were then emailed from the district office to teachers on the distribution lists. The mailing was done on three occasions between March and June 2009. Teacher participation in the initial survey was voluntary.

All teachers who responded “yes” to the first question, “Do you use online communities?” were given the opportunity to take the survey. Those who answered “no” were thanked for their time and were not given the opportunity to continue with the survey.

Of the 115 teachers who responded to the survey, 74 completed some portion of the survey. Of these 74 teachers, 13 completed the first part, 17 completed the first and second part, and 44 completed all parts of the survey. The 44 completed surveys were used for data analysis in this study. The 44 teachers who completed the entire survey were given the opportunity to participate in an electronic interview. Twenty-two teachers volunteered to do that, and of those, 10 completed the text based open-ended interview representing 50% of the 22 who volunteered to
participate in the electronic interview. From this group of 10 teachers 7 were selected to participate in a follow up open-ended interview.

Method of Data Collection

There were four data collection methods including three instruments to gather both qualitative and quantitative data. These included an electronic survey (Appendix A). This instrument was the initial electronic survey that was sent to all teachers on the distribution lists provided by the district. The second was the electronic text based online interview that teachers who completed the first survey were invited to take (Appendix B). Third, based on completed text interview responses, teachers were selected for further inquiry. A follow up one-on-one face-to-face interview was requested using email as the correspondence and communication tool (Appendix C) and a guiding list of open-ended questions was used for this interview (Appendix D). Forth, using the C4P model (Hoadley & Kilner, 2005), data was collected from observation of online sites identified and used by participants (Appendix E). These methods of data collection are described next.

Instrumentation

**Electronic Survey.** A cross sectional design was used for the electronic survey. Creswell (2005) describes cross-sectional survey design study as a way to examine the current attitudes, beliefs, opinions, and practices at one point in time. This was appropriate for this study, the intention of which was to capture a moment in time of teacher’s use of online communities. The participants who took the survey were also purposefully selected. Merriam (1998) identifies non-probability sampling (the opposite of random sampling) as “the method of choice for most qualitative
studies” precisely because it allows the researcher to gain understanding from a sample that is information rich, reflecting what the researcher most wants to learn about, i.e., who is using these sites, and how they are using them. This method of identifying participants was appropriate for this study, as is described next.

Maxwell (2005) identifies one goal for purposeful sampling, specifically relevant to the purpose of this study: “to achieve representativeness or typicality of the settings, individuals, or activities selected”. Miles and Huberman (1994) describe the key feature of qualitative sampling by researchers as “work with small samples of people nested in their context and studied in depth.” Further, Creswell (2005) identifies homogeneous sampling as one type of purposeful sampling. In this case, “the researcher purposefully samples individuals or sites based on membership in a subgroup that has defining characteristics”. Purposeful sampling in this study was used to identify teachers that use online communities.

Further, as explained by Merriam (1998), “Purposeful sampling is based on the assumption that the investigator wants to discover, understand, and gain insight and therefore must select a sample from which the most can be learned”. As described in the previous section, a list was generated from the entire group of district teachers. The survey was sent to teachers on the district provided distribution lists. From this group, a non-probability purposeful sample was generated of teachers who use online communities. Teachers who did use online communities and completed all of the survey became part the sample population.

Additionally, a non-probability snowball quantitative sampling procedure (Creswell, 2005) was used to add potential new participants to the original sample
for the survey. Using this procedure participants were asked to recommend other teachers (within the district) who use online communities and may be interested in participating in this study. This sampling method was embedded in the initial and follow up survey request letter. This procedure served to support a potentially broader participation in the survey, perhaps even from teachers not on the distribution list. It was not clear how many teachers participated from this method.

The electronic survey included 31 multiple choice and 9 open-ended questions. A variety of response options were used in the 31 questions and included: 15 interval scales using a 5 point Likert ranging from strongly disagree to strongly agree, eight 3 and four 4 point categorical scales including “not much” to “a great extent”, and 5 nominal (categorical scales) to gather characteristic and demographic data. The survey instrument drew from existing instruments originally designed to separately measure teacher efficacy, social capital, and online use. Key questions linked to specifically measuring these components were included in this new survey, as described in Chapter Two, and additional questions were added.

The multiple-choice responses provided descriptive statistics of characteristics of teachers who use online communities (OLC). These questions included demographic data, and participant self-perceptions of efficacy and social capital in the context of using online communities. The open-ended questions were designed to clarify multiple-choice responses through participant generated narrative text. These questions were embedded in the survey following some multiple-choice questions and were selected to elicit responses that would provide qualitative data
about how teachers used online communities and how use of OLC contributed to
their knowledge and instructional practice.

There were four sections in the survey: general demographic data, use of
online communities in general, questions pertaining to one community used by the
participant, and general teacher efficacy and social capital questions. Teacher
efficacy questions were developed through modification of existing surveys that
addressed self-efficacy. These included Teacher Self-Efficacy Scales (TSES)
(Tschannen-Moran & Wolfolk Hoy, 2001). The survey also included questions from
Bandura’s Teacher Instructional Self-Efficacy instrument, teacher efficacy surveys
described in Ashton and Webb’s, and Gibson and Dembo’s study (as cited in
Tschannen-Moran & Hoy, 2001), and Woolfolk and Hoy (1990). Surveys from
Georgia Institute of Technology were used for social capital questions. The survey
design and additional questions were guided by discussion of survey design in
Fowler (2009). This survey design included consideration of the type and the
wording of questions, response scales, and past reliability. Wording was checked for
ambiguity, and ordinal scales were checked for unidementiality (one issue). Scaled
responses were used to measure only one property per question. Questions were
grouped together to simplify the ease of use of the survey.

Additionally, Couper (2000) and Couper, Traugott and Lamias (2001)
provide two articles that describe key areas that have unique qualities in delivering
surveys through the Internet. One is a review of issues and approaches to web
surveys such as coverage and sampling error. The other discusses specific web
survey design such as using buttons versus typing in responses. Considering these
insights and discussions with colleagues, Survey Monkey, an easy to navigate electronic survey program with a standardized presentation was selected for use.

The first instrument used, the electronic survey, was sent to all teachers in the sample population. The survey was sent out three times over a four-month period of time between March and June 2009. Participants accessed the survey through the Internet link embedded in the letter sent to all teachers in the sample population via e-mail (Appendix F). Confidentiality was maintained with no identifiable link made between respondents and responses.

Results provided both quantitative and qualitative data. Quantitative data provided descriptive statistics and addressed the first three research questions: (a) What are the characteristics of teachers who participate in online communities? (b) How do teachers describe their perceptions of self-efficacy after using online communities? (c) How do teachers describe their perceptions of social capital after using online communities? Qualitative data provided by narrative text gave further insight to participants experience and answered questions (b) and (c) and the fourth research question: (d) In what ways do online communities contribute to teacher knowledge and instructional practice?

*Electronic Interview.* An electronic interview is a form of a qualitative interview (Creswell, 2005). Creswell describes qualitative survey interviews as asking open-ended questions without set response options. An electronic interview was selected as the instrument to collect further data from participants who completed the electronic survey. Survey Monkey was used for this instrument as it
was a consistent and familiar format for participants, and provided text boxes features that allowed for unlimited narrative text responses.

Participants who completed the electronic survey were invited to participate in the electronic interview. Those who requested the interview received the Survey Monkey link to access the questions. The interview consisted of 17 open-ended, semi-structured interview questions. Participants responded to these through narrative text based responses. Seidman (2006) describes the purpose of interviewing as not to get answers for questions, rather, to gain an “understanding of the lived experience of other people and the meaning they make of that experience.” This study focused specifically on teacher’s experiences in their context of using online communities (OLC’s). Because interviews allow a researcher to probe more deeply into understanding the perspective and experience of the interviewee they are an important data collecting method to add to this study. This data collection method provided participants the chance to more thoroughly describe their experiences through narratives. The participant responses provided data that described the ways OLC impacted and contributed to their teacher knowledge and instructional practice, amplifying the data provided in the 9 text responses from the initial survey.

All 17 questions were open-ended and were designed using Appreciative Inquiry (AI) (Preskill & Catsambus, 2006). AI is a particular way of asking questions to study and build upon what is best in an organization or community. For example: What do you like about using online communities? Questions identifying impact on practice: Think back to when you did not use virtual communities. Would
you say that your practice has changed as a result of using virtual sites? In what way has it changed?

Interviewees were able to complete these on their own time schedule. The participants who completed the electronic questionnaire where asked to participate in a face-to-face interview. A request for a follow up interview was made using email as the correspondence and communication tool.

*Interview*. Participants who agreed to be interviewed were scheduled, and interviews were conducted in a one-on-one face-to-face setting at a location that was selected by, and convenient for the interviewee. All interviewees gave verbal permission to record the interviews. Seven interviews were conducted.

Maxwell (2005) describes the importance of interviews in describing actions and events. In this study, the descriptive use of OLC by participants provided additional information about each participant’s personal experience that would have been missed otherwise. The questions for this instrument were designed to guide the interviewer through open-ended questions about specific actions and events related to participant’s use of OLC. The open-ended nature of the questions was selected based on Creswell (2005) to not constrain participant’s answers, thus allowing the participant to describe their experiences. Each interviewee was given a print copy of the five guiding questions at the start of the interview (Appendix D). These questions were also designed using appreciative inquiry. Each participant was able to use these questions as a platform to describe their experiences using OLC. Participants were not limited to answering only these questions.
Creswell (2005) provided descriptions for successful interviews, including: discussion of planning, conduct, location, and recording. Thus, each interview was planned with consideration to location, previous participant responses, and recording method. Each location was selected by the interviewee and was mutually agreed to. Each interview was recorded using an IPod with a Belkin external microphone attachment. Notes were also taken. Each interview averaged approximately one hour.

As a thank you for the time each of these participants contributed to this study, each was offered a gift certificate from either Starbucks or Amazon.com. Participants received their gift certificates electronically, all who accepted the gift, selected Amazon.com.

*Site Observations.* Interview participants were asked to identify the specific online communities they use. Forty-five different sites were identified by participants and were then organized into categories. The site categories included: commercial, university or school district affiliated, content specific, social network, collaborative tools, and national organization. Representative sites within each category were identified for observation. Eleven sites were identified. These sites were observed using the C4P model of learning in online communities as described in Hoadley and Kilner (2005). The model was developed to understand how learning takes place in knowledge building communities, and it includes five elements. These elements are: content, conversation, purpose, connections, and context. The C4P model was used to identify these features, which are shown to be important for a knowledge-building community. A summary form was developed and used to record
observation of these elements or features (Appendix E). The observations made were then compared to participants’ responses to validate the nature of their online experience, knowledge building, and transference to practice.

To enhance internal validity of this study, participant observation as described in Creswell (2005), was the strategy used to collect data from the sites identified by participants. These observations of experiences that may be offered to participants using selected OLC provided the researcher with data that would otherwise not have been noted. Each of the eleven sites was visited minimum of four times over the course of this study for a total of forty-four observations. There were no time constraints to each observation, and observations took varied lengths of time. In some cases, availability to all site offerings was limited due to membership restrictions.

The participant observer method of research originated from anthropology. It is generally qualitative in nature and seeks to provide a way to gain detailed information about what is being studied (Creswell 2005). The researcher may observe or participate in the environment being studied (Yin 2003). In this study, participation and observation occurred exclusively and directly through Internet access and provided a way to learn about the sites participants identified and used. Observation of actual sites used was an important component of triangulating data findings.

**Analytic Strategy and Data Management**

One of the advantages conducting research online was the any time, from anywhere with Internet access accessibility. Scheduling observations of OLC’s did
not present a logistical challenge, nor did gathering survey data. The research was conducted from a personal computer during times selected for this purpose. With the exception of the face-to-face interview, all research was conducted online.

Data was gathered from four methods and served to provide a more complete and accurate account of OLC use by participants than any one method alone. In this study, the methods were chosen to provide a variety of specific evidence from which to analyze and validate the responses. The data collection methods produced quantitative data, gained from the survey through the multiple-choice questions; qualitative data including text based participant responses from the survey, interviews, and voice recordings and notes from face-to-face interviews. A breakdown of surveys, interview, and data sources is included in Appendix G. Additionally there were observational notes of online sites recorded using the C4P protocol.

The data from the electronic survey on Survey Monkey included both quantitative and qualitative data. The responses from this data source were downloaded and placed in an excel spreadsheet. Two databases were then created; a spreadsheet to include the 31 multiple-choice responses, and separately, text files for the 9 text based responses. The multiple-choice responses were analyzed using SPSS. Multiple-choice responses provided quantitative descriptive statistics addressing the first three research questions: characteristics of teachers using OLC, and perceptions of their self-efficacy and social capital. The text-based responses provided qualitative data providing examples for multiple-choice based questions. Management of this and other text data is described next.
The text-based responses included the nine survey questions in the electronic survey, responses from the electronic interview and face-to-face interview results. Four questions offered a text box for clarifying comments and examples about effects on their practice and asked participants to give examples of: how using the site helped them address teaching and learning (Survey, Q-20), changes to their practice (Survey, Q-25), and impact to student motivation (Survey, Q-26). They were also asked to describe something they learned in OLC that they applied to their teaching (Survey, Q-33). Four questions did not include a text box response option. These questions asked about: degree of learning that enhanced practice (Survey, Q-24), finding ways to increase student success (Survey, Q-19), finding better ways to teach (Survey, Q38), and reaching difficult students (Survey, Q37).

Survey text responses were downloaded, converted to text files and prepared for analysis. Recorded interviews were sent to Casting Words to be transcribed. Casting Words is a fee based transcription service noted for its confidentiality, accuracy, with a reasonable turn around time. Transcribed text could then be downloaded to my computer, converted to text files, and prepared for analysis. HyperResearch, a text analyzing software program, was tried and then purchased for use. This program was selected for its ease of use, adaptability in coding, and high recommendations from colleagues. This software was used for all text analysis from the three sources described. (9 text survey responses, all interview responses, and all interview transcripts.)

All text responses and transcriptions were prepared then imported into HyperResearch to be coded and then analyzed. The coding process described in
Creswell (2005) was implemented. This process entailed initial reading of the data, initially coding text, reducing overlap of codes, and collapsing codes into themes. Miles and Huberman (1994) was an extremely useful guide to coding process and analysis of the data. Text was identified into categories and coded during each reading of the material. Codes were collapsed into like categories and common themes. The codes and themes reflected the research questions. For example, questions related to efficacy were coded as “E” for efficacy followed by the particular category of efficacy. For example E-Mastery Experience and E-Vicarious Experience show two categories for efficacy. Likewise, social capital was coded as SC and specific categories were identified in the same way as efficacy. The text could then be grouped and sorted in various ways to reflected teachers’ specific experiences. Thus, coded text also could be used to provide vignettes that showed teacher perceptions of specific aspects of online community use, examples of changes in self-efficacy, social capital, and transfer to their practice. The California Standards for the Teaching Profession (CSTP), October 2009, were used for additional coding categories to describe contributions to practice that align with norms in the profession. For example, each of the six standards was coded as TS (Teacher Standard) followed by a word about the standard. Thus, Standard 1, Engaging and Supporting All Students in Learning became TS1 Student Engagement.

One of the problems identified in conducting qualitative data collection is the potential to collect vast amounts of data, which can be overwhelming and time consuming to analyze (Miles & Huberman, 2004). Considering the variety of data
collected, this presented a challenging and complex task in the analytic phase. To aide in this I turned to Maxwell (2005). There were two key attributes of qualitative data analysis that guided the analysis: categorizing and connecting strategies to organized data, and triangulation of the data findings. Specific ways to structure data collection and analysis were developed and used through the use of protocols, as described by Creswell (2005), data collection devices described by Yin (2003), and data organization and analysis by Miles and Huberman (1994).

Limitations

There are potential limitations to this study. First, the survey instrument draws from existing instruments originally designed to separately measure teacher efficacy, social capital, and online use. Key questions linked to specifically measuring these components were included in this new survey, and additional questions were added. There may be some issues regarding validity of this instrument in its modified form. Text responses could also be considered a limitation.

Second, the length of time of this study may be considered a limitation, if longitudinal data are required. Four months were used in this study. While the time frame was selected so as to complete collection of data before the end of the school year, the data represents a snapshot of experiences versus growth of experiences over time.

Third, online data collection remains an emerging form of research and could be considered a limitation. Internet based research continues to evolve, and conditions for structuring research and ethical standards continue to be debated.
Fourth, there are some limitations to this method of data collection specific to online communities. Further studies will need to consider changes in technology and user patterns. Also, the content on each site may not be permanent. Information present on one day may not be there the next. Conclusions drawn in this study are therefore relevant to the context of the study at that time.
CHAPTER 4

Findings

This triangulation mixed methods study investigates characteristics of teacher’s use of online communities and the ways use of these communities contributes to teacher knowledge and practice. The study is grounded in self-efficacy, social and human capital theories. The findings reported include results from an online survey (n=44), electronic (n=10), and face-to-face interviews (n=7), and observations of 11 online communities used by participants. Quantitative data were gathered through a survey using 31 multiple-choice questions. This survey data provided descriptive statistics of characteristics of participants who use online communities (OLC), including demographic data, perceptions of self-efficacy and social capital, and perceptions of site leadership. The survey also contained nine embedded open-ended questions that provided clarification for some multiple-choice questions. Additional qualitative data were gathered through seventeen electronic interview prompts and follow-up face-to-face interviews with a small sub-sample of seven respondents who completed the entire survey. The data gathered from these interviews amplified existing data on use of OLC and provided additional breadth in how use of communities influenced teacher perceptions of self-efficacy, social and human capital, knowledge and instructional practice.

Additionally, the qualitative data findings include researcher observations of participant-identified OLC sites including site purposes. Participant comments and narratives regarding the identified sites, their use, and contributions to knowledge and instructional practice are also reported. The study findings are reported next, and
are grouped by the research question they address. Following these findings is a summary description of each of four participants. This summary is based on the entirety of each of their responses and serves to provide further insight as case studies.

Research Question 1:

What are the Characteristics of Teachers Who Use Online Communities?

In this section I present characteristics of study participants. These are summarized in three categories: 1) demographics, 2) self-efficacy in teaching and in comfort level using technology, and 3) participant online community use. The survey questions (Q) are identified as originating from the Survey (S) or the Electronic Interview (EI). Numbers are used to identify individual teacher participants.

Demographics

Online survey participants included 74 K-12 public school teachers in a large urban school district in southern California. The majority who completed the first part of the survey was female (80%). The 44 who completed the entire survey were all female.

The vast majority (89%) of teachers in the sample who completed the entire survey were experienced with over six years of teaching. Over half of these (54%) had at least 11 years of experience and about one-fifth (22%) had 20 or more years of teaching experience. About 44% taught primarily in elementary schools, 40% in middle schools, 6% in high schools, and the remainder (10%) taught in some combination of K-12 grades.
Self-Efficacy in Teaching

Overall, participants in this study seem to have a strong sense of teaching self-efficacy, irrespective of online community use. Two self-efficacy scales using a Likert 5-point scale ranging from strongly disagree to strongly agree were used to measure general teaching self-efficacy. The majority of participants reported high perceptions of self-efficacy. 75% agreed or strongly agreed with the statement: when I try really hard, I can get through to the most difficult students (Survey, Q-37) and 68% agreed or strongly agreed with the statement: that when a student gets a better grade than he or she usually gets it is because I found better ways of teaching that student (Survey, Q-38). Mean scores were closer to agree. The self-efficacy scales used in this study have good internal consistency. The Cronbach alpha coefficient was .78.

Table 4.1 Perceptions of Self-efficacy Exclusive of Online Community Use (n = 44)

<table>
<thead>
<tr>
<th>Survey Question</th>
<th>Coding and range</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>When I try really hard, I can get through to the most difficult students (S1, Q-37)</td>
<td>1 - Strongly Disagree</td>
<td>3.81</td>
<td>.90</td>
</tr>
<tr>
<td></td>
<td>2 - Disagree</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 - Neutral</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4 - Agree</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5 - Strongly Agree</td>
<td></td>
<td></td>
</tr>
<tr>
<td>When a student gets a better grade that he or she usually gets it is because I found better ways of teaching that student. (S1, Q-38)</td>
<td>Same as above</td>
<td>3.70</td>
<td>.88</td>
</tr>
</tbody>
</table>

Self-Efficacy in Using Technology

Participants also reported a high perception of comfort in using technology tools. Teachers were asked how comfortable they were using technology as a tool in
three areas: productivity, research, and communications. A three-point scale was used for responses: Not very comfortable, somewhat comfortable, and very comfortable. Most teachers were very comfortable using technology as a tool in all three areas, particularly as a communications tool (86%), followed by using technology as a resource tool (81%), and lastly, using technology as a productivity tool (74%). Mean scores were closer to very comfortable in all categories. There was good internal consistency with a Cronbach alpha coefficient of .75.

Table 4.2 Perceptions of Technology Self-Efficacy (n = 44)

<table>
<thead>
<tr>
<th>Influences</th>
<th>Coding and range</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Productivity Tool (S, Q - 8)</td>
<td>1 – Not very comfortable</td>
<td>2.77</td>
<td>.42</td>
</tr>
<tr>
<td></td>
<td>2 – Somewhat comfortable</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 – Very comfortable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research Tool (S, Q - 9)</td>
<td>Same as above</td>
<td>2.84</td>
<td>.38</td>
</tr>
<tr>
<td>Communications Tool (S, Q - 10)</td>
<td>Same as above</td>
<td>2.88</td>
<td>.33</td>
</tr>
</tbody>
</table>

Online Community Use

This section presents a broad set of data, which show characteristics of participant’s use of OLC. These findings were organized into categories to include: what prompted teachers to initially use OLC, what OLC sites these participants used, comments about their use, access and frequently of OLC use, participation levels in those site, and experiences over time.

Initial reason for using an OLC. Every participant who completed the survey was given the opportunity to participate in an electronic interview. 19 teachers requested the electronic interview. 10 teachers completed this online interview.
These teachers were asked to comment on the purpose that prompted them to use online communities (Electronic Interview, Q-10). Their comments showed a variety of reasons, and these narratives were coded and then organized into 3 categories. These categories were: specific goals, organization or job change, and to get ideas. Most of these teachers began to use OLC with a specific goal in mind. These teacher’s descriptions, which were categorized as goals, all suggest that they initially used OLC’s as resources from which to learn to do a very specific task such as learning email.

In contrast to highly specific reasons to use OLC’s, the teachers who took on a new job or responsibility initially used OLC in a much broader way. These teachers began to use OLC’s for better understanding or to better connect with others and seemed to integrate OLC’s use into their work rather than to learn specific tasks. In both cases, the teachers were building personal knowledge and skills, although the teachers with new responsibilities were also building a professional network and broader professional knowledge.

The teacher that described using OLC’s initially to try new ideas was a hybrid between initially using their OLC as a resource to build knowledge and skills and developing a professional knowledge and communication network to support instruction. This focus included both building community within the classroom and on OLC sites through blogging with other professionals. Table 4.1 shows the three categories, with corresponding narratives from Electronic Interview, Q10.

For these teachers, reasons for starting OLC use can be summarized as developing as a professional educator by: using OLC’s as a resource to develop
specific knowledge or skills, to become part of or better understand a extended professional community, and to try new ideas using the venue of an OLC and build a classroom based community.

Table 4.3 Categories and Narrative for Initial Use of OLC

<table>
<thead>
<tr>
<th>Initial Use of OLC</th>
<th>Corresponding Narrative</th>
<th>Teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific Goals to develop knowledge or skill</td>
<td>I started using online communities to learn video and still-photography for my classroom.</td>
<td>Teacher 56</td>
</tr>
<tr>
<td></td>
<td>To teach email.</td>
<td>Teacher 33</td>
</tr>
<tr>
<td></td>
<td>To gather teaching resources.</td>
<td>Teacher 59</td>
</tr>
<tr>
<td></td>
<td>To keep current on topics that relate to teachers and technology.</td>
<td>Teacher 38</td>
</tr>
<tr>
<td></td>
<td>I wanted to keep myself updated in my profession using sound lessons, technology and preparing my students for the 21st century. Online learning communities help me to do just that.</td>
<td>Teacher 15</td>
</tr>
<tr>
<td></td>
<td>I use them to increase crafting knowledge.</td>
<td>Teacher 16</td>
</tr>
<tr>
<td>Extended Professional Community</td>
<td>When National Writing Project went digital we were encouraged to use their website, and since it’s a national organization you have a way to stay in touch.</td>
<td>Teacher 52</td>
</tr>
<tr>
<td></td>
<td>I started with the intent to understand what my students were doing. I got a job as a computer teacher and I felt it was my responsibility to try to understand my student’s realities online. This led me to take classes to learn more about online technologies and connect and build my professional learning community.</td>
<td>Teacher 43</td>
</tr>
<tr>
<td>Try new ideas</td>
<td>I first built a web page to help my parents and students be better able to know what was going on in class. Then I began blogging with my kids. Then I started using things like Wiki’s, teacher tube, and professional blogging sites to augment my lessons.</td>
<td>Teacher 22</td>
</tr>
</tbody>
</table>
Selection of OLC sites identified by study participants supports both initial purpose and subsequent use of OLC. This section describes qualitative data findings about participant identified OLC sites used. The findings presented here include: an overview of participant identified OLC sites, categories of sites identified, summary of site observation, and participant comments about sites used. Participant comments and narratives relate to the sites, their use, and contributions gained in participant knowledge and participant instructional practice.

Overview of Participant Identified Online Community Sites

In the first part of the survey participants were asked to identify online communities they used, 58 sites were listed. Of these responses, 68% of identified sites were discrete, each identified by only one participant. In the second part of the survey participants were asked to select one community in particular, 42 responded, and 45 different sites were identified. Although there were many sites listed, there was very little overlap in identified sites. This ratio of commonly identified sites was similar to the initial question asking participants to identify sites used. Specifically, of the 45 sites identified, 70% (32) of identified sites were different, each identified by only one participant. More than one participant identified each of the remaining 30% (13) sites. Ten sites were identified by at least 2 participants, one site by 6, one by 5 and then one by 3 participants. It was surprising that there was such a broad range of different sites identified, with little consistency or commonality of site identification among the participants. However, themes or categories of identified sites emerged among these sites.
Categories of identified OLC sites. Each of the sites identified was visited and then organized into categories. All identified sites (except two social network sites and two sites that provided collaborative tools) were content specific to education. Table 4.4 shows these categories, the number of sites identified in this category, and the number of participants that identified these sites. Most commonly, participants identified broad ranging education based commercial sites (such as A-Z teaching, and scholastic) and content specific sites (such as math, technology, and history). This accounted for 47% of identified sites. University or school district sponsored sites followed these categories (such as National University and San Diego County Office of Education). They accounted for 18% of identified sites. Sites affiliated with a national organization (such as National Writing Project and National Education Association), and sites offering collaborative tools (such as Google and Yahoo) were evenly identified, and together accounted for 27% of site identification. The least number of identified sites were social network sites (Twitter, Classroom2.0, and Facebook), and Moodle. The greatest number of participants identified a range of commercial sites, followed by University or school district related, content specific, and social networks. The least number of participants identified Moodle specifically. Some participants identified more than one site.
Table 4.4 Category of Sites Used

<table>
<thead>
<tr>
<th>Type of site</th>
<th>Number of sites in this category</th>
<th>Number of Participants Identifying this type of site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial</td>
<td>11</td>
<td>13</td>
</tr>
<tr>
<td>University or school district</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>Content Specific</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Social Networks</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>Collaborative Tools</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>National Organization</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Moodle</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>45</td>
<td>63</td>
</tr>
</tbody>
</table>

Participant identification of sites is supported by their stated initial purpose to use OLC’s including: gaining specific skills and knowledge, trying new ideas, and becoming in some way a member of a greater community. All of the identified sites were in support of these reasons to use OLC. Sites that provided resources in the form of specific tools that do or could support teaching and communicating accounted for 37% of participant site identification. These included social networks, collaborative tools, and Moodle. This compares to 63% of sites, which support a broader range of specific community and resources (including ideas) for teaching and learning. These sites were in the categories of commercial education sites, university, national or district affiliations, and content specific sites.
To clarify what specifically OLC sites offered to participants, in terms of resources, community, and ideas, I observed a select group of sites. The sites were selected to represent a range of the site categories. Several of the sites were also identified by more than one participant. The observations are described next.

Site Observations

The sites used by the 10 participants who completed both the survey and online interview were selected for further analysis. The C4P Model by Hoadley and Kilner (2005) was used to guide observations about how site participants could actually use the sites. The model framework included evaluating purpose, connections, context, content, and conversation. Site observations provided an overview of the nature of the sites participants identified. Eleven sites were evaluated using this framework including 4 education based commercial sites, 2 social network sites, 2 content specific sites, and 3 educationally focused organization sites.

Purpose. An analysis of this group of sites revealed three broadly stated purposes for these sites. Each of the three purposes support and are in alignment with participant reasons for initially using a site. Five sites had a stated purpose to provide resources and ideas. Four sites included professional development, providing a place to learn, and to support teachers as their purpose. Three sites expressed purpose of connecting to others, discussion, messaging, and social networking. There were overlapping purposes in three sites. Two overlapped resources and connecting to others and one overlapped in resources and professional development. Further observations showed that sites provided a variety of ways to
present their focus, and participants in these sites worked together, if interactivity was available, toward these common goals.

*Connections.* Connections to other participants were made through online courses, conferences, e-magazines, professional groups, bulletins, news, and events. Connections were also made using a variety of technologies including nings, blogs, forums and messaging as well as providing links to the site Facebook, Flicker, and YouTube accounts. While these vehicles for connections were available, it was not clear on many of the sites how active those connections were. Some sites had few recent postings, although content provided on the site was current. Others, such as Classroom 2.0, had current and daily new postings and information. Nonetheless the connections made available added context and content from which conversations could occur. For example the National Writing Project (NWP) site had multiple vehicles for participants to post and share work that made possible further discussion, although some access was closed to non-members. Globalschoolnet provided ways for participants to collaborate with others through specific outcome based projects that participants could join.

This distinction between sites that were updated and current, and those not current may be a factor in participant’s decisions to continue to use the site. If they do continue to use the site, the participant purpose may change from community focus to getting ideas, and using resources to complement specific individual skill or knowledge development. Although important, and perhaps an area of future research, this inference was not pursued at this time.
**Context.** Context, defined as how information is presented, was accessible in different ways and in different categories in these sites. Context was provided through use of stories, research articles, resources and examples through links and drop down menus. Technology tools such as media, blogs, groups, wiki’s, forums, events, webinars, polls, and groups were used to provide not only information and resources, but also to enhance participant contributions across the greater community. Some communities such as Tammy Worcester’s and atozteacherstuff, both commercial sites, focus on teacher resources, and are heavily member driven in the context and communications. These sites offer lots of neat “stuff” (resources) such as lesson plans, templates, worksheets and the like that were readily downloadable and usable in a classroom.

As compared to getting “neat stuff” (resources), other communities had a much stronger community focus in which participation and interaction, whether as an observer or participant, was the primary focus. For example, Globalschoolnet was driven by member participation in actual international collaborative projects. For example, at the time of this writing there were 94 global projects occurring. There was a broad range in topics from technology (video conferencing collaborative project) to history (Iraq war blog, and History of New Orleans) to math (How much is a million?).

In contrast, Classroom2.0 is focused around building social networks and knowledge building in education in general through a wide range of highly interactive means provided through web2.0 technologies. One example of Classroom2.0 offerings are weekly webinars, on topics ranging from using blogs in
the classroom to book discussions such as “Why Students Don’t Succeed in School” by Dan Willingham. During the time of this study, typically 100 or more members from the United States and abroad attended each of these Saturday morning webinars. Another was a live interview with author Daniel Pink.

*Content and Conversation.* Sites differed in content and conversation availability and use. Content was related to the purpose of each site and conversations were enabled through discussions, messaging, social networking, and collaborate tools. Four sites were managed with fewer opportunities for members to interact, providing more content than conversation and sharing. One example of this sort of site is NCTM (National Council Teachers of Mathematics). This site offered immediate resources and ideas for classroom application, but conversation and sharing was limited on the site through membership restriction, or focus on upcoming face-to-face events. While a good resource, it offered less of an immediate online community focus – particularly for non-paid members.

The sites offered a variety of ways to communicate. Some had site-managed blogs or discussions. Others had member created and directed blogs, or groups. Site managed content via topics for discussion had fewer postings than those sites whose members created their own topics for conversation. One site (atozteacherstuff) had explicit posted rules regarding participation in forums and blogs. The other sites did not. Two sites (Twitter and Teachertube) were so broad in focus that educators would have to screen a great deal of material to find education, school, or classroom relevant material, or create their own network.
Some sites were more complex than others to use, and some sites required various degrees of membership affiliation. As there was such a range of sites and uses, it was apparent to me that participant selection of a site was a highly individualized effort driven by different interests and passions, and in some cases, cost. When considering the original intent of participants and offerings of OLC discussed earlier, it seems that some sites offer rich resources for immediate classroom use in support of teaching and learning, while others offer broader resources with an education focus that could enhance skills and knowledge in a different way. Original participant purpose to learn something, and be a part of a community, was reflected in the purpose and content of the sites identified. In comparing original intent, and actual site offerings, the two seem to be in alignment. An analysis of participant comments about sites they used is provided next to add the participant perceptions of sites they use, to triangulate the study data, and check for internal consistency between stated perceptions and actual observations of sites.

Participant Perceptions of Online Communities

Participants were given the opportunity to expand on their OLC use through nine comment boxes embedded in the survey. These comment boxes each followed a multiple-choice question. The comment box gave the participant a way to expand their answer. Two comments boxes addressed what OLC participants used in general, and then participants were asked to identify one specific site. This data was discussed in the previous section. The other six comment boxes provided further information to specific questions. These questions fell into three broad categories, two of which are discussed in this section: 1) Participant perception of site purpose
and participant use, and 2) Participant comments about what makes a good OLC.

The third category, perceptions of contributions to teacher knowledge and practice is discussed later in this chapter under Research Question 4. The first category, participant perception of site purpose and use is described next.

_Perception of site purpose and participant use._ Teachers were given the opportunity to comment on what they believed was the purpose the site (Survey, Q-22), forty-three teachers responded. The purpose of this question was to triangulate the reasons participants initially used a site, the stated purpose of the site, and participant’s thought about what the purpose was. Text responses were coded and then coded responses were grouped into similar categories. Their responses were roughly in alignment with the sites stated purpose. Based on groupings of coded text responses, four categories of perceived site purposes were identified by participants. The site purposes identified included providing: resources, a means to collaborate, a way to share, or to be a part of an academic class or other organization. Corresponding site stated purposes were: providing resources, a place to learn, and connecting to others. (See Table 4.5) These stated and perceived purposes seem to be in alignment. For clarification, samples of coded text are provided here. For example, these two comments were grouped into a category called resources:

> It is similar to an online magazine where other education professionals respond to articles. This site is a great resource for incorporating technology and increasing problem solving type activities across the curriculum.

_(Teacher 59)_

> Its official purpose is different than how I use it. Officially, users are supposed to say what they are doing. I use it to connect with...
educators around the world, to share resources, have brief conversations, get ideas, get help, etc.

(Teacher 4)

Together, these and other similar comments suggest that the sites offer many types of resources, including opportunities to find help, information, or solutions to problems. The greatest numbers of comments, 47%, were coded as resources.

There were also perceptions that the purpose of the sites was focused on collaborating and connecting to others. A quarter of the responses (26%) fit this category. Two teachers described collaborative sites in this way:

We believe that teachers are the best source of expertise and experience, and that there is no “one best way” to teach, so online discussions foster that exchange.

(Teacher 52)

This site is for collaboration and interaction with other teacher librarians in our district. We only meet twice a year and not all of us get together, so this is an opportunity to share what works, and ask for suggestions with what doesn’t work. We also have a Moodle page we can edit and a shared Google doc.

(Teacher 37)

While sharing could be considered a resource or collaboration, it was identified as its own category. The nature of the comments that were grouped in this way suggested that things (such as lesson plans) were shared and used in common with others but not necessarily co-constructed. These comments accounted for 19% of the responses. Three teachers commented about sharing in this way:

This site helps technology teachers, specifically broadcasting class teachers to share information and knowledge to improve their skills and share lesson plans and to offer support and advice.

(Teacher 67)
It is a site for teachers to share personal and professional writing and ideas/concerns.  
(Teacher 36)

To get ideas for lessons that other people have published.  
(Teacher 48)

Some sites identified were affiliated with specific organizations such as National Board Certification, Beginning Teacher Support Assessment (BTSA), and National Writing Project (NWP). The purpose for these organizations was described by participants as providing support to achieve specific results such as board certification, becoming a better teacher, and gaining expertise in writing. These accounted for the smallest percentage of website purposes, 9.3%.

Table 4.5 What do you see as the purpose for this site? (S, Q-22)

<table>
<thead>
<tr>
<th>Category of Responses</th>
<th>Response Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resource</td>
<td>47%</td>
</tr>
<tr>
<td>Collaboration</td>
<td>26%</td>
</tr>
<tr>
<td>Sharing</td>
<td>19%</td>
</tr>
<tr>
<td>Part of a class or organization</td>
<td>9%</td>
</tr>
</tbody>
</table>

Participant Perception of What Makes a Good OLC

Participants were asked what makes a great online community (Survey, Q-34). Thirty-four participants responded to this survey question and cited several factors that contribute to a good online community. The statements provided were coded into common themes (See Table 4.6). These common themes included perceptions of: the value of other participants use of the site, content value offered,
ease in use, sharing, common purpose, and collaboration. 11 participants sited 2 themes in their responses.

Table 4.6 Themes of Perceptions of a Good Community

<table>
<thead>
<tr>
<th>Theme</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value: participants</td>
<td>34</td>
<td>100%</td>
</tr>
<tr>
<td>Value: content</td>
<td>14</td>
<td>41%</td>
</tr>
<tr>
<td>Ease of use</td>
<td>13</td>
<td>38%</td>
</tr>
<tr>
<td>Sharing</td>
<td>8</td>
<td>24%</td>
</tr>
<tr>
<td>Common Purpose</td>
<td>7</td>
<td>21%</td>
</tr>
<tr>
<td>Collaboration</td>
<td>3</td>
<td>9%</td>
</tr>
</tbody>
</table>

The greatest numbers of comments were related to how they valued the other participants that used the site, followed by value of content and ease of use. Sharing, common purpose, and collaboration were cited least. In interview responses, participants also emphasized other participants using the site as the number one indicator of a good site, followed by content value, ease in use, and common purpose.

Comments about good participants ranged from the specific: “it is user driven (not top down), it is easy to share and discuss, it is easy for like minded people to connect, no barriers” (Teacher 4) and “One that honors and supports everyone’s contributions and pushes our thinking beyond what we’ve done before into the reality of our students today.” (Teacher 10) To the simple and straightforward: “Good participants – duh!” (Teacher 11).
Access and Participation. Participants were asked about their access to OLC. The questions included when sites were used, and frequency of access. Teacher’s accessed online communities at different times: during the workday, before and after the workday, during the weekends, or combinations of these times. Most teachers, 93% accessed their sites at some point during a working day, whether before, during or after the day. Half of the teachers used online communities during the workday; the other half responded that they did not. As a percentage of all respondents, those teachers that did not use communities during the work day were split into various combinations: 20% accessed the communities before and after the work day including weekends, 23% used the communities before and after the workday excluding weekends, and 7% used communities only on weekends.

Teachers using communities during the workday also had various combinations of use. Over a third of the teachers, 36%, accessed their online communities all the time (before, during, after the work day and the weekends). A smaller number of teachers, 9%, used online communities only during the workday. One teacher used communities before, after, and during the workday, but not the weekends. Another teacher accessed during the workday and the weekend.

Participants were asked about frequency of site access. Table 4.7 shows the greatest number of participants (45%) accessed their sites weekly. Monthly and daily use was equally split, with 23.8% of responses in those two groupings. The least number of participants (7.1%) selected the not often choice.
Table 4.7 Frequency of Site Access

<table>
<thead>
<tr>
<th>Frequency of access</th>
<th>n = 42</th>
<th>Percent n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekly</td>
<td>19</td>
<td>45.2%</td>
</tr>
<tr>
<td>Daily</td>
<td>10</td>
<td>23.8%</td>
</tr>
<tr>
<td>Monthly</td>
<td>10</td>
<td>23.8%</td>
</tr>
<tr>
<td>Not often</td>
<td>3</td>
<td>7.1%</td>
</tr>
</tbody>
</table>

Respondents were asked about their participation in the sites they used. A four-point scale ranging from “don’t really participate” to “share and participate a great deal” was used. Table 4.8 shows participation in rank order by number of respondents to participation level. Most participants, 57%, shared sometimes, 23.8% shared a great deal, 11.9% of respondents did not participate, and 7.1% rarely participated. Combining all participants who share, suggests that about 80% of online users do participate, and that about 20% might be considered “lurkers”. For this study, lurkers are participants who do not contribute to the sites they visit, even if they frequently visit or use the site.

There are many definitions for lurkers, including someone who has not posted in three months, or even someone who has never posted (Nonnecke & Preece 2000). In another study about online community use, Nonnecke and Preece (2001) found, through interviews of 10 online users, 79 specific reasons why users of online communities lurk. Of note is the finding that there was a 75% rate of lurking in asynchronous groups, and no lurkers in synchronous environments. This suggests that the type of format members are using makes a difference in whether they
participate or lurk. In another study of 219 lurkers, Preece, Nonnecke and Andrews (2004) found two key findings: first, that there were many reasons for not participating (among those reasons: didn’t need to post, still learning about the group, nothing to offer, difficulties with software, didn’t like the group) and second, that lurkers are not selfish free riders. An analogy was made that lurking was similar to the behavior associated with watching television. The study discussed different types of communities show different rates of lurkers, ranging from 99% in some online groups to 45% in health support groups, however, no references to educational communities were provided in this study. Still, in the Preece, Nonnecke and Andrews study there were more female than male participants, and more people in the 30 – 49 age group. Lurker rates in this study were about 18%. The findings in the Preece, Nonnecke and Andrews study seem to coincide with the findings presented in this study in which there was a higher rate of female participants, over 30 years old, and a 20% rate of lurkers.

Table 4.8 Site Participation Levels

<table>
<thead>
<tr>
<th>Site participation</th>
<th>n = 42</th>
<th>Percent n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share sometimes</td>
<td>24</td>
<td>57.1%</td>
</tr>
<tr>
<td>Share a great deal and participate</td>
<td>10</td>
<td>23.8%</td>
</tr>
<tr>
<td>Don’t participate, use site and learn new things</td>
<td>5</td>
<td>11.9%</td>
</tr>
<tr>
<td>Don’t really participate</td>
<td>3</td>
<td>7.1%</td>
</tr>
</tbody>
</table>
Once on sites, teachers used them in a variety of ways. Participants responded to questions about specific tools used on the site they identified. The questions regarding the ways the sites were used offered nine choices of various technologies currently available including media, communications, and collaborative tools and formats. Specifically, the technology tool choices offered in the survey included: wiki, groups, workshops, events, blogs, forums, media, webinar, meet up.

Teachers selected their responses based on frequency of use for the various choices: never, not very often, frequently, all the time. An average of 40 participants answered each of these questions. The most frequently used formats included groups 63%, media 60%, forums 55%, and blogs 46%. The types of formats used most frequently by participants align well with survey responses of sharing and participation by teachers in the OLC they used. Groups, forums, and blogs are easy to use, require little expertise, and have fairly instant feedback in communications with others, and it makes sense that these would be the identified media used. The least frequently used formats by participants included: events 37%, workshops 34%, wiki’s 20%, meet up’s 13%, and webinars 8%.

*Experiences over time.* Participants were asked about their use of OLC over time. Six of the seventeen text based interview questions provided were related to these participant experiences. Questions were asked and examples were requested about what has changed (Electronic Interview, Q-1, Q-2, Q-13), and what has not changed (Electronic Interview, Q-3, Q-4). Participants described many changes over time, and some things that did not change. These narrative responses were analyzed and coded into themes, which were then re-grouped into social and human capital
categories. The social capital category included 17 narrative statements, which described increases in social capital experiences through increased information channels and interactions. The human capital category included statements describing increases in knowledge and skills in these emerging themes: gaining new ideas, increased discussion and leadership (14), making changes to their teaching (13), increased use of more innovative practices (12), and expanding and being more selective of their use of resources (11). Nine narratives described positive increases in self-efficacy measures through mastery experiences, increased confidence, vicarious experiences, and better mood. Participants also discussed those specific aspects of their practice that did not change. These eight narratives included statements that participants have not changed their teaching using standards based lessons, content, or using best practices (Figure 4.1).

![Participant Narrative Responses](image)

Figure 4.1 Participant narrative responses of experiences over time
Participant narrative statements n=84. Responses related to increased human capital (50), responses related in increases in social capital (17), responses related to increases in self-efficacy (9), participant responses related to things that have not changed (8).
Summary of Characteristics of Teachers using OLC

The teachers in this study tended to be female, had many years of teaching experience, and were teachers of middle school and elementary aged students. As a group they were comfortable using technology tools for communications, resources, and productivity. The majority considered themselves to be good teachers, as they rated their teaching self-efficacy high.

In terms of their OLC use, teachers tended to go to and use sites as resources; to get good ideas and “neat stuff”, to be a part of a greater community, and to interact with others. Participants identified value as the best indicator of a good OLC. Value was defined by the quality of both the other participants who used that site and the resources made available through “neat stuff” and overall content.

In using these communities over time, teachers noted significant benefits. They made innovative changes to their teaching, became more purposeful and selective about their use of resources, and increased participation in sites through gaining new ideas, discussion, and developing their leadership voice. Teachers also experienced increased self-efficacy through their online experiences, and increased social capital through expanding their professional and social networks. Human capital increases were also evident through development of skills and knowledge acquired through use of OLC and application of those new learning’s to practice, and through OLC site participation.

By using OLC, seeing new innovations, and learning, teachers enhanced their professional practice. They were not detracted from teaching standards, content, and using best teaching practices. Instead, teachers found renewed excitement, and
innovative ideas that re energized, improved and brought new enthusiasm to their teaching practice. This group also had recommendations for teachers new to using OLC. In getting started, experienced OLC teachers mentioned the importance of knowing your goals, just jumping in and getting started, and not being shy about asking for help or training. Experienced users also stated the importance of finding “stuff” (resources) you like and is helpful, being professional, and using OLC to share, learn and empower ones-self. This highly enthusiastic and self directed group of teachers seems to represent a positive force that could be recognized as having characteristics of fairly high degrees of self-efficacy, and human capital resources at their disposal.

Research Question 2:

What are teacher’s perceptions of their self-efficacy?

The findings presented here are of participant self-efficacy perceptions in the context of online community use. Results are described from both quantitative and qualitative data. Quantitative data were generated from five 5-point Likert questions in the survey. Table 4.9 shows the results from these questions. The responses are from the 44 participants who completed the entire survey. Qualitative data from face-to-face interviews provide narratives that exemplify and further describe participant self-efficacy perceptions. In all responses for all questions the majority of participants agreed that self-efficacy was improved since using online communities. The areas measured were: increases in confidence to use what was learned, developing new expertise, perceived teaching confidence and excitement, and addressing tough problems in teaching. The scales used in this study to measure self-
efficacy have good internal consistency with a Cronbach alpha coefficient of .88.

Results are described next.

Table 4.9 Self-Efficacy as a Result of Using Online Communities (n = 44)

<table>
<thead>
<tr>
<th>Influences</th>
<th>Coding and range</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tough Problems (S, Q – 20)</td>
<td>1 – Strongly disagree</td>
<td>3.67</td>
<td>.94</td>
</tr>
<tr>
<td></td>
<td>2 – Disagree</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 – Neutral</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4 – Agree</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5 – Strongly agree</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Confidence Teaching (S, Q – 14)</td>
<td>Same as above</td>
<td>3.77</td>
<td>.75</td>
</tr>
<tr>
<td>Excitement Teaching (S, Q – 15)</td>
<td>Same as above</td>
<td>3.79</td>
<td>.83</td>
</tr>
<tr>
<td>Increase Student Success (S, Q – 19)</td>
<td>Same as above</td>
<td>3.93</td>
<td>.63</td>
</tr>
<tr>
<td>New Expertise (S, Q-36)</td>
<td></td>
<td>3.98</td>
<td>.71</td>
</tr>
<tr>
<td>Confidence Learning (S, Q – 35)</td>
<td>Same as above</td>
<td>4.0</td>
<td>.79</td>
</tr>
</tbody>
</table>

Teacher Perceptions of Self-Efficacy

While overall responses show an overwhelming increase in perceptions of self-efficacy, there were slight differences in degree of agreement between question responses. Two questions showed a higher (80%) combined agree and strongly agree response, and higher means (at or near 4.0) than the other three self-efficacy question responses. The questions were: confidence to use what I was learning (Survey, Q-35), and developed new expertise (Survey, Q-36). Combining these responses and underlying theory suggest that teachers were learning new skills and
developing confidence to use those new skills. In self-efficacy theory, Bandura (1977) describes the importance of developing self-efficacy through mastery experiences that generate skills that in turn affect individual success. The increase in self-efficacy, (reported by participants in the survey) in developing new expertise and increased confidence to use those skills, is explained through interview responses that describe these mastery experiences.

During the face-to-face interviews this apparent confidence was discussed repeatedly as participants described finding and learning about using a variety of online tools, classes, resources, and applying their knowledge through increased involvement in online projects, collaborating with others, and seeking out new ways use their skills. For example, one teacher talked about long-term growth from participation in global communities such as through Globalschoolhouse:

You can see our last five years work. You can see the progress we’ve made. At the beginning we were very primitive, and we may still be primitive, but we’re stepping it up a little bit...It’s been wonderful to have the whole school under the same umbrella.

(Teacher 33)

Another teacher described learning about and then participating in a competitive video production through Project Live, and using online resources:

I’d never used a digital video camera. I had never used an imovie. I had never used a digital still camera. I had no clue, none. So I had to teach my students, how do we do this? How do we figure out how to teach this and make a movie that is only 7 minutes long? You put the word out there in these communities that you want help, and you get more help than you need. Professionally, it became my goal to not do the status quo, but to make our classrooms more exciting.

(Interview, Teacher 56)
Combined these two vignettes exemplify how these efforts enhanced teaching in the classroom and student learning.

Participants also talked about getting awards, and recognition for their efforts. These vicarious experiences, in which others recognized and praised the participants work, also supports the noted increases in self-efficacy. The teacher’s, whose vignettes were described above, each experienced recognition. Teacher 33 received a national award from NECC (National Educational Computing Conference) for international online collaboration for the student projects she was organizing, and Teacher 56 spoke twice at a conference about standards through educational video. Both of these experiences for these teachers gave them confidence to use what they were learning, and continue to learn and apply more of their skills and knowledge to their work. In many instances these experiences, and similar ones from other teachers, led to greater involvement and increased visibility in their work.

Given these mastery and vicarious experiences, it seems no surprise that 68% (mean 3.78) of participants showed increased excitement about teaching (Survey, Q-15). Several teachers who had been teaching for many years reinforced how using online communities has changed their professional work and made it more exciting. One representative teacher described that change in this way:

Using OLC is better for kids because it makes teaching exciting again. What we did in 1960 in our classrooms is no longer best practice. Unfortunately there are still teachers who are doing that. It is not the way I teach any more. What I did 25 years ago when I came into the classroom is not the way you should be teaching anymore.

(Interview, Teacher 56)
Another teacher described excitement from a professional peer point of view:

I like working with teachers, that’s what I’ve gotten from my knowledge, whomever is willing to talk to me, it’s fun working with them and helping them come up with a project they can do and work on in the classroom. So I’ve gotten our ESL (English as a Second Language) teacher right now using computers to help with the literacy of our students. I worked a little bit with our academic support class teacher to do that. What’s really rewarding for me is the teaching of people to use it, and helping them find out not just how to use it, but also to use it so that it can fit in with curriculum and use it in an effective way.

(Interview, Teacher 43)

The remaining two of the five efficacy questions also showed increases in perceived teaching self-efficacy. Sixty-four percent agreed or strongly agreed that through participation in online communities they were better able to address tough problems that address teaching and learning such as engagement and rigor (Survey, Q-20). This question however, had the largest standard deviation (.94) and a mean of 3.67. This suggests that while most teachers did find ways to address tough problems in teaching, others may have been less clear about that. In one example, a teacher described a particularly tough, but rewarding experience with a student:

I had a selective mute who spoke. We put her in front of the camera and she actually gave directions how to do something. She will speak to me, and the children here. She has come a long way.

(Interview, Teacher 35)

Another teacher described the challenges of instructional delivery using online work with students in this way:

I really see the value of using technology, integrating it into the curriculum, not as a separate entity. I think it’s a lot stronger that way and I just think that it really – I mean the interest is much higher when it is there. The problem is pacing. I would say that’s the challenge, keeping the kids on task. If your doing things online, it’s pacing. Well, you know, everyone gets distracted and so forth, but
that’s it. You know you’ve given them too much time when they start goofing off, and you know you’ve done just enough time when they’re begging for just a little bit more. Ok, I planned three days for this and sometimes I’ll usually have to have a day on either side to be ready to jump into something else if they finish early.

(Interview, Teacher43)

The same percentage (64%) became more confident in their teaching (S, Q-14). However, the mean response for this question (3.77) more closely approximated agreement and had a slightly lower standard deviation (.75) than Q-20, which addressed dealing with tough problems in teaching. Teachers described increases in confidence through the many projects, collaborations, classes, and learning from others. One teacher described confidence through using the OLC “if you don’t know how to do it, you ask around.” (Interview, Teacher 33) This same highly experienced teacher described her confidence in teaching through her leadership and a certain urgency to pass her knowledge on to teachers who were newer to the profession:

This keeps me going. That’s all I can say. The people who are international project oriented know who they are. It’s one of my great goals to inspire teachers at our site to make their contacts on their own and persist.

(Interview, Teacher 33)

The responses on the efficacy survey questions show an increase in self-efficacy through online community use. This was particularly evident in increased confidence, building expertise, addressing tough problems in teaching. These increases in efficacy were supported by narrative descriptions of mastery and vicarious experiences. Increases were also noted and linked to the online community through development of greater contacts with others in their areas of interest. This
supported individual development and also added to the communities. This connection to social capital is discussed next.

Research Question 3:

What are teacher’s perceptions of their social capital?

The findings presented here of participant perceptions of social capital is in context of online community use. Results are described from quantitative data generated from six 5-point Likert questions in the survey. The results reflect responses from 44 participants who completed the survey. Qualitative data from face-to-face interviews provided narratives that exemplify perceptions of participant’s social capital. Responses for all questions show the majority of participants agreed that social capital was improved since using online communities. The areas measured included; social capital within OLC; perceived professional reputation, transference of social capital benefits from the OLC to the school site; and sharing knowledge and participating on the OLC site. The scales used in this study to measure social capital showed good internal consistency with a Cronbach alpha coefficient of .78. The results are described next.
Table 4.10 Perceptions of Social Capital as a Result of Using OLC (n = 44)

<table>
<thead>
<tr>
<th>Survey Question</th>
<th>Coding and range</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase interaction with people at school (Survey, Q – 18)</td>
<td>1-Strongly disagree</td>
<td>3.58</td>
<td>.97</td>
</tr>
<tr>
<td></td>
<td>2-Disagree</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3-Neutral</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4-Agree</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5-Strongly agree</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contribute to professional reputation (Survey, Q – 30)</td>
<td>Same as above</td>
<td>3.68</td>
<td>.98</td>
</tr>
<tr>
<td>Increase people know (Survey, Q – 17)</td>
<td>Same as above</td>
<td>3.81</td>
<td>.87</td>
</tr>
<tr>
<td>Contributions valued (Survey, Q – 29)</td>
<td>Same as above</td>
<td>3.90</td>
<td>.70</td>
</tr>
<tr>
<td>Collaborate with others (Survey, Q – 16)</td>
<td>Same as above</td>
<td>3.95</td>
<td>.80</td>
</tr>
<tr>
<td>Connected to others (Survey, Q – 13)</td>
<td>Same as above</td>
<td>3.95</td>
<td>.74</td>
</tr>
</tbody>
</table>

Cronbach alpha coefficient .78

Teacher Perceptions of Building Their Social Capital

Participants were asked six 5-point Likert scaled questions related to their development of social capital. These responses related to teacher self-perceptions of increased social capital as a result of using the online community they identified. Most teachers perceived their social capital as increasing from online community use: 77% felt they were more connected to other teachers online, 75% responded that they increased collaboration with others, 72% felt contributions to this site were valued, and 71% increased the number of people they knew and interacted with.
There were slightly lower levels of overall agreement of increases in social capital between OLC use and increased development of the school site based social capital. Over a third of teachers (38%) were neutral about increased interactions with teachers at their school sites, however over half (54%) were in agreement that there was an increase in school site interaction. Similarly, nearly two thirds (59%) agreed that using the online communities contributed to their professional reputation, and a third were neutral.

Combining these responses and underlying theory suggest that teachers were developing interconnectivity and relationships between themselves and other professional educators, and thus building social capital networks. Coleman (1988) describes the importance of developing social capital as an organizational resource, particularly through productive and good relationships among people. Although social capital is considered part of the collective, i.e. linked to the organization, it appears that the benefit to teacher participants by being a part of a OLC, are twofold: they gain from the community collective by adding to and using knowledge from this expanded social network, and they gain by bringing successes back to their own professional practice. Thus, while the OLC may benefit from participants within that community, the participant also gains through increased access to groups, people, and resources. This increased access adds to personal knowledge and professional work experiences in both the OLC and their school site community.

OLC’s represent one form of social structure that facilitates actions among people. In this study, participants noted increases in social capital through making connections and developing relationships with others in the environment of OLC.
This in turn seemed to motivate individual success apart from that OLC. While this study did not explore the intricacies of social capital within OLC’s, it did explore participant perceptions of social capital as a result of using OLC’s. The increase in social capital reported by participants in the survey by developing new relationships and professional connections, is explained through interview responses that described these experiences.

During face-to-face interviews this apparent increase in developed relationships within OLC was discussed often as participants described their access, and use of these connections to enhance access to groups, resources, and other people. Participants then developed the relationships within the community, and in their own professional practice. For example, in describing their increased connectedness to others, one teacher described their access to OLC’s as a way to access a group otherwise unavailable:

That’s another frustrating thing in the district. There are not a lot of teachers of foreign language that are well versed in technology. It’s sort of an added thing, or because just that level of understanding is very intermediate to novice, so that has been huge to collaborate with people online through twitter and finding other teachers of foreign language just to see what things they’re doing and how they are using it.

(Interview, Teacher 43)

Another teacher described a group within an online crafting community as a valuable personal and professional resource in this way:

There are about 38 teachers in this community who knit. I have been able to ask other teachers here for advice about dealing with parents and students, and I get back good advice from all over the world. I love the social networking, even if not always education based.

(Interview, Teacher 16)
Participants also talked about increases in collaboration with others. These were described as informal collaboration such as exchanging letters between classes, and more formal collaborative projects such as those described earlier through Global School House, or foreign language collaborative projects initially discussed on twitter, and then formalized through using other online tools. Collaboration was also noted through increased personal connections in external organizations and within the district. One teacher worked on a collaborative project with a district resource teacher in creating a classroom project and another worked with the park service to bring learning about California Missions into the classroom through a virtual field trip. These examples also highlight the range of specialized communities that study participants found and interacted with that would otherwise not have been familiar to them.

The slightly lower response rate in agreement with increased interactions at the school site level as a result of using online communities might be explained by the nature of the teaching day that is spent primarily alone in the classroom, teaching students, with few opportunities throughout the day for any in depth interactions. Although using OLC’s as resources was a frequently sited use of OLC, some teachers integrated the OLC into their teaching day as part of the curriculum. This was described earlier in the international collaborative projects, and foreign language projects. It may be that fewer teachers’ use of OLC is this involved, particularly through collaborative site projects, or sharing of highly personalized information or resource development.
Teacher perception of both self-efficacy and social capital as a result of using online communities were closely aligned (Figure 4.2 and 4.3). The majority of teachers in the sample (70%) experienced the greatest increases in both self-efficacy and social capital. Efficacy questions were related to increased student success, engagement and rigor, and excitement and confidence toward teaching. Social capital questions were related to increased collaboration, connectedness, increased number of people known, and increased interactions with people at the site. The teachers who experienced the greatest gains had between 6 to 19 years of teaching experience. Those with the least gains in efficacy (0%) and social capital (2%) occurred with teachers with fewer than six months using OLC’s, Teachers with two to five years of experience showed slight increases (14%) in self-efficacy and (10%) in social capital. Those with over 20 years of experience did show gains in self-efficacy (16%) and social capital (18%). In all responses for all questions most teachers agreed that both efficacy and social capital were improved to some degree. The greatest gains occurred for those teachers with 11 – 19 years of teaching experience followed by those with 6 – 10 years of teaching. Teachers with over 2 years of OLC use had a significant increase in both efficacy and social capital (over 60%) as compared to other teachers with less OLC experience.
Figure 4. 2 Percent of increase in efficacy and social capital as a result of using online communities compared to years of teaching experience.

Figure 4. 3 Percent of increase in efficacy and social capital as a result of using online communities compared to time using online communities.
Summary of Self-Efficacy and Social Capital

Through survey responses, clarifying text, and interview narratives the teachers in this study expressed increases in self-efficacy and social capital as a result of using OLC. Teachers described a range of mastery and vicarious experiences that provided them with a venue to explore and master skills, and apply those skills and ideas to teaching. As a group they also found highly personalized ways to use the OLC’s they identified. Their use of OLC contributed to increased self-efficacy, and development of human capital through increased professional knowledge and skills, which related to and enhanced teaching practices.

Teachers described increases in their social capital through technology advances and access to OLC’s previously not available. These OLC’s added opportunities to be involved, participate, or simply look at communities beyond what was normally available in a face-to-face option on a school site, or within a district. The benefits of online involvement, at whatever level, seemed to broaden teachers sense of access to membership in communities, even if only through increased resources. This membership, however loosely defined gave teachers a sense of increased relationships with professional peers in a way that seemed to increase their ability to take action.

Some differences were noted when comparing self-efficacy and social capital gains to time in service to teaching. Teachers who had more time in the teaching profession (11-19 years) tended to enjoy the greatest benefit and increase to both self-efficacy and social capital. While teachers with over 20 years of experience also gained in self-efficacy and social capital, they did not show the same growth.
Differences in the length of time using OLC and self-efficacy and social capital gains were also apparent. Teachers who used OLC over two years experienced the greatest gains in self-efficacy and social capital compared to those with less time using OLC. Teachers in this study experienced increases in self-efficacy, social, and human capital through OLC use. These increased benefits represent real contributions to teachers practice through developed new expertise, confidence and excitement. In addition these broad outcomes, further specific contributions to teacher knowledge and practice were evident and will be discussed next.

Research Question 4:

In what ways do online communities contribute to teacher knowledge and instructional practice?

As described earlier, participant responses indicate that use of OLC’s support teaching and learning for both personal growth and for use in the classroom. These findings include a broad range of venues and communities used, resources to generate ideas, links to others, and increased use of communications and other technology tools that do or could support teaching and communicating. In this section I will present the contributions to teaching practice from OLC use. These contributions show the various ways that using OLC impact participants.

The quantitative data used to measure teacher perceptions of contributions to practice consisted of four questions from the survey which included: changes to practice, application to practice, increased student motivation, and enhanced teaching. Most teachers found that use of online communities did influence their
practice, with mean responses ranging from some influence to a great deal of influence. These scales had good internal consistency with a Cronbach alpha coefficient of .81.

Table 4.11 Influences to Practice as a Result of Using Online Communities (n = 44)

<table>
<thead>
<tr>
<th>Influences</th>
<th>Coding and range</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Changes to Practice (Q – 25)</td>
<td>1 – Not much</td>
<td>2.15</td>
<td>.654</td>
</tr>
<tr>
<td></td>
<td>2 – Somewhat</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 – A great Deal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Application to Practice (Q – 33)</td>
<td>Same as above</td>
<td>2.20</td>
<td>.641</td>
</tr>
<tr>
<td>Increase Student Motivation (Q – 26)</td>
<td>Same as above</td>
<td>2.22</td>
<td>.690</td>
</tr>
<tr>
<td>Enhance Teaching (Q – 24)</td>
<td>Same as above</td>
<td>2.27</td>
<td>.633</td>
</tr>
</tbody>
</table>

Qualitative findings show that through use of OLC’s, much of what was learned through the OLC experience influenced self-efficacy, and development of social and human capital. Samplings of comments provided by teachers reflect the ways that use of online communities contributed to their skills and knowledge. These are provided below.
Table 4.12 Teacher Statements of Contribution to Practice

<table>
<thead>
<tr>
<th>Scale</th>
<th>Statement</th>
</tr>
</thead>
</table>
| Changes to practice          | • I have added lessons to my planning that weren’t the things I planned to do but turned out to be the best lessons I could have taught my students. I am more open to change and new ideas from other people and places.  
  • Before I would go step by step through a process. Now I give tips as students work by themselves on productions. |
| Application to practice      | • If we go on a field trip or have a speaker, I want to connect the topic to our collaborations with other countries.  
  • This year through Twitter I have connected with other teachers to create project based lessons for their classes and worked closely with another teacher to create online collaborative projects between our classes. |
| Increase student motivation  | • I set up a videoconference for high school students in Wako, Japan and at my school. They were doing a project about global warming. The students used the time to get to know each other and really had fun. The live connection made their project memorable. |
| Enhanced teaching            | • My lessons are more project/ problem based.  
  • I have access to more sources of instructional materials, ideas and resources. My students are learning more technical abilities and skills. I feel like I’m keeping up with changing times and helping my students keep up to. |

Developing human capital (knowledge and skills) is an important aspect of teaching and developing as a professional educator, and is recognized as one of the six California Standards for the Teaching Profession (Standard 6: Developing as a Professional Educator). Use of OLC’s support teacher professional practice when viewed through professional standards for teaching, and the comments in Table 4.12 reflect specific ways that use of OLC supported professional learning and transferred to instructional practice.

Data sources from both survey instruments and interviews were used to give examples of these contributions in the context of professional standards. These
sources included responses from six multiple-choice, nine open-ended text responses, and transcriptions from three interview questions. The results presented are summarized in two areas: first, contributions to teacher knowledge and skills, followed by teacher perceptions of student success and learning. Both are described next.

Teacher Knowledge and Skills

Participants reported a positive perception that using OLC contributed to their teaching knowledge and skills. In all responses, participant comments show that development as a professional educator through acquisition of knowledge and skills occurred. In this study, teachers were asked in three different ways how using OLC resulted in contributions to their practice. These questions were also linked to California Teaching Standards. These ways included: finding sources to enhance practice (Standard 2: engaging and supporting all students in learning, assessing student learning, and creating effective environments for learning), applying something learned to teaching, and making changes to teaching (Standard 4: organizing subject matter for student learning, and design learning experiences for all students).

Participant’s responses show that teachers were using OLC to enhance their practice, apply new learning, and make changes. A three-point scale was used for responses: not much, somewhat, and a great deal. A text box was included for participants to provide examples for two questions; application and changes to teaching practice. Most teachers responding to questions about contributions to practice reported that use of online communities made some or a great deal of
contribution to their practice in all three areas, particularly use of OLC sites was a way to enhance practice (91%), followed by applying something they learned in the OLC to their teaching (89%), and lastly making changes to their practice as a result of using OLC (84%). These responses are shown in Table 4.13. Teachers commented and gave examples of the ways that this occurred. Responses ranged in depth and breath of detail and are described next.

Table 4.13 Teachers Multiple Choice Responses to Influence to Practice

<table>
<thead>
<tr>
<th>Question Theme</th>
<th>N</th>
<th>Not Much</th>
<th>Somewhat</th>
<th>A Great Deal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enhance Practice (Q24)</td>
<td>42</td>
<td>9.5% (4)</td>
<td>52.4% (22)</td>
<td>38.1% (16)</td>
</tr>
<tr>
<td>Applied to Teaching (Q33)</td>
<td>44</td>
<td>11.4% (5)</td>
<td>54.5% (24)</td>
<td>34.1% (15)</td>
</tr>
<tr>
<td>Made Changes (Q25)</td>
<td>43</td>
<td>16.3% (7)</td>
<td>53.5% (23)</td>
<td>30.2% (13)</td>
</tr>
<tr>
<td>Ideas &amp; Student Motivation (Q26)</td>
<td>43</td>
<td>16.3% (7)</td>
<td>48.8% (21)</td>
<td>34.9% (15)</td>
</tr>
</tbody>
</table>

Table 4.14 Influences to Practice as a Result of Using Online Communities (n = 44)

<table>
<thead>
<tr>
<th>Influences</th>
<th>Coding and range</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Changes to Practice (Q – 25)</td>
<td>1 – Not much</td>
<td>2.15</td>
<td>.654</td>
</tr>
<tr>
<td></td>
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<td></td>
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<tr>
<td>Application to Practice (Q – 33)</td>
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<td>.641</td>
</tr>
<tr>
<td>Increase Student Motivation (Q – 26)</td>
<td>Same as above</td>
<td>2.22</td>
<td>.690</td>
</tr>
<tr>
<td>Enhance Teaching (Q – 24)</td>
<td>Same as above</td>
<td>2.27</td>
<td>.633</td>
</tr>
</tbody>
</table>

Cronbach alpha coefficient .81
Teachers were asked to comment on two of their multiple-choice responses by giving an example of what they applied to and changed in their practice. Teachers who reported some change tended to give more general and short statements as examples of the changes to their practice. The responses tended to suggest the use of OLC as places to find good ideas, with an inference that those teachers applied their new ideas or learning to their practice. Characteristic of this were responses from two teachers: “I sometimes find suggestions there”, or “I find lesson plans”. Thus, it might be assumed that these teachers found suggestions and lesson plans and tried them out. By finding and using tools and resources to support learning, the contribution to overall practice occurs in several areas including professional growth, designing instruction to meet student’s needs, finding and using tools and resources to support learning.

In comparison to the teachers who experienced some change, teachers who used online communities and reported a great deal of change and application to instructional practice tended to have very specific and more lengthy examples of direct changes to their practice. These responses suggest that changes and applications to practice were more specific and gave a better indication of actual use. These examples also fell into the California Standards for Teaching Profession categories, which represented changes in a variety of aspects of practice such as; teacher professional development, standards based instruction, and supporting student learning. Table 4.15 shows a sampling of these types of responses:
Table 4.15 Teacher comments about changes and application to practice

<table>
<thead>
<tr>
<th>Professional Development Learning (Planning instruction and learning experiences for all children.)</th>
<th>I have expanded my blogging understanding and how to best guide the students in their online practice.</th>
<th>(Survey, Q-33, Teacher 27)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional Development Collaboration (Developing as a professional educator)</td>
<td>I am currently collaborating with a teacher in Arkansas and we are working on a project that our students will complete together.</td>
<td>(Survey, Q-25, Teacher 27)</td>
</tr>
<tr>
<td>Standards based instruction (organizing subject matter for student learning)</td>
<td>Teaching the state standards through video production and allowing digital photography and videography to be a tool for students to share out.</td>
<td>(Survey, Q-33, Teacher 35)</td>
</tr>
<tr>
<td>Student Learning (Supporting all students in learning)</td>
<td>In supporting our students we have a way to have them see everything from a different perspective.</td>
<td>(Survey, Q-33, Teacher 20)</td>
</tr>
</tbody>
</table>

Teachers were given opportunities to comment on their use of online communities after multiple-choice questions and in open-ended interview prompts. Questions were asked about the online communities they used, how they used them, and ways use of communities contributed to their practice.

As described earlier, teachers used online communities as resources and often applied ideas to their practice. Teacher statements described contributions to their practice from use of online communities as resources through access to research, good ideas and as a way to discuss things with others. For example, one teacher discussed access to research in this way:

I keep up on the latest research such as multiple intelligences, GATE lesson plans, and instructional games. As a result, I try to incorporate these practices into my own instruction using the Internet to find the interests of my students and their needs.

(Electronic Interview, Q-1, Teacher 10)
Using the OLC as resources showed that many teachers viewed these communities as a resource, but for a number of different reasons. Having access to a plethora of ideas for all aspects of teaching was the most prevalent use. Sometimes teachers used OLC’s as resources for specific needs, as described by this teacher: “Getting ideas on how to use Google Docs and Apps at my school.” (Survey, Q-25, Teacher 40)

At other times a broader use occurred. The following comments show a range of broader use of OLC as resources as described by these two teachers:

Constant infusion of ideas to try; keeping up to date on issues is much easier, faster to “steal” ideas and share ideas!

(Electronic Interview, Q-1, Teacher 16)

I have access to more sources of instructional materials, ideas, and resources. My students are learning more technical abilities and skills. I feel like I’m keeping up with changing times and helping my kids keep up too.

(Electronic Interview, Q-1, Teacher 13)

Teachers also used their OLC to communicate with others about their professional practice. While the following teacher comments showed resourcefulness in using the Internet to find information, the OLC was used for specific interactive purposes to enhance their teaching:

I have been more encouraged to try new things in my class, been able to find out if/ how other teachers added certain routines to their classrooms, how other teachers manage their time and lessons too. If I ever want any information for my students or classroom, the FIRST place I turn is the Internet and the second my online community if I can’t find it on the Internet.

(Electronic Interview, Q-1, Teacher 15)
It is a way to ask a question regarding teaching, and to get one or many answers, ideas, places to look for help. It is also a way to carry on an ongoing conversation about methodology, knowledge of subject matter, ways to teach specific standards etc.  
(Survey, Q-22, Teacher 16)

In addition to the many ways teachers used OLC as resources to enhance their professional knowledge and skills, they also provided statements that described an array of good ideas that also enhanced teaching knowledge and instructional practice. Table 4.16 provides specific ideas teachers stated that they gained from OLC’s.

<table>
<thead>
<tr>
<th>Statements About Good Ideas Gained from Online Communities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ice breakers, projects, advise, and sharing information</td>
</tr>
<tr>
<td>(Survey, Q-25, Teacher 21)</td>
</tr>
<tr>
<td>Character lesson plans</td>
</tr>
<tr>
<td>(Survey, Q-25, Teacher 22)</td>
</tr>
<tr>
<td>I have increased the amount of discussion I have with colleagues on student learning.</td>
</tr>
<tr>
<td>(Electronic Interview, Q-1, Teacher 56)</td>
</tr>
<tr>
<td>I have added lessons to my planning that weren’t necessarily the things I had planned to do, but turned out to be the best lessons I could have taught my students. I am more open to change and new ideas from other places and people.</td>
</tr>
<tr>
<td>(Electronic Interview, Q-2, Teacher 15)</td>
</tr>
<tr>
<td>I’ll read about a new web site regarding cyber safety or teaching letter writing and then I’ll try it on.</td>
</tr>
<tr>
<td>(Electronic Interview, Q-2, Teacher 22)</td>
</tr>
<tr>
<td>I think of how to share every lesson with classes abroad. Also, we now photograph and document everything we do, and I learn techniques.</td>
</tr>
<tr>
<td>(Electronic Interview, Q-1, Teacher 33)</td>
</tr>
<tr>
<td>I have been using more current practices, such as blogs and wiki’s as book reports, and trying to create more problem-based learning experiences.</td>
</tr>
<tr>
<td>(Electronic Interview, Q-1, Teacher 43)</td>
</tr>
</tbody>
</table>
Teacher Perceptions of Student Success and Learning

Increases in teacher knowledge and skills influenced instructional practice, including contributions to teacher’s perceptions of increasing student success and motivation. Eighty-four percent of teachers found that students were more motivated because of instruction inspired by ideas learned from OLC (Survey, Q-26). Teachers discussed a variety of ways that increased student motivation occurred. For example, some teachers reflected on their practice and made changes, others infused newfound technology skills, and still others collaborated with other teachers on projects. One teacher described increased motivation for students through a change in practice in this way:

I was inspired from other teachers and articles found on this site to start using more formative assessments with my students, including open-ended/choices of student self-reflections. By doing this, I’ve been able to learn more about what specific things/skills/help my students need (or think they need) and focus on those or made adjustments to my instruction, as needed. My students now have more “buy-in” as they recognize that I am paying attention and validating what they are telling me. They know that I will truly listen to them. As middle school students, they seem to respect and value that.

(Survey, Q-26, Teacher 53)

Some teachers described use of technology as motivating kids, as in these two examples:

The problem solving activities, creating a movie to demonstrate a math skill, created more participation and excitement.

(Survey, Q-26, Teacher 59)

They really got into making the PowerPoint” presentations on mechanical interactions. It really got them to think about the different interaction types and the energy transfers that take place.

(Survey, Q-26, Teacher 65)
Another teacher described working with other teachers on collaborative projects as motivating for students:

They really got excited about having pen pals from across the US and learning about where they lived, the weather there, the schools there, etc. It became a bigger lesson than just writing a letter.

(Survey, Q-26, Teacher 16)

Teacher comments about student success were compared to standards for the teaching profession to check for alignment. Seven teachers participated in the survey, online interview, and face-to-face interview. Text from the survey, online interviews, and transcripts from the face-to-face interview were analyzed and coded by categories described by six narratives in the California Standards for the Teaching Profession. Three hundred forty-nine comments were identified which were supported by Standard 1: Engaging and Supporting All Students in Learning. This was particularly true for comments that suggest an emphasis on social construction of knowledge (62 statements) in which all seven teachers made at least one statement about engaging and supporting all students in learning. Other statements suggested that Standard 2: Creating and Maintaining Effective Environments for Student Learning was achieved through providing children purposeful learning activities that engage all students occurred (58 statements). These statements were evenly distributed among all 7 teachers. Although statements related to Standard 3: Understanding and Organizing Subject Matter for Student Learning as a category received fewer responses (33 statements), the responses were evenly distributed (8 each) among 3 teachers, with the other teachers making at least one statement about organizing subject matter for student learning. All seven
teachers gave a response that they are using OLC to support effective learning environment. These responses reflect that teachers are attending to the learning environment and are using OLC to engage in social construction of knowledge. Four teacher interviews are described next and give further context and quotes to support how teachers are using OLC in enhancing their practice through new knowledge and skills.

Teacher Examples

The seven interviews provided a more in-depth account of how teachers used OLC and how this use shaped their practice. Four illustrative examples of teachers whose practices have been profoundly affected by participation in OLC are presented next. Their stories serve to provide an insight, from the teacher user perspective, to the use of online communities and how use of OLC contributed to their practice.

Teacher 52. Teacher 52 is a 52-year-old veteran teacher with over 15 years of teaching experience and over nine years using online communities. She teaches English to gifted students in middle school. She has a high sense of teaching efficacy as evidenced by survey response to teaching efficacy scales. The hallmark of Teacher 52’s experience and delight in using OLC comes through her association with the National Writing Project (NWP). A dedicated teacher, she continues her professional growth; working towards a Masters Degree in non-fiction writing, and being an active part of the leadership team in the local area for yearly summer writing institutes through the NWP.
Professionally, Teacher 52 has benefited from her association in NWP, and that has opened up many new opportunities, among them consideration of teaching a college level class. Rewards thorough professional affiliations have also been important. For example, when asked to describe a particularly inspiring time as a result of using OLC, Teacher 52 wrote about a NWP conference presentation that reflects contributions to self-efficacy and human capital. She describe that experience in this way:

We gave a small presentation at the NWP Annual Conference in San Antonio and we got feedback and I was able to communicate with a teacher from Baltimore who heard us – it gives you an identity that transcends the classroom. We’d introduced the notion that nobody wants to claim expertise with ELL’s (English Language Learners), but that each of us has the duty to become an advocate, and that was really a conceptual pivot, because we could step up to the plate and own it, even though out advocacy may look different everywhere.

Through participation in this organization, she has also experienced benefit to her teaching practice by gaining new expertise and increased confidence to try things she has learned. She rated herself as somewhat comfortable in all three areas of technology use, and has started a class web site. On this site her students’ involvement included student selection of student writing to upload onto the site. She talks about developing her students as writers and expresses the effect it has on her in this way:

You grow into a more efficacious professional self. And we become...there is a whole new identity. What I see with kids is that... They are seeing it for the first time. I know I’m good at school. That’s not new to me. What’s new for students’ growing is when they see their work online, or even when they see their work on the overhead...
Use and extensive participation has changed her practice also by increasing connectivity with others, Teacher 52 describes this in this way: “Maintaining professional conversations with teachers across the country – and becoming a part of a wider community; my identity is no longer determined by or limited to my job or site.”

Teacher 52 described this further as having a formal and informal side. The informal aspects are described as good, real support which is different than the more formal posting of essays to critique and read. A classic comment reflecting informal use of the NWP network between teachers is reflected in this way:

We have that as ongoing support. Some of that is online. It’s not like there’s a formal thing, but at least there’s a network. So I could, at lunchtime, email someone and say, “Holy cow! I tried something and it just bombed. What was I doing wrong?” and responses would come. I like meeting other teachers (online) where our contexts may be different but we share so much because we are teachers, but the identities of location are stripped away and we can be more honest and direct. So there’s all kinds of things you can do, because we are connected that way that I would never even think of doing. To me, that’s what it is. Things I would think of doing because I am empowered to do that. Somebody can send me a file, and I can watch a movie that we’re thinking of doing next week. That really wouldn’t be possible except... There are informal feelings where you can offer something up, but you don’t have to go through the hierarchy...or maybe the social rules of something where you can take liberty with people, I think. Or offer things. It’s kind of like sharing food.

This increased network has multiple benefits beyond a network of other professionals with the same interests. The network has also provided credibility to her teaching with both students and parents. With increased contacts and knowledge, she has been able to communicate at multiple levels with a national group. Yet with all this positive effect, a small disconnect seems to present itself between extensive
knowledge gained, and increased professional association and teaching at a school site. Although Teacher 52’s world had expanded well beyond the school site in very extensive ways, in some ways this has made for a lonelier site based teaching world. The following comment was selected because it is representative of other participant comments that referred to a small disconnect between OLC use and experiences and school site.

While the OLC offered powerful professional affiliation (social capital increases), and intellectual growth (human capital increases) and increased teaching confidence (self-efficacy), these benefits were sometimes lost to the school site peer group who did not have those same experiences. This is described in this way:

(Teacher 52) Well I do not think that schoolteachers are very intellectual, except for the ones that come to something like this. At my site... And I have done this every summer for ten summers with maybe one exception, if I did not have this. And now I am starting to think, oh my god when my Masters is over. Where am I going to go for my intellectual stimulation? Because it’s not at my school. There’s a small group of people that I have lunch with every day and they are lovely people and really good readers and thoughtful, but one of them was looking for a high school position this summer and I thought, oh my gosh, if he leaves what’s going to happen?” And I know the other teacher is going to retire in a matter of years. She doesn’t need to work. So one or two more years. She is going to be a grandma and she is out of there. Oh my gosh, I could get an anxiety attack just thinking about it, where am I going to go? Teaching is very lonely work. You are in your room with people around but...

(Interviewer) Knowing that you have the writing project community, how does that impact that teacher lonely work piece? It connects you?

(Teacher 52) Oh Absolutely. It connects you and it empowers you and it helps you grow your voice. So it not just stand up and be counted, it is continuous growth, continuous learning, continuous cultivation of your voice.
To compound this disconnect, site leadership seemed to have little interest or support of these new found skills, as mentioned in the interview, and supported by the survey response that site leadership was neutral. None the less, participation in OLC has had great benefits, and increased professional connections which have in turn made a positive impact which have sustained over time: “But then there are also formal online networks. To me, it’s really a spectrum. It’s the fact that I am connected to this spectrum. My life is very different than it was 10 years ago.”

Teacher 43. Teacher 43 is in her late twenties, and has been teaching about 7 years. She has been using online communities about two years. She teaches Spanish to students in middle school. She has a good sense of self-efficacy, as measured on the teaching efficacy scales. An energetic and professional teacher, she is highly involved in various projects with district resource teachers in technology, and is thinking about pursuing her Masters Degree (online) in educational technology. She also participates in professional organizations (Computer Using Educators) and attends their conferences. Professionally, the use of technology has opened up new options, which have reinvigorated her view of teaching. She describes this transformation in this way:

(Teacher 43) It changed my focus a lot of things.

(Interviewer) How did it change your focus?

(Teacher 43) Well, I considered giving up teaching Spanish and just teaching technology. But then I really see the value of using technology, integrate it into the curriculum not as a separate entity. I think I lot stronger that way and I just think that it really, I mean the interest is so much higher when its there.
The collaborative opportunities also were very important to this teacher, and served to inspire her work further.

It’s sort of an added thing or because just that level of understanding is very intermediate to novice, and so that has been huge to collaborate with people online, through Twitter and finding other teachers of foreign language: Spanish or French, just to see what they’re doing and how they’re using it. It’s also changed my teaching, it’s gone from...to do more projects, more real life situations...made it more situational based than, “today we’re going to learn this vocabulary because we need to learn this vocabulary.” Trying to made it more thematic (kinesthetic?) I guess.

*Teacher 35.* Teacher 35 is 50 years old, has been teaching for 25 years, and has been using online communities for about four years. A former peer coach, due to cut backs, she now teaches 4th grade. Her sense of teaching efficacy is very high as evidenced by response to teaching efficacy scale responses. She is also very comfortable using technology as a tool. Since using online communities, she has increased confidence, excitement, connection and collaboration with others as evidenced responses to survey questions. These responses show consistency with narrative and interview responses. The impression this teacher gives is that of excitement and confidence in teaching and learning for the students in her class. It wasn’t always this way, as she describes her new outlook:

It’s changed everything about my teaching. It has kept me in teaching, I probably would have stayed, but I wouldn’t be having as good of a time as I’m having. It wouldn’t be as fresh as it is.

Her interest and subsequent involvement began with a personal interest in photography. At the time this occurred, teacher 35 was leaving a peer coach position and was getting ready to return to the classroom. A colleague highly recommended an online photography course, which she took. During the course of the class, she
submitted her photos and got critiques back. Several photos were used as exemplars on the class site. This was a great motivator, and inspired a curiosity and motivation to explore other online venues for good ideas to incorporate into teaching. She shared the photography site with her students, and some went on to take that class. From this point, she became resourceful in finding online communities and their resources to use in the classroom. It was during this time that she discovered Project Live, and began to incorporate video production into the curriculum as a way to teach standards and facilitate student produced video for competition.

Ever thoughtful of her teaching practice, she states that the purpose of the sites she uses is to “make me a better teacher and learner.” She often teaches and learns side by side with her students. In changing her practice, she releases much of the learning to the students. She describes the changes to her teaching practice, and benefits to students in these ways:

I have made a great deal of changes to my practice. I allow the students who are underachieving to flourish and be the leaders for the higher students. I hand over more to the kids because they are my “natives”.

My students are more comfortable with the non-traditional students taking the lead. My students find they can bring more to our learning as a whole.

When asked about a time she was particularly proud and inspired as a result of OLC, she replies:

I have an ELL, language learner, who has always struggled in class. He wrote a story, script, and then led GATE kids in producing his movie. He got on camera and was totally comfortable with himself and not intimidated by others. If it had not been for the groups I worked with I don’t think I would have seen all of this in him.
In terms of the sites she visits most she describes using them in this way: “I use them as a sounding board and for troubleshooting. The critiquing by others is so beneficial to me. I love putting my work out there and getting help from my peers.”

Which makes sense, as the most frequent way she used the sites was through groups, workshops, and media. It is also the way that she incorporated this new medium into her practice. What she learned she is also taught. In this way excitement through personal interests and confidence in teaching re-energized her practice.

Yet, teacher 35 also mentioned the aloneness of teaching, and describes how use of online communities has changed the nature of that:

OLC open our teaching and our learning to a broader spectrum of people. So often as teachers we are alone in our classes and we forget to go beyond the boundaries of our own campus. Online allows us to reach out over great distances and therefore allows our students to also reach out to a broader range of teachers.

When I first looked at your questionnaire, I thought about “Oh, I don’t use online communities. I don’t do that.” Then, when I got farther into your questions, I realized I do. I think people don’t understand what that phrase means. “Online communities.” Once I got farther into your questionnaire, I realized that an online community is simply anywhere I go and I talk to more than one person on the computer. That’s my interpretation. Maybe it’s wrong, but I realize that’s the best thing about the computer, is that I can talk to anybody I want to, or I cannot talk to anybody at all.

She is also actively involved in one video production site and regularly submits student made videos for recognition. In the same way that her experience with still photography changed her work, involvement in OLC’s has brought increased confidence and resilience in her teaching, despite the site changes in leadership.

While the previous principal was very supportive of learning new technology, the new principal was less so. She describes that in this way:
The rest of the school knows, and the community knows. You know what? As long as we have a good secretary and a good custodian, I’m fine. This is the kind of school that principals come and go. You know what? I’ve been here 16 years. I have sowed my reputation. Principals are going to come, and principals are going to go. I don’t ever want to be a principal. I don’t ever want administrative position. I left the classroom for five years, and I’m back in it, and I’ll stay for another 12 and retire, and love every minute of it, I hope.

*Teacher 33.* While all the teachers interviewed were resourceful, energetic, and excited about their use of online communities and the subsequent contributions to practice, teacher 33 represents the teachers that made a broader impact to the school campus. What began many years ago with a keen interest in international student exchanges evolved into a passion for international connections with others through education. Now, with 25 years of teaching and 10 using OLC’s behind her, teacher 33 is the consummate professional. She has a Masters Degree in Library Science. Her start with online communities, as was the case with the other teachers, was out of an interest and need: she started using them to teach email. Since that time over ten years ago, she has refined her knowledge and practice and regularly takes online courses in areas of interest. She extends her work beyond her classroom to the site, and she is thoughtful about passing on her knowledge to other teachers. She describes this in this way:

I am near the end of my career; I want to make sure that the other teachers are making these connections themselves. I’m going on for now. But there’s a real need to get our teachers trained so that they are seeking out the international collaborations. It takes a while for me to find a worthwhile collaboration who is strong and into it. I treasure those that I find that are really on the same wavelength. So they have to start dating around if they’re going to find some good collaborators.
At her present school site, she found a very good match between her interests and the school focus. This coalescing of personal passion and professional focus has been instrumental in making significant contributions to the school site. Contributing to this was the school focus on the international. The beginning of this focus and unfolding story was told in this way:

What happened at our school is we were titled John Muir Alternative School because we were an alternative school in the sense that our curriculum was humanistic studies. When we started doing online projects, we actually adopted international global citizenship as the aspect of humanistic studies that we would continue. We became a global school. So the international collaborations became the heart of what we do along with an infusion of technology, which is just now taking shape.

We’re one-to-one computers now. So our outlook should change considerably, and it will be a lot easier. When I first started there, we had six computers that barely worked in the back of the library, and that was it for the whole school.

I noticed how the kids liked what we were doing, and the principal was always very supportive.

Immediately, we had a certain demographic. We were a Title I school with, at the time I started, about 75% free-lunch kids. Immediately, when I went into the online communities, nobody knew who we were, and suddenly we had this peer group that was anything we could find. Sometimes we were the giants, and sometimes we were the weaklings in the crowd. I remember one of our very first exchanges with Finland. They figured out that our English wasn’t as good as theirs, and they dumped us immediately. So we just persisted. We’ll find somebody else. And we went on to the next person and the next person. The principle, as I said, was always supportive at our school.

As with the other teachers who began perusing use of online communities on campus, the leadership at the site was very supportive. She describes how her principal supported her efforts:
She supported us by mostly by letting it be. But then later on, I suggested that we do an all-school project. So we involved all the teachers and all the students in one single project. That was five years ago with Cyberfair. Once we started doing that, I felt like there was definitely support at the school. They would plan their field trips around whatever our theme was for Cyberfair. They would cordially welcome people who happened on campus. We’ve had Chinese, Uzbeks, and Ghanaian people come on campus. It made us stand apart at first, and now everybody’s doing it. At first it made us something special, and it certainly widened our peer group for our kids.

The academic focus was also apparent through incorporation of the standards, as was the case with most of the teachers in this study:

The thing I like about Globalschoolnet is its peer evaluation. So yeah, they’d evaluate each other. That really gave them an insight into where they were academically. And I think that motivated them to do a little better because some of the kids from other countries not only had fancy, fancy websites, but they had really high-level thinking in their responses. And I was able to say, “OK, see what they’ve done here? It’s about their community action. It’s not about researching in the encyclopedia.”

The teachers abroad are particularly anxious with this. We’re starting collaboration with Shanghai in China. And they...the first thing they said was, “We want to know about standards, we want to know about academics, this is school time and we want to address standards.” In other words they’re saying, “Please, let’s not waste our time chatting.” It’s, I don’t know, in some cases social and academic and business lines are blurry. And that may just be the future but for now for what we have to do with our kids, we need to keep them academic. We can use all the social networking tools, and we can have fun once in a while.

There were also ample times for personal rewards, which served as mastery and vicarious experiences for teacher 33. She has received an award for collaboration from the National Educational Computing Conference, and found inspiration from others as they reinvigorate their lives. This was described, as one example, of another teacher being interviewed at a conference:
Lester Holt from NBC News was up there interviewing just some guys like me, keynote speeches, was the interview. How did you get started? And how did it transform your world? This lovely lady was interviewed with a collaborator. They were tired-out teachers, and they discovered new life online.

I’m actually one of the dinosaurs. When I first started teaching at age 21, I was a French and Spanish teacher, so I did lots of live exchanges myself. I lived with families all over the world, so I knew the joy of that, and I knew the joy of hosting people here. I actually took my classroom to Tijuana and had the Tijuana kids up here during those days. That was as international, as far as we went in those days. We’re talking the ‘70s... And then, like a lot of people, I just transformed along to teaching English Second Language. Vietnamese people came over, they became my students. So then I morphed into the library, but I wanted to keep this international stuff going. When technology came in, I got them right away on an email with other kids, and I saw how that really sparked them. I just never stopped. I’d throw it into everything I do. “OK, we’re doing this. Let’s see what they’re doing in Turkey.”

Summary of Contributions to Teacher Knowledge and Instructional Practice

Contributions to teacher practice, through use of OLC, occurred in many different ways with teachers. Most teachers’ comments showed that use of OLC’s gave them many new ideas and new skills to use to support all students learning. Whether using OLC’s as resources, for collaboration, or professional learning, all participant responses, whether intentionally or not, were supported by standards. Whether collaborating with another teacher to exchange standards based letters in first grade, collaborating with other foreign language teachers in class projects in middle school, or connecting to a global project to support the curriculum, teachers broadened their networks of people and in so doing learned more, and applied more to their teaching practice, and in the process enriched the learning experiences for their students.
In using OLC, teachers found ways to specifically improve their practice through self directed professional learning and growth, enhancing student learning for engaging and supporting all student learning, and building content knowledge. Teachers in this study tended to apply what they had learned in their online communities, and teachers brought new ways for students to construct knowledge, make personal meaning, build background knowledge, organize their learning for effort, and access learning in ways that made sense to them in a learner centered environment.

The initial reasons for going to online communities was for classroom knowledge, experience, curiosity, through recommendation, and need. These reasons are also seen in other writing: Rhiengold (2000) discusses “a longing to participate” as a motivator to go online, and Bishop (2006) discusses participants going online for specific goals, plans, beliefs, and understandings.

The contributions to teachers practice were also evident in a highly individual way: through their experiences they increased self-efficacy through mastery and vicarious experiences, and particularly through increases in human capital (knowledge and skills). These contributions served to inspire and motivate teachers to try new ideas and use the ones that worked for them in ever more creative ways.

It is somewhat unclear what support, if any, site leadership (principal) influenced teachers initial use, or subsequent use of online communities. Participants were asked to respond to a five point Likert scale whether the school supports use of online communities (Survey, Q-32). Forty-three percent of participants were neutral
in their response, and 38% responded that the school was somewhat supportive. There were a few teachers who felt very supported (13%), and a few who felt unsupported (1%). These responses were compared to the only other question that resulted in fewer agree/strongly agree responses: I have increased my interactions with other teachers at my school (Survey, Q-18). In those responses, 35% of the teachers were neutral, and 30% were somewhat in agreement. These two areas may be linked – the majority of respondents were either neutral or in some agreement of both site support and increasing site interactions with others. One of the results of exploratory studies is the preliminary finding that may point the way to new hypothesis. In this case, both the influence of site leadership to constrain or support teachers use of online communities combined with sharing successful use of online communities to the school site may suggest areas for future useful research on leadership, professional development, and online communities.
CHAPTER 5

Summary and Discussion

This chapter contains a summary of the study, the findings, and the results. Recommendations are suggested for practitioners, policy makers and for future research. A model is provided to show the cycle of community online use and points of entry and benefit to individual users of online communities.

As described in Chapter 1 and 2, communities provide significant ways for teachers to expand their knowledge and skills to enhance professional practice, whether that occurs through traditional face-to-face PLC’s or through online communities (Louis & Kruse, 1995; Parr & Ward, 2006; Lock, 2006). However, several gaps in the literature were identified: little was known about the characteristics of teachers who use OLC, how OLC are used, and how this use contributes to practice. Little was known about the impact use of OLC had on self-efficacy, building of social and human capital. This study found that teachers who use OLC did have identifiable characteristics, that teachers self selected the type and way they used OLC, and OLC use was linked to a distinct initial purpose for use, subsequent OLC experience, and transfer to practice. The most apparent contribution to practice was building human capital (knowledge and skills). These will be discussed further in the summary of findings.

The Internet has made available an ever-increasing new array of online communities from which to learn and connect to an ever-expanding network of people with a range of interests. Given this resource, the problem to be addressed through this study was to identify the ways that utilizing the OLC environment
supports teaching and learning in the classroom through the lens of the teacher. Foundational theories of self-efficacy, social and human capital were applied as the way to describe individual benefits and experience from use of OLC and subsequent transfer of benefits to practice.

A mixed methods exploratory study was used to examine and describe the use of online communities by a sample of 44 public school teachers in a large urban school district in Southern California. Data triangulation, described by Yin (2003), was used to address construct validity through using multiple sources of data to arrive at the conclusions. Data sources included: a survey that generated qualitative and quantitative data, interviews, and OLC observations. The study integrated self-efficacy and social and human capital to situate effects of OLC use on teacher practice.

As described in Chapter 3, the survey and interview questions were designed to produce responses that would show whether teacher self-efficacy, social or human capital were influenced as a result of using OLC. Text and transcripts of participant responses were coded using key elements linked to these theories and representative examples were identified. Participants also responded to questions about changes to their practice as a result of using OLC. Quantitative data were examined using descriptive statistics, and qualitative data were analyzed through coded and analyzed text based survey and transcribed interview responses.

Further, teachers identified specific OLC sites they liked to use. These sites were observed to check for consistency with participant survey and interview
responses regarding sites used, as well as to better understand the OLC’s these teachers were using.

Summary of Findings

The findings reported in Chapter 4 examined three broad areas: first the characteristics of this study’s sample of teachers who use OLC, second the relationship/effects of use of online communities on teacher self-efficacy, social and human capital, and third the subsequent contributions to teacher knowledge and instructional practice. Each of these areas of findings will be discussed. The study showed that participants in this study shared common characteristics. An analysis of the data indicated that self-efficacy and social and human capital were increased for teachers who used online communities. Significant, and specific contributions to practice were noted. Additionally, further findings emerged from the data: increases in self-efficacy, social and human capital seemed to be influenced by personal motivations and by type and use of particular OLC’s; student engagement, as perceived by teachers, was increased as a result of teacher participation and learning in an OLC; the OLC experience was transformative for many; and use of OLC created conditions for growth in participant human capital.

Research Question 1: What are the characteristics of teachers who use online communities?

This study found that participants who used OLC have common characteristics. Aside from the particular participant demographics of this study (which included mostly female teachers in elementary and middle schools) the majority was experienced with well over six years of teaching. These teachers,
irrespective of OLC use considered themselves to be good teachers. Comfort level in using technology is assumed to be an important factor in being willing or able to access and use OLC. The majority of study participants were very comfortable using technology, and most had been using OLC’s for well over 2 years. In this study, more experience teachers seemed to be getting a lot out of their online experiences. This perceived gain from using OLC was also found in Internet users in a study by Preece, Nonnecke and Andrews, and in a study of teacher’s use of online professional development (McNamura, 2009).

This study relied on participant perceptions and discussions of their OLC use and outcomes in order to understand OLC use. Beginning with initial entry to a selected OLC, results show that teachers were purposeful about selecting and using their OLC. Initial selections of sites used were varied. Some were technically specific. For example, one teacher selected the micro-blogging site twitter because of the technical attribute of limited text in the Twitter format. Others chose sites based on resources made available such as a commercial site that offered readily accessible lessons plans. Still others chose sites because of the organizational affiliation such as in the National Writing Project.

Participants understood the site purpose and they were clear about their intentions in using the sites. Observations of sites suggested this finding; what teachers thought was the purpose really was the purpose, and the ways that teachers said they used the sites were entirely within the realm of what the site offered. Even though there was a wide range of identified sites, each site reflected what
participants were using them for. This sense of purposefulness is important, because it made the sites professionally fulfilling for the participants in this study.

Once using the sites, there were slight variations in participation. In this study, over 89% of study participants shared and participated in these sites in some way. OLC user comments show that there were different types of discourse and participation. For example, on some commercial sites, there were brief, informal, and spontaneous conversations or comments, while others, particularly the University or organization sites tended to be more mindful of content and etiquette. In observing this, I was reminded of the difference in conversational discourse that occurs between teachers in staff meetings, and conversations that occur between teachers in the school parking lot. Staff meeting conversations, like their counterparts in more structured or formal OLC’s are more measured, while parking lot discussions and their counterparts in OLC are informal and spontaneous. In either case, participants gain something, although interest and resulting gains may be different.

This study showed some trends in use by these participants. There was little consistency in the time they accessed sites, which supports the anytime, anywhere advantage of OLC access and use, and the anytime way these participants accessed the sites. Use also varied depending on whether use was for acquiring information or finding resources, or integrating use into the curriculum and classroom experience for students.

The vast majority of teachers felt most comfortable using technology for communications, and that comfort level was closely aligned with the nature of the
tools participants said they used in the identified sites. Participants mostly used media, forums, and blogs, all tools that allow for information and communications to occur and remain available for anytime access. Given this observation, combined with the constant availability of the site, and the predominant use of OLC as resources, it is not surprising that most teachers did not need to use their OLC on a daily basis; instead, most teachers used their sites weekly. All teachers could get what they needed as they needed it, on an individual basis, without a sense of infringement on their classroom teaching day.

In contrast, those teachers who integrated their OLC into their curriculum and instruction used their communities more precisely, more often, and during class time. For example, this type of use would include international or local collaborative projects (for example through Globalschoolnet or Project Live) or through instant peer communications (Twitter).

The difference in frequency and specific time that participants used OLC may suggest a difference in use from integrating OLC use into the classroom versus preparing for teaching. Considering that most teachers use OLC as resources it is not surprising that most participants use OLC on demand, and for specific discrete planning purposes, while others wove OLC use directly into their curriculum.

Research Questions 2 and 3: What are teacher perceptions of their self-efficacy, social and human capital as a result of using OLC?

In this study, key elements of self-efficacy as defined by Bandura (1997), and described in Chapter Two, were experienced and enhanced through OLC use. For teachers this was especially true of mastery and vicarious experiences. These
successful events built a sense of capabilities with teachers. These new capabilities, brought about through the development of skills and knowledge and subsequent increases in self-efficacy were then applied to practice. Increases in confidence were also apparent as teachers described the ways that they applied their learning to practice. One example of this was the teacher that learned to use technologies through OLC to create short standards based movies. For both teacher and students, as described by the participant, this was an innovative way to increase content interest and subsequent student learning.

The experiences teachers had using OLC’s included varying degrees of collaboration and participation with others within the OLC, as well as more passive observations (lurking) of site offerings. Regardless of the degree of active involvement, teachers learned and applied ideas to their instructional practice. These results are consistent with other research findings on the value of teacher learning and application to practice. Three different research articles are used as examples to complement and explain the value of teacher learning from OLC. These are described next.

In my study, for example, lurkers (people who did not actively post) got a lot out of the sites they visited, although what they got out of it were more along the lines of individual benefit. Preece, Nonnecke and Andrews (2004) found results consistent with this in an empirical study of the main reasons people lurk in OLC. Both lurkers and posters were found to go online to improve understanding of a topic, however those who were more involved felt a greater sense of community membership than those who were less involved. These results were also consistent
with the results in my study. Those teachers who were actively communicating with others through information channels, or collaboration seemed to have a greater enthusiasm for the whole process than those who were less involved.

Another example, this one of a study on teacher collaboration and student achievement, Goddard, Goddard and Tschannen-Moran (2007), found that as a result of teacher collaboration, teachers learn how to improve instruction. While this study relied on observations of face-to-face environments, my study found similar outcomes in teacher’s collaboration and learning to improve their practice, the difference being that the source for learning was through OLC.

In another study, Shachar and Shmuelevitz (1997) linked teacher self-efficacy with using cooperative student learning strategies used in the classroom (as opposed to whole group instruction). In turn teachers found that using these new strategies successfully increased their teaching self-efficacy. Participants in my study also found increases in self-efficacy from learning and having success in using newly learned instructional practices, the difference again being that this learning occurred in an OLC environment rather than a face-to-face environment. While two of these example studies mentioned looked for evidence in site based teacher collaboration, my study found the same types of outcomes through online collaboration and teacher experiences in transferring learning to practice.

However, the dynamics of self-efficacy and social and human capital effects appear to be more complex than previously thought. This study found the three to be closely linked, although distinctly different. They are closely linked by relationships with others. They are distinctly different in how they come about. Self-efficacy is
associated with mastery experience, social persuasion, stress and mood excitement, and energizing, vicarious experiences and increased confidence (Bandura, 1997). Social capital is associated with collaboration, information channels, interactions, resources, social norms and structures (Coleman, 1988). Human capital on the other hand is associated with increased knowledge and skills that accrue through participation in a community (Coleman, 1988).

In this study, self-efficacy and social and human capital seem to be associated with three factors. First, the initial entry point to and interest in using OLC was key. Participants need a certain level of efficacy in technology to enter a community combined with a personal interest to do so. Secondly, the resources provided in, or type of OLC seemed important. If the participant found the community supportive, then they were more likely to sustain engagement and realize benefits that often resulted in an increase in efficacy as personal knowledge and skills were enhanced. Third, further participant involvement and use of OLC was dependent upon implementation of ideas. If ideas were successfully implemented in the classroom, teachers had increased mastery experiences (self-efficacy) and were likely to continue using the site. This was expressed both with examples of new knowledge or skills that were utilized in teaching practice, and also by comments that stated that the value the community offered was critical to using it.

In general, those participants who had an enthusiastic interest, or passion, and found a community related to that interest seemed to have a greater degree of building human capital and experiencing self-efficacy outcomes when using OLC than those who did not enter with interest or passion. Participants who experienced
increased self-efficacy appeared to grow their social and human capital to a greater degree than those who did not.

These findings suggest that there is a cycle associated with participation in an OLC. This begins with initial interest to learn, followed by actually gaining new knowledge and learning new skills. The OLC reflects, as in the physical world, a community. As one joins and participates, trust is built and the person has the opportunity to become an active member. Through membership one has access to the resources and knowledge of the community (social capital). This in turn builds the individual human capital (skills and knowledge), which then is transferred to practice. Examples of individual experiences, which describe this, were included in Chapter Four.

While the strong responses in confidence and new expertise show an increase in self-efficacy through mastery and vicarious experiences, they also indicate significant development of human capital through new skills, knowledge, and expertise. This contribution to human capital was also apparent in the ways that teachers discussed the contributions to their practices; this will be discussed in the next section.

Social capital was also made available through the different OLC’s, and in different ways. Some OLC’s, such as Classroom2.0 or Globalschoolnet offered access to all forms of social capital within community through opportunities for collaboration, and interactions, social norms and structures, resources and information channels. These sites also provided easy access for membership. Others primarily emphasized resources such as in the National Council of Teachers of
Mathematics and Edutopia sites. While these sites offered less opportunity for easy membership participation, members could benefit from existing community social capital but through less participation.

This study found that the effects on teacher practices reflected the use patterns of the sites. Teachers who used highly collaborative sites such as Classroom 2.0 and Globalschoolnet were more involved in highly collaborative practices both on the sites and at their schools. Those teachers who used sites that tended to emphasis resources had more individualized experiences that enriched their private practices, but did not tend to include as much external collaboration. In either case, benefits and applications to practice mirrored what sort of site was used.

*Research Question 4: In what ways do online communities contribute to teacher knowledge and practice?*

The study found significant contributions to teacher practice and to teachers’ perceptions of improved student learning from enhanced teacher practices.

Teacher contributions were particularly evident in the development of human capital (increased knowledge and skills). This finding is important and significant because teachers, through these online communities, were finding ways to learn how to improve their practice based on their interests, passions, and perceived needs. These findings were consistent with studies that found benefits to practice from face-to-face participation in site based PLC’s and collaboration. This suggests that OLC may provide similar benefits to participants, as PLC’s, but through different means and structures.
Participants discussed and stated many different ways that they gained in human capital. These examples ranged from specific skills such as learning email, to more sophisticated tasks such as making short movies to complement grade level and content standards, or organizing virtual field trips to distant locations. Human capital increases were also evident in broader knowledge categories such as developing the skills and knowledge to collaborate on international projects. This range of human capital development was not necessarily progressive, that is, teachers did not need to develop their skills in a linear way, rather, they could access the OLC based on what their specific need was, and that would be the entry point to their human capital skills and knowledge development.

Teachers, who practice their profession in what could be considered isolation, seem to capitalize on the opportunities made available by OLC to enhance their practice and reduce isolation in a variety of ways. The results suggest that most teachers who engage in OLC gain benefits through expanded resources and significant increases in human capital. More involved teachers experience greater benefits including access to expanded resources, other professionals, experiences, and opportunities to grow their own professions through enhanced networks (social capital), and public recognition.

There seems to be a varying degree of usefulness in using OLC that may be unknown to teachers. The results of this study are consistent with Schlager, Fusco, and Schank (2002) findings that teachers benefit by using sites that offer opportunities to participate, contribute, and interact with others in ways that are consistent with traditional face-to-face PLC. In collaborative group work, behavior
that occurs in a traditional face-to-face communities and group work includes “brainstorming, decision making, informing, knowledge building, mentoring, argumentation, and resolution.” This study found that teachers participated, contributed, and often interacted in varying ways and degrees. Those teachers who worked on collaborative projects hinted at those elements described in traditional group work. However, my study also found that teachers used a very broad range of different sites, with varying degrees and levels of interactivity. Teachers might be well served to know of these many options in order to inform their choice of OLC, and to be purposeful in their intentions.

While clearly benefits occur, a range of success begins with extensive availability of resources which build knowledge and skills and which augment teacher practice. At the greatest level of participation, higher levels of connectivity and outcomes are observed. This suggests that teacher knowledge of available sites, and offerings are of importance.

Most teachers spend their workday in isolation from other adults, although the nature of the work benefits from collaboration. This study suggests online communities offer another way to enhance and build professional community beyond the schoolhouse walls at a time and place convenient for the individual teacher. This finding was also found in reasons to participate and continue to participate in adult learning to reduce isolation, Gray (2004). Teachers primarily spend their workday alone in their classrooms, and aside from infrequent staff meetings, or grade level meetings, there is often little time in the school day consistently set aside for collaboration. Given the nature of this work, it is not
surprising that teachers who use online communities to enhance their professional knowledge and access resources found significant renewal to their practice.

What is surprising is how much the use of OLC contributes to human capital. This study found that while the notion of professional communities is important to professional educators, OLC’s offer different venues with even more expanded, dynamic, leading edge stuff, offered through a more global community, which changes and grows constantly. With the growing nature of the Internet, a whole new world of communities is evolving, and people continue to look for effective and meaningful ways to use them. This study also found that the nature of the community, whether a virtual community, community of practice, knowledge building community, community of interest, or personal learning networks, didn’t really seem to matter as much as the intention for use of the community. In this study, participants found value in list serves, as easily as in communities with many more communications tools and offerings.

Most surprising was the consistent success in participant identified communities in enhancing individual professional needs. Even participants in this study who seemed to be lurkers found satisfaction in using OLC. The greatest contributions to professional practice were found through building human capital, knowledge and skills. This in turn affected self-efficacy, social capital and the tendency to benefit from collective existing social capital, and ultimately, instructional practice. It appears that the foundation for all these benefits resides in the development of human capital. Most significantly, teachers tended to initially pursue use of OLC out of personal interest and passion to learn something. Then
through satisfying these needs and interests, involvement grew. Thus by developing human capital, the gateway is set for developing other areas of practice.

One of the greatest reasons for professional development to enhance knowledge and skills in teaching is to be able to effect student learning and achievement. This study found that teachers perceptions of increases in student learning was especially true for student motivation, student social construction of knowledge, providing purposeful learning activities and engaging all students. Teachers discussed using good ideas and resources found in their OLC in their instructional practices. They talked about changing practice to offer different types learning environments for students. And they talked about individual success stories in reaching difficult to reach students. They noticed that students were much more engaged in learning than before. The teachers that seemed to be the most excited about these changes had more collaborative experiences, whether from corresponding with one teacher in a distant location or collaborating on a group project with a global community.

Implications and Recommendations

*Teacher Practice*

There were several implications and recommendations for teacher practice. This study found that teachers benefited from using OLC in very specific ways, the most immediate of which was an increase in knowledge and skills (human capital). For the teachers in this study, use of OLC brought an inherently personal experience that added value to teaching through increased innovation and re-energizing teacher practice. In experiencing success, and corresponding increased self-efficacy, they
transferred their newfound knowledge to their teaching practices. One implication and recommendation is to encourage teachers currently using OLC to share their experiences with their colleagues in order to build school site collaboration and capacity.

Another significant finding was the self-directed nature of teacher’s use of OLC. Teachers tended to pursue OLC’s that reflected or supported their particular passion and interest. This in turn generated a unique excitement and reinvigoration of teaching practice that held a distinctive interest for the individual. The analysis of specific stories of teachers showed this – such as the teacher who had a personal passion for international and found the Globalschoolnet site that she used to organize international and collaborative projects, or the foreign language teacher who created their own network through twitter to connect to other language teachers and then taught in a more innovative way. The teacher who found a community of teachers to share and collaborate with through a crafting site, or the teacher who used OLC to learn about and use technology in the classroom were all exemplar teachers who entered the OLC with interest from personal passion, and left with renewed excitement toward their profession, enhanced teaching knowledge and skills, and changed practice.

Overtime, these teachers sustained and grew their involvement, and interest. They also went deeper into the work and brought more to the classroom. The implication from this finding is to support the passion and interest of teachers. However, the recommendation is to consider ways to foster this support school wide,
for example by matching teacher passions to the school mission or focus or academic areas. This would have a greater school wide impact.

Finally, the participants in this study had several suggestions for teachers beginning to use OLC. These were some of their responses: Try one out and see what it is all about. Remember to be professional; know what you’re looking for before starting; be careful about posting too much personal information; be selective and see what teachers use whom you admire; I prefer communities that are for education, students need a clear notion of what’s is a social site and what has academic purposes; try lots of different things until you find stuff you like and is helpful; jump in, see what you find, or seek out training; use communities to share and learn and empower yourself and your understanding of learning.

However well intentioned these suggestions were, there were many who struggled with finding a community. Further, OLC participation and use did not necessarily add to the site based school community, even if OLC use added significantly to individual practice. The implication is that thought needs to be given to the ways to use OLC and to increase connections to others at the school site in order to add to the school site professional community. The literature review in Chapter 2 showed that professional communities (particularly face to face) added value to site based professional learning, community and student achievement and should be encouraged, even in an increasing technology focused environment. One recommendation is to encourage use of OLC to support teacher professional development. This may be particularly valuable in a time of diminishing resources. Encouraging teachers to use these resources whether school wide or grade levels,
departments or teams might reduce the isolated nature of using these OLC without school site connections. This may be particularly valuable to increase collaboration, and professional growth school wide.

Another recommendation, beyond encouraging teachers to use these resources, is to help them evaluate what best contributes to their professional growth and student learning by evaluating what is most appropriate for students. However a word of caution: teachers pursued OLC’s that reflected or supported their particular passion and interest. This in turn generated a unique excitement and reinvigoration of teaching practice that held unique interest for the individual. Thus, it is important to think about ways to encourage passion and interest while at the same time supporting an alignment of these interests with the site. The intention of this recommendation is to build increased site collaboration and increased human capital development at the school site through shared knowledge and skills.

Theory – A Model of OLC Use

This study incorporated self-efficacy social and human capital theories to understand OLC use and contributions to practice. There were also implications to organizational learning, particularly in transference to school site communities.

This study found that the process of accessing social capital and engagement in OLC’s seemed to encourage the capacity for individual learning, increased self-efficacy and building of human capital. The intensity of involvement and learning is also suggestive of double loop learning as described by Argyris and Schon (1978). This learning occurred in simple and complex ways depending on OLC use. For example, an offering and subsequent use of lesson plans found in an OLC provided a
more efficient technique or idea to teach and was relatively risk free. More extensive learning experiences occurred for participants who used sites that offered many tools and formats for learning, discussing, and questioning. Both levels of learning experiences were perceived as valuable for the participants in this study. The outcomes of these experiences seemed to lead to more internalized learning, innovation, creativity, engagement and application for teachers – all attributes of double loop learning.

The implication for organizational site learning may be found in the extensiveness of human capital development and increased in self-efficacy. The more a teacher learned and used new skills and knowledge, the more likely they were to share some aspect of that experience. However, this did not readily occur in all instances and thus represents an opportunity to build site capacity by developing and facilitating transference of the benefits of the OLC experience to others.

On the basis of the results, and to better understand teacher use experiences, a model was developed to show the cycle of OLC use and entry points of contributions in both social and human capital to OLC users. (Figure 5.1) The center of the model shows the basic learning structure. The arrows show more specifically what occurs within specific blocks of that structure. The model shows the learning cycle beginning in block 1.0 with the decision to enter to an OLC. Then, once in the OLC shown in block1.1, participants learn what is offered there, and how to navigate and use the OLC.

The small diagrams at the side of block 2 indicate that participation in OLC gives access to the social capital of the site. If value is perceived, self-efficacy is
experienced and then participation is likely to occur. Then we can see that participation (block 2) leads to application to practice as shown in block 3. In this cycle participation and application are key to the online experience. At this point new skills, once learned, contribute to self-efficacy and further participation in the OLC and subsequent application to practice. As shown in the central model, self-efficacy develops through practical use: as more human capital is developed and applied, increases in self-efficacy occur.

The application of newly acquired or refined skills shown in block 3 leads to confirmation of the value gained from OLC use (block 4). This may lead to further access of and contribution to the social capital in the OLC, and again increase self-efficacy as shown in the small diagram off block 4. Finally, in confirming the value of the OLC, a decision is made to either re-enter the OLC or to consider a different OLC for a different purpose as reflected in the central model.
Figure 5.1 Process of Online Community Use
Self-selection of OLC is an important consideration. A useful metaphor is choice in shopping. One has a distinctly different experience shopping at WalMart vs. Nordstroms. One shops at each store for different reasons and expectations of service provided, and most leave having gotten what they went there for. The depth of community in an online community is similar to this, and each offers unique attributes for participants. While it is important for teachers and site leaders to be cognizant of the benefits to teachers in learning through their OLC, this study suggests that there is value in self-selection of use and sites remain the participants’ choice. However, complexities associated with a wide range of interests, and needs within the teaching profession suggest that there is no one best type of OLC, rather, that teachers may be best served initially by being provided with a variety of different OLC types, from which they may seek out relevant areas for further involvement and development of their skills, knowledge, and interests. This may also present a challenge to leadership in the way to best facilitate or guide teachers toward what may be considered good communities. It might be worth considering ways that teams of teachers may work together in using OLC and determining which sites could best meet school, grade-level or department needs.

Educational leaders would do well to support knowledge of OLC to staff. Ambivalence toward site leadership in this study was notable and has implications for leadership. Principals’ lack of awareness and support for teachers using OLC may be diminishing the potential and opportunity for professional development at their school. Being aware of and supporting the use of these tools for enhanced
professional practice could contribute significantly in this time of diminished professional development resources. Of interest is the use of theses OLC by experienced teachers, who presumably have established the foundations of teaching, management, and content. They can then focus on further enhancing their practice, at a time when professional burn out or disillusion may be occurring.

In a paper on teacher stress, Kyriacou (2001) identifies several aspects of teacher stress and burn out including workload, impact of teaching students with poor motivation on teachers, career aspirations. Areas of future research offered by Kyriacou included matching workload with valued area of work, and successful coping with stress. Considering this, the findings of the present study on OLC demonstrated that all three of these areas of stress and burn out were lessened. More experienced teachers found a rebirth of their professional work through use of OLC. A common theme of “it changed my life” was frequent. These teachers successfully found a way to match work that they valued into their workload resulting in greater job satisfaction. There was also clear indication that changes in practice as a result of using OLC transferred directly and enhanced teaching practices and student outcomes. Combined, these findings suggest that a positive effect occurred in teacher perceptions of their workload stress, impact on teaching, and job satisfaction.

In another article on teacher efficacy and teacher burnout, Skaalvik and Skaalvik (2007) found a strong relationship between teacher self-efficacy and teacher burnout: low teacher self-efficacy coincided with teacher burnout. The findings of the present study demonstrate that self-efficacy improved in several domains and positively impacted teachers and their practice. The conclusion that use
of OLC contributes positively to teaching is encouraging, and may need to be further analyzed in future research.

Education leaders might be aware of the positive impact these communities have on teachers, not as a mandated, or organized event, rather, as a resource that if used could have very positive impacts to practice. There is an implication for leadership here – that is, leadership could support teachers who use and implement these communities. Support could come in a variety of ways, from simple verbal support, to more specific ways that support teaching thorough making opportunities for teachers to share these learning with others at their sites during pre determined staff in-service or the like. By making these stories and voices public at the site, there seems to be the opportunity to also further develop the site. Making the time and space to share would be supportive.

This research on use of OLC has significant value to school sites and districts, and adds to the research by:

1) Providing additional educational research of communities:
   a) Identifying ways OLC contribute to teaching and learning.
   b) Benefits from OLC are similar to PLC.
   c) Site selection is most effective when supported by participant interest or passion.

2) Contributing to Educational Theory:
   a) OLC use and outcomes of OLC use by teachers added benefit and increases to self-efficacy, human and social capital.

3) Contributing to knowledge about educational practice:
a) Finding that significant benefits occur to all teachers, particularly to experienced teachers.

b) Use of OLC’s provides new ways to inform and improve instructional practice through increased human capital.

*Actions not justified by data*

However positive these conclusions and recommendations may seem, a word of caution is needed. Although benefits as a result of access to social capital were seen as a positive, there were notable lower (although still positive) results in increases in social capital at the school site. This suggests that while strong increases in social capital seemed to occur in the OLC environment, it may not necessarily transfer to school site dynamics. The caution here is that while the benefits to teachers using OLC is apparent, use of OLC may not address the inherent isolation from other teachers at their site. This may be particularly true if professional growth occurs separately from their site based and face-to-face peer group, with no avenues to bridge that growth from OLC to school site. The idea of bonding and bridging discussed by Smith (2008) is similar to this study. Bonding through common interests found in the OLC, and bridging out to other interests, in this case, bringing knowledge and skills back to the school to contribute to organizational learning.

In a study of teacher empowerment and organizational learning and Marks and Louis (1999) acknowledged the importance of school community for organizational learning (defined as social processing of knowledge, or the sharing of individual knowledge). Within this study knowledge and skills are described as
important to build new ideas and knowledge. In the current study, knowledge and skills were developed through teacher use of OLC, although they did not seem to transfer as easily to others at the site. In essence the idea of teacher empowerment occurs, but the benefits to organizational learning are less clear.

**Recommendations for future research**

Linking OLC use to site organizational learning. Leadership support, in the form of time, space, and resources may be needed to provide the avenue to facilitate the transference of OLC learned skills and knowledge to the school teaching organization. This study showed that there were significant benefits to all age teachers, particularly to experienced teachers. Future research may study the ways to access the knowledge and skills these teachers have to enhance site teaching and learning. One research question might be: In what ways do, or can teachers bridge their increased knowledge and skills gained from OLC to school sites and teams? In what ways can leadership support that?

**Continued Understanding of Communities**

There are ever growing identification of different types of communities. Continuing this analysis will serve to further understand the nature of what is offered, and how those communities might provide different value depending on the purpose for use. Preece (2006) discusses several types of online community in a study of two specific communities. As examples, Preece discusses Communities of Interest (people come together due to a common interest), and Communities of Practice (associated with Wenger) tend to be more formally structured around a common profession. To add to these, there are other looser communities, such as
created through networking, personal learning networks, and social networks. Blended communities are also discussed as another way to describe communities. These blended communities are hybrids of other community attributes. One area of future research that would be helpful in understanding OLC’s and education is a more thorough analysis of the key communities, what they offer, what their purposes are. This would add to the value of understanding entry points to OLC and subsequent participation.

This study has shown that OLC’s are a relevant and valuable tool for educators to access to enhance practice. The study identified characteristics of teachers who use OLC and the contributions that use of OLC have made to practice. The study also identified that use of OLC contributed to personal development via increases in self-efficacy, and development of human and social capital. Continued research on the ways that educators use these online communities will serve to provide educational leaders and innovators with ways to provide tools, resources, and venues to support the work of education for the twenty first century.
APPENDIX A

Appendix A

Electronic Survey
(Consent Form)

UNIVERSITY OF CALIFORNIA – SAN DIEGO
CONSENT TO PARTICIPATE IN SURVEY RESEARCH

Invitation to Participate

Rebecca Clark, a researcher graduate student at University of California San Diego is conducting a study of teachers use of education based online communities, perceptions based on those experiences, and application to the classroom. You have been asked to take part because you are a K-12 teacher in San Diego Unified School District and may be using online communities. There will be approximately 1,000 participants in the survey portion of this study. The final portion of this study will include 6-10 participants.

Purpose

The study objectives are to better understand the ways teachers participate in education based online communities and how these experiences positively impact teacher knowledge and learning for classroom instruction.

Description of Procedures

If you agree to be in this study, you will be asked to do the following:
1. Complete an electronic survey that will take approximately 15 – 20 minutes to complete.
2. At the end of the survey you may be asked to participate in an email based interview. This interview may take 30 minutes, depending on the length of your responses. Your responses may be done at a time that is convenient for you. The researcher may have further questions to clarify interview responses, and this may add a few minutes more to your original interview.

You may answer as many or as few questions as you choose. The survey will take approximately 15-20 minutes to complete. The survey is completely voluntary. At the end of the survey you will be asked if you would like to provide an email contact address if you would like to participate in an email based interview.

Risks and Inconveniences

There are minimal risks attached to this study. There is minimal risk to have physical or psychological responses with strong emotional and/or negative reactions to research questions because research questions are limited to basic demographics, individual responses regarding use of online communities, ways ideas generated there are used in
teaching. Online surveys have the potential to be difficult to navigate, however, to participate in the study it is assumed that you participated in an online learning experience and that may have prepared you to successfully take an online survey. Additionally, there is the risk of loss of time in taking the survey, however, you can stop at any time without any consequence to you. Your survey and interview responses will be kept confidential; available only to the researcher for analysis purposes.

**Benefits**

Your participation will benefit future teachers, administrators, and policy-makers, as study findings will identify new information about experiences using education based online communities that have a positive impact on teachers and their classrooms. You may also benefit from learning new things about online communities as you participate in this research. The results of the survey will be published in a dissertation and an electronic copy of the final dissertation may be requested at {HYPERLINK "rclark1@sandi.net"}

**Confidentiality**

Your survey responses are given anonymously. No names, addresses, phone numbers or email addresses are required, however, you may disclose an email address should you decide at the end of the survey that you are willing to be interviewed using email. Once the survey response time of four weeks has passed, the survey will be closed. Responses are password protected on the Survey Monkey Web site and only the researcher and her advisor/professor has access to the data.

**Voluntary Participation**

Although participation in the survey is entirely voluntary, I would truly appreciate the time involved in filling out the survey. If you agree to the study, but later change your mind, you may withdraw at any time. There will be no consequence of any kind if you decide you do not want to participate.

**Questions**

If you have questions about the study I will be happy to answer them now. If you have any questions now or in the future you may direct those to the researcher, Rebecca Clark {HYPERLINK "rclark1@sandi.net"} You may also contact the researcher’s advisor/professor, Dr. Carolyn Hofstetter at 858-822-6688 or {HYPERLINK "chofstet@ucsd.edu"}. This study has been approved by University of California San Diego Institutional Review Board (IRB). Questions about your rights as a research participant should be directed to the HRPP 9500 Gilman Drive, La Jolla, Ca 92093 at 858-455-5050 or {HYPERLINK "hrpp@ucsd.edu"}.

If you agree to participate, please click the I Agree button to give your consent and access the survey. If you do not wish to participate you may select the cancel button.

[Cancel] [I Agree]
Survey Questions

By answering and submitting the survey, you are agreeing to let us use your answers in this research. All information collected as part of the research will be kept confidential by the researcher, and no names or identifying information will be included in reports or in research articles or presentations.

(This table represents the question number, survey question, and type of response choice participant will have on Survey Monkey)

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<tr>
<th>Survey Question</th>
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<tbody>
<tr>
<td>1  Are you currently a teacher teaching at least one class in grades K-12?</td>
<td>Yes/ No</td>
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<td>2  Education focused online communities may be defined as groups of educators who come together in an online environment to collaborate and communicate, and share mutual interests and goals, and learn. Education focused online communities are a dynamic and interactive way for teachers to network with other teachers, get lots of good ideas, and learn to use many tools for teaching. Do you visit or participate in online communities of educational professionals?</td>
<td>Yes/ No (If NO is selected – survey participant is directed to a page thanking them for their participation.)</td>
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<td>3  How many years have you been a teacher?</td>
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<td>5  What grade levels have you taught?</td>
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<td>6  Are you male or female?</td>
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<td>8  What online communities do you tend to use more than others?</td>
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<td>9  How comfortable are you in using technology as a productivity tool?</td>
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<td>Not very comfortable – Very comfortable</td>
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<td>10 How comfortable are you in using technology as a research tool?</td>
<td>Likert scale 1-5</td>
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<td>Not very comfortable to very comfortable</td>
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<td>11 How comfortable are you in using technology as a communications tool?</td>
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<td>How comfortable are you in using technology as a communications tool?</td>
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<td></td>
<td>Meet up</td>
</tr>
<tr>
<td></td>
<td>Other – please state</td>
</tr>
<tr>
<td>14</td>
<td>What do you see as the purpose for this site?</td>
</tr>
<tr>
<td>15</td>
<td>Have you made changes to your teaching since using this site?</td>
</tr>
<tr>
<td>16</td>
<td>Can you give an example of a change you made to your practice since using this site?</td>
</tr>
<tr>
<td>17</td>
<td>How often do you access this site?</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>When do you access this site?</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Since using these sites I have become more confident in my teaching.</td>
</tr>
<tr>
<td>20</td>
<td>Since using these sites I have become more excited about my teaching.</td>
</tr>
<tr>
<td>21</td>
<td>Since using these sites I have increased my collaboration with others.</td>
</tr>
<tr>
<td>22</td>
<td>I have had experiences online in these communities that made me feel confident to use what I was learning.</td>
</tr>
<tr>
<td>23</td>
<td>Since using these online communities I have developed new expertise.</td>
</tr>
<tr>
<td>24</td>
<td>When I try really hard, I can get through to the most difficult students.</td>
</tr>
<tr>
<td>25</td>
<td>When a student gets a better grade than he or she usually gets, it is because I found better ways of teaching that student.</td>
</tr>
<tr>
<td>26</td>
<td>Since going to these sites I have become more connected to teachers or others who share the same interests.</td>
</tr>
<tr>
<td>27</td>
<td>I feel my contributions to this site are valued.</td>
</tr>
<tr>
<td></td>
<td>Question</td>
</tr>
<tr>
<td>---</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>29</td>
<td>I share knowledge or participate actively in this site.</td>
</tr>
</tbody>
</table>
| 30| Since using online communities I have increased the number of people I know and interact with. | Likert scale – 1-5  
No difference – increased a great deal |
| 31| I have increased my connections to other teachers at my school site.     | Likert scale 1-5  
Not really increased connections- Connections have increased a great deal |
| 32| The leadership of my school supports my use of online communities.       | Likert scale 1-5  
Leadership does not know much about it, doesn’t really care  
Leadership is knowledgeable and very supportive |
| 33| To what extent do you use this site to learn about ways to enhance your teaching practice? | Likert scale 1-5  
Not much – a great deal |
| 34| Have you applied something you learned from this site to your teaching?  | Yes/ No                                                                           |
| 35| Could you describe that?                                                 | Text box                                                                          |
| 36| Have students become more motivated because of instruction that was inspired from ideas you learned from this site? | Yes / no                                                                          |
| 37| Could you give an example?                                               | Text box                                                                          |
| 38| Participation in online communities helps me find ways to increase student success in my class. | Likert scale 1-5  
Does not help – Helps a great deal |
| 39| Do online communities that you participate in help you to address tough problems that address teaching and learning? | Likert scale 1-5  
Does not help – Helps a great deal |
| 40| In your experience, what makes a good to great online community?         | Text box                                                                          |
Appendix B

Online Interview Questions
(Survey Monkey format using unlimited text box for each response)

1. What has changed in your instructional practice since you became engaged in online communities?
2. Can you give an example of what HAS changed?
3. What has NOT changed?
4. Can you give an example of what has NOT changed?
5. As you have changed your practice, how has that affected your students learning?
6. Could you talk about aspects of online communities you use most often to expand your knowledge and thinking about teaching?
7. Tell me about a time in the last year when you have been particularly proud of the work you are doing – a time that you were inspired as a result of using online communities.
8. Is there anything else you would like to add?
9. What do you like about using online communities?
10. For what purpose did you start to use online communities?
11. Online learning communities are a relatively new phenomenon. How long have you been involved?
12. How do you use the sites you most often visit?
13. How has your use of online communities changed over time?
14. In your opinion, what makes an online community particularly good?
15. What is an example of a good site?
16. What recommendations do you have about using online communities that might help a teacher just beginning to use online communities?
17. If there is anything else you would like to add, you may do so here.
Appendix C

E-mail Message Sent Requesting Interview Participation

May/ June 2009

Dear [name of participant],

First of all, thank you for responding to the survey about online communities. [A few sentences about survey results, and importance of this portion of the research]

Now, I know what your thinking; it is the end of the year and I don’t want any more projects! I promise to make this as easy and painless as possible. The interview will be performed virtually via email. You can use any word processing program you like. You have three weeks to complete the interview questions.

Please take the time to answer the interview questions attached. It will mean so much to not only me, but to educators across our district that are searching for ways to increase their knowledge and support for a vibrant and multi dimensional professional practice for 21st century education.

Sincerely,

Rebecca Clark
Doctoral Candidate
Educational Leadership Department
University of California, San Diego, California State University San Marcos
Appendix D

Guiding List of Interview Open Ended Questions

1. Thinking back on site leadership – what contributed or hindered your use or success in using online communities?

2. Thinking back on a particularly great experience – what do you value most about contributions to your professional practice?

3. In what other ways do you see using online communities as contributing to your knowledge and instructional practice?

4. Have your experiences influenced your personal or professional goals?

5. In your use of online communities, have you become more selective about what you use? In what ways does this site inspire or transfer or build ideas for your professional practice?
# Appendix E

## C4P Model for Site Observation Form

<table>
<thead>
<tr>
<th>Initial Observational Data Collection Organizer</th>
<th>Web site (One sheet for each web site observed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using C4P Framework (Hoadley &amp; Kilner 2005)</td>
<td>(Observations are written here)</td>
</tr>
</tbody>
</table>

### Purpose
What is the stated purpose and audience for this site?

### Connections
In what ways do people work together on common goals?

### Context
How is information presented? Is it clearly related to the purpose? Are content contributions available across the community?

### Content
Is the content of high quality? Are clear norms or expectations implicit? Explicit? Is there a facilitator?

### Conversation
Are there meaningful conversations that generate conversations?
Appendix F

Online Survey Request Letter

March 2009

Dear Fellow Educator,

I am a teacher in San Diego Unified School District. I am also a candidate for an Ed.D. in the joint doctoral program in educational leadership at University of California San Diego and California State University San Marcos. I am asking for your participation in my dissertation research, which I have authorization to conduct in our district. I am looking for teachers who are using education online communities that support teaching and learning.

Educational online communities may be defined as groups of educators who come together in an online environment to collaborate and communicate, and share mutual interests and goals.

Educational online communities are a dynamic and interactive way for teachers to network with other teachers, get lots of good ideas, and learn how to use many new tools for teaching.

To participate, all you have to do is have an Internet connection and go to [HYPERLINK"http://www.surveymonkey.com {survey address omitted}"]”. Completing this survey will take about 15-20 minutes.

Perhaps you are not using online communities, but know someone in the district who is. Please pass this email along to them. Getting a response from teachers is important in developing an understanding about this important resource!

Everyone who completes the survey will be able to request a copy of the study at the end of the survey.

If you have any questions about this survey or study, you can reach me by email at rclark1@sandi.net.

Thank you in advance for your time and participation.

Sincerely,

Rebecca Clark
Doctoral Candidate
Educational Leadership Department
University of California, San Diego, California State University San Marcos
Appendix G

Data Sources

RESEARCH QUESTION 1: WHAT ARE THE CHARACTERISTICS OF TEACHERS WHO USE ONLINE COMMUNITIES?

**Characteristics of Teachers Using Online Communities**

<table>
<thead>
<tr>
<th>Survey #/Question</th>
<th>Type</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1 Q4</td>
<td>Categorical 5 choices</td>
<td>How many years have you been a teacher?</td>
</tr>
<tr>
<td>S1 Q5</td>
<td>7 categories – E, M, HS, combos</td>
<td>What grade levels have you taught?</td>
</tr>
<tr>
<td>S1 Q6</td>
<td>7 categories – E, M, HS, combos</td>
<td>What grade level are you currently teaching?</td>
</tr>
<tr>
<td>S1 Q7</td>
<td>Gender: 2 choices</td>
<td>Are you: Male? Female?</td>
</tr>
<tr>
<td>S1 Q8</td>
<td>3 point</td>
<td>How comfortable are you using technology as a productivity tool?</td>
</tr>
<tr>
<td>S1 Q9</td>
<td>3 point</td>
<td>How comfortable are you using technology as a research tool?</td>
</tr>
<tr>
<td>S1 Q10</td>
<td>3 point</td>
<td>How comfortable are you using technology as a communications tool?</td>
</tr>
<tr>
<td>S1 Q37</td>
<td>5 point Likert</td>
<td>When I try really hard, I can get through to the most difficult students.</td>
</tr>
<tr>
<td>S1 Q38</td>
<td>5 point Likert</td>
<td>When a student gets a better grade than he or she usually gets, it is because I found better ways of teaching that student.</td>
</tr>
</tbody>
</table>

**Perceptions of Site Leadership**

<table>
<thead>
<tr>
<th>Survey #/Question</th>
<th>Type</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1 Q32</td>
<td>5 point Likert</td>
<td>The leadership of my school supports my use of online communities.</td>
</tr>
<tr>
<td>I Q1</td>
<td>Transcription</td>
<td>Thinking back on site leadership – what contributed or hindered your use or success in using online communities?</td>
</tr>
</tbody>
</table>

**Characteristics of Online Community Use**

<table>
<thead>
<tr>
<th>Survey #/Question</th>
<th>Type</th>
<th>Online Community Use Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1 Q11</td>
<td>Nominal: 4 choices</td>
<td>How long have you been visiting or participating in online communities?</td>
</tr>
<tr>
<td>S1 Q23</td>
<td>Nominal: 10 choices with 4 point scale</td>
<td>In what ways do you mostly use the site? Check all that apply.</td>
</tr>
<tr>
<td>S1 Q27</td>
<td>4 point scale (Not often, daily, weekly, monthly)</td>
<td>How often do you access this site?</td>
</tr>
<tr>
<td>S1 Q28</td>
<td>Nominal: 3</td>
<td>When do you access this site? Check all that apply.</td>
</tr>
<tr>
<td>S2 Q11</td>
<td>Text</td>
<td>Online communities are a relatively new phenomenon. How long have you been involved?</td>
</tr>
</tbody>
</table>
### Text Responses to Survey Questions About Online Communities Used

<table>
<thead>
<tr>
<th>Survey #/Question</th>
<th>Online Community Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1 Q12</td>
<td>What online community do you use? Please write the names in the text box.</td>
</tr>
<tr>
<td>S1 Q21</td>
<td>What online community do you use? Please write in text box. (Regarding ONE site that is particularly useful, use a lot, or like)</td>
</tr>
<tr>
<td>S1 Q22</td>
<td>What do you see as the purpose for this site?</td>
</tr>
<tr>
<td>S1 Q23</td>
<td>In what ways do you mostly use this site? (Other – text box)</td>
</tr>
<tr>
<td>S1 Q34</td>
<td>In your view, what makes a great online community?</td>
</tr>
<tr>
<td>S2 Q6</td>
<td>Could you talk about aspects of online communities you use most often to expand your knowledge and thinking about teaching?</td>
</tr>
<tr>
<td>S2 Q9</td>
<td>What do you like about using online communities?</td>
</tr>
<tr>
<td>S2 Q10</td>
<td>For what purpose did you start to use online communities?</td>
</tr>
<tr>
<td>S2 Q12</td>
<td>How do you use the sites you most often visit?</td>
</tr>
<tr>
<td>S2 Q13</td>
<td>How has the use of online communities changed over time?</td>
</tr>
<tr>
<td>S2 Q14</td>
<td>In your opinion, what makes an online community particularly good?</td>
</tr>
<tr>
<td>S2 Q15</td>
<td>What is an example of a good site?</td>
</tr>
<tr>
<td>S2 Q16</td>
<td>What recommendations do you have about using online communities that might help a teacher just beginning to use online communities?</td>
</tr>
<tr>
<td>I Q5</td>
<td>In your use of online communities, have you become more selective about what you use?</td>
</tr>
</tbody>
</table>

### RESEARCH QUESTION 2: WHAT ARE TEACHER PERCEPTIONS OF THEIR SELF-EFFICACY SINCE USING ONLINE COMMUNITIES?

### Perceptions of Self-Efficacy

<table>
<thead>
<tr>
<th>Survey #/Question</th>
<th>Type</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1 Q14</td>
<td>5 point Likert</td>
<td>Since using online communities I have become more confident in my teaching.</td>
</tr>
<tr>
<td>S1 Q15</td>
<td>5 point Likert</td>
<td>Since using online communities I have become more excited about my teaching.</td>
</tr>
<tr>
<td>S1 Q20</td>
<td>5 point Likert</td>
<td>Do online communities that you participate in help you to address tough problems that address teaching and learning such as engagement and rigor?</td>
</tr>
<tr>
<td>S1 Q35</td>
<td>5 point Likert</td>
<td>I have had experiences in online communities that made me feel confident to use what I was learning.</td>
</tr>
<tr>
<td>S1 Q36</td>
<td>5 point Likert</td>
<td>Since using these online communities I have developed new expertise – even if only a little bit or a great deal.</td>
</tr>
</tbody>
</table>
RESEARCH QUESTION 3: WHAT ARE TEACHER PERCEPTIONS OF SOCIAL CAPITAL SINCE USING ONLINE COMMUNITIES?

<table>
<thead>
<tr>
<th>Survey #/ Question</th>
<th>Type</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1 Q13</td>
<td>5 point Likert</td>
<td>Since using online communities I have become more connected to teachers or others who share the same interests</td>
</tr>
<tr>
<td>S1 Q16</td>
<td>5 point Likert</td>
<td>Since using online communities I have increased my collaboration with others.</td>
</tr>
<tr>
<td>S1 Q17</td>
<td>5 point Likert</td>
<td>Since using online communities I have increased the number of people I know and interact with.</td>
</tr>
<tr>
<td>S1 Q18</td>
<td>5 point Likert</td>
<td>I have increased my interactions with other teachers at my school.</td>
</tr>
<tr>
<td>S1 Q29</td>
<td>5 point Likert</td>
<td>I feel my contributions to this site are valued.</td>
</tr>
<tr>
<td>S1 Q30</td>
<td>5 point Likert</td>
<td>Using this site contributes to my professional reputation.</td>
</tr>
<tr>
<td>S1 Q31</td>
<td>4 point</td>
<td>I share knowledge or participate actively in this site.</td>
</tr>
</tbody>
</table>
RESEARCH QUESTION 4: IN WHAT WAY DO ONLINE COMMUNITIES CONTRIBUTE TO TEACHER KNOWLEDGE AND INSTRUCTIONAL PRACTICE?

*Text Responses: Contributions to Teacher Knowledge and Instructional Practice*

<table>
<thead>
<tr>
<th>Survey #/ Question</th>
<th>Question Type</th>
<th>Impact to Teacher/ Students</th>
<th>Contributions Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1 Q19</td>
<td>5 point Likert</td>
<td>S</td>
<td>Participation in online communities helps me find ways to increase student success in my class,</td>
</tr>
<tr>
<td>S1 Q20</td>
<td>5 point Likert</td>
<td>S</td>
<td>Do online communities that you participate in help you to address tough problems that address teaching and learning such as engagement and rigor?</td>
</tr>
<tr>
<td>S1 Q24</td>
<td>3 point scale</td>
<td>T</td>
<td>To what extent do you use this site to learn about ways to enhance your teaching practice?</td>
</tr>
<tr>
<td>S1 Q25</td>
<td>3 point scale</td>
<td>T</td>
<td>Have you made changes to your teaching since using this site?</td>
</tr>
<tr>
<td>S1 Q25</td>
<td>Text</td>
<td>T</td>
<td>Text example</td>
</tr>
<tr>
<td>S1 Q26</td>
<td>3 point</td>
<td>S</td>
<td>Have students become more motivated because of instruction that was inspired from ideas you learned from this site?</td>
</tr>
<tr>
<td>S1 Q26</td>
<td>Text</td>
<td>S</td>
<td>Example</td>
</tr>
<tr>
<td>S1 Q33</td>
<td>3 point</td>
<td>T</td>
<td>Have you applied something you learned from this site to your teaching?</td>
</tr>
<tr>
<td>S1 Q33</td>
<td>Text</td>
<td>T</td>
<td>Have you applied something you learned from this site to your teaching?</td>
</tr>
<tr>
<td>S2 Q1</td>
<td>Text</td>
<td>T</td>
<td>What has changed in your instructional practice since you became engaged in online communities?</td>
</tr>
<tr>
<td>S2 Q2</td>
<td>Text</td>
<td>T</td>
<td>Can you give me an example of what HAS changed?</td>
</tr>
<tr>
<td>S2 Q3</td>
<td>Text</td>
<td>T</td>
<td>What has NOT changed?</td>
</tr>
<tr>
<td>S2 Q4</td>
<td>Text</td>
<td>T</td>
<td>Can you give me an example of what has not changed?</td>
</tr>
<tr>
<td>S2 Q5</td>
<td>Text</td>
<td>S</td>
<td>As you have changed your practice, how has that affected your student learning?</td>
</tr>
<tr>
<td>S2 Q7</td>
<td>Text</td>
<td>T/S</td>
<td>Tell me about a time in the last year when you have been particularly proud of the work you are doing – a time that you were inspired as a result of using online communities.</td>
</tr>
<tr>
<td>I Q2</td>
<td>Transcription</td>
<td></td>
<td>Thinking back on a particularly great experience, what do you value most about contributions to your professional practice?</td>
</tr>
<tr>
<td>I Q3</td>
<td>Transcription</td>
<td></td>
<td>In what other ways do you see using online communities as contributing to your knowledge and instructional practice?</td>
</tr>
<tr>
<td>I Q4</td>
<td>Transcription</td>
<td></td>
<td>Have your experiences influenced your personal or professional goals? (Added to or created new plans for the future?)</td>
</tr>
</tbody>
</table>
REFERENCES


