Constructing Guidelines for Building Communities of Practice for
Supporting Faculty Professional Development in Electronic Environments

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Abstract

Faculty who teach online courses at large research institutions have unique professional development and support needs. Communities of practice may provide a solution to feelings of isolation reported by faculty who teach online courses. Through a community of practice faculty may offer support to each and share online instructional best practices. Using a developmental study, research-based practices were operationalized using the ADDIE model to form guidelines for building and maintaining a virtual community of practice for online teaching faculty. An expert review validated and led the revision process for the set of guidelines. This study describes the development of the guidelines, the expert review, and the validation of the final product.

Dedication

I dedicate this document to John, Joseph, and Nate

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INTRODUCTION AND NEED FOR THE STUDY

Introduction

Distance education has quickly become an integral part of curriculum at most colleges and universities. In a survey of more than 2500 public universities, for-profit institutions, and nonprofit colleges, more than 74% of public universities and more than 50% of private nonprofit institutions reported that distance learning is critical to the long-term strategy of their institutions (Allen & Seaman, 2010). Additionally, recent statistics reveal that delivering course content to students is of continuing interest to university faculty. Over one-third of public university faculty have taught an online class and many readily acknowledge that teaching an online course can take more effort than delivering content through traditional face-to-face venues (Association of Public and Land-grant Universities-Sloan National Commission on Online Learning, 2009). Support opportunities that would assist faculty in delivering courses online in higher education often fall short of faculty expectations, leaving faculty who lack adequate training in online course development and appropriate pedagogy (Association of Public and Land-grant Universities-Sloan National Commission on Online Learning, 2009).

Need for the Study

Faculty who lack adequate training in online course development and appropriate pedagogy can negatively impact student learning (Association of Public and Land-grant Universities-Sloan National Commission on Online Learning, 2009). Encouraging a reciprocal relationship between participation in a community of practice and faculty development can help create the support opportunities that would assist faculty in delivering courses online. Faculty teaching at a distance often report feeling isolated from their peers, especially when there is little or no institutional support (Bolliger & Wasilik, 2009). Research has shown that faculty-centered communities of practice facilitate connections for isolated faculty members while providing real opportunities for professional growth (Cox, 2004). It is very rare, however, for communities of practice to form spontaneously and flourish without much work. More often, such communities require extensive planning, organizational support, and a dedicated group of community members (Palloff & Pratt, 1999; Wenger, 1998). A comprehensive review of literature revealed

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research for the development and implementation of a comprehensive community of practice for distance faculty at large research institutions lacking. Though there is little research for faculty development using a community of practice approach, there is a great deal of literature for the development and maintenance of communities of practice in the workplace. A framework for building an online community of practice based on the existing research may help fill the gap in the literature and inform higher education organizational and professional development practices. Implementing an online community of practice may also provide institutional support for online faculty.

Purpose Statement of the Study

The purpose of this study was to develop a set of guidelines based on a comprehensive review of literature that can easily be implemented by faculty development professionals. For the purpose of this study the phrase guidelines or term framework is defined as a guide or handbook (guidelines) for the design and maintenance of a virtual community of practice. The study design consisted of three phases of the design process including: analysis, design, and evaluation. Using program development research by Weston, McAlpine, and Bordonaro (1995) as described by Richey and Klein (2007) as a guide, this study was based on a comprehensive review of current literature, program design, and an expert review.

Research Questions

The research questions for this study where:

1. What strategies for building and maintaining a community of practice are defined in literature?
2. How do those strategies transfer to electronically mediated environments?
3. What features of community of practice research are applicable for a program designed to support the needs of faculty teaching at a distance at large research centered institutions?

Benefits of the Study

As colleges, universities, and other learning institutions explore teaching and learning through online environments, online communities of practice may provide solutions to organizational and professional development needs. This research may improve how

instructional designers and other support professionals design, implement, and maintain electronic communities of practice as a means for supporting faculty engaged in distance learning

Organization of the Proposed Study

Chapter One provides background information and theoretical foundations for the study. Additionally, Chapter One introduces major themes addressed by the study, including the need for the study, the purpose statement, research questions and potential benefits. Chapter Two is an extensive review of relevant literature. This chapter will explore the theoretical foundations of community of practice research and practical application of community of practice research in professional and organizational contexts. Chapter Three provides specific methodology that will be used to conduct the study. This chapter will include a description of the study design, guidelines creation, participants, procedures, survey and review instruments, data collection, and data analysis. Chapter Four provides the operationalization of the design tasks related to building and maintaining a virtual community of practice for faculty engaged in distance learning. This chapter explores the design tasks related to building community of practice in the lens of the ADDIE model. Chapter Five describes the results from the expert review and outlines how the guidelines are to be revised based on reviewer feedback. Chapter Six summarizes the study and describes implications of the study.

CHAPTER 2
REVIEW OF LITERATURE

Introduction

Learning scientists have long advocated constructivist and social learning strategies as key components of learning (Brown, Collins, & Duguid, 1989; Jonassen, Cernusa, & Ionas, 2007). With the growing acceptance of socio-constructivist theories and research in the field of the learning sciences, the way instructional opportunities are designed and developed is changing (Sawyer, 2006). As such, finding new ways to facilitate interaction has become the focus of recent studies. Building on constructivist theory and the growing field of the learning sciences, communities of practice have recently gained prominence in education and business settings for constructing and managing knowledge (Ellis, 2001; Stahl, 2006). This topic may have serious implications on instructional design in electronic environments and for distance learning practices.

Theoretical Foundations

In order to get a better understanding of the current trends related to communities of practice, one must first examine the foundations of community of practice theory. Community of practice theory has roots in socio-constructivist, social learning, situated learning, and cognitive apprenticeship theories.

Socio-Constructivism

For many years the focus for instructional design was based predominantly in mainstream psychology. Though there were many researchers who had advocated the importance of social interaction and its impact on learning, the main concern of learning research focused on the individual and the behavioral and cognitive processes associated with the individual learning (Satwicz & Stevens, 2008; Sawyer, 2006). Initially, constructivist theory concerned individual meaning making, but has come to include collaborative knowledge construction (Suthers, 2006). Constructivists argue that while there is an important role for behaviorist and cognitivist strategies for learning, knowledge is both individually constructed and socially co-constructed from interactions and experiences with the world (Jonassen et al., 2007). Constructivists can also find solace in the writings of Lev S. Vygotsky (Confrey, 2006). Though he died in 1934,

Vygotsky theorized that individual psychological development could not be understood without reference to the social and cultural milieu to which it belonged. Higher mental processes in the individual have their origin in social processes and contexts. Consequently, mental processes can be understood only if the physical tools and psychological signs that mediate them are wholly understood. In higher forms of human behavior, the individual actively modifies the stimulus situation as a part of the process of responding to it (Driscoll, 1999). For instance, Vygotsky recognized that from a very young age and throughout their entire lives people learn how to behave within cultural and social recognized norms (Vygotsky, 1978). This translates into behavioral and cognitive processes including language acquisition, schema building, and even role norms.

Situated Learning

Building on the theories of Vygotsky, and constructivist concepts, social learning theorists have argued that social context in which cognitive activity takes place is integral part of the learning process (Brown et al., 1989; Lave & Wenger, 1991; Resnick, 1991; Young, 1993). While constructivists have long advocated that learning occurs through activity, discussion, and reflection, Brown et al. (1989) led the creation of the theory of situated cognition in 1989. This is often referred to as authentic learning or situated learning. Situated learning models of instruction provide interactions designed to mimic real life problems or situations (Brown et al., 1989). Learning can happen in simulated practice fields or through authentic fields of practice (Barab & Duffy, 2000).

Many such authentic collaborative learning experiences are found in the workplace and educational settings everywhere. Cognitive apprenticeships, communities of practice, and computer supported collaborative learning environments are used in adult learning and in daily informal learning situations (Sawyer, 2006). From the situated learning perspective, communities of practice create opportunities for learning through an evolving process of creating identity within a group and using the group relations to construct meaning (Henning, 2004). Learning through group interaction and conversation often leads to higher order thinking skills (Stahl, 2006). Over the last twenty years, researchers have found that creating environments where students have the opportunity to interact with peers or instructors to articulate or verbalize knowledge and thinking a positive impact on learning will result (Sawyer, 2006).

Apprenticeship

Situated learning can often take the form of apprenticeship. Apprenticeship as a form of learning has been used throughout history. An oft cited adult learner example of apprenticeship learning involves tailoring apprentices learning skills necessary for their work in the actual tailoring shop, not in a school setting (Collins, 2006). Lave and Wenger (1991) use apprenticeships as a way to explore the importance of peripheral participation. Using the apprenticeship relationships among midwives, tailors, quartermasters, butchers, and even alcoholics, Lave and Wenger (1991) explore how varying levels of participation lead to learning. Even though each case of apprenticeship explored by Lave and Wenger (1991) had its own set of challenges, boundaries, and unique cultures, each situation proved that knowledge and experience come through a process grounded in social participation, not formal instruction. Moving from apprentice or trainee to expert requires a transition deep into a community of practice (Henning, 2004). As new members move from novice to expert, seasoned experts transition out of the community.

Apprenticeships are used regularly in adult learning and have recently grown in popularity in the K-12 classroom environment (Collins, 2006). In a cognitive apprenticeship, learners can observe how experts deal with problems in an authentic context, and they learn to solve the same or similar problems to acquire expert skills in context (Suthers, 2006). Cognitive apprenticeships transcend the traditional apprenticeship model in that they emphasize the thought process and make the cognitive processes visible, rather than simply give newcomers an action of demonstration (Suthers, 2006). Using a cognitive apprenticeship model to track adult learning as learners move from novice to expert, to train new employees how to perform tasks specific to an occupation or using the model to analyze artifacts left as university students gradually learn from more knowledgeable peers and instructors could have new and exciting implications for the learning sciences and improve our knowledge of adult learning (Brown et al., 1989; Sawyer, 2006; Stahl, 2006;). Apprenticeships, as researched by Lave and Wenger, are often discussed interchangeably with communities of practice.

Communities of Practice

Though there has always been a concept of learning through community, over the last twenty years a new metaphor of learning that stresses the importance of participation in a

learning community has emerged (Sfard, 1998). Community can be defined as a group with shared practices that identify themselves with something larger than the sum of their individual relationships (Shaffer, 1993). Building on the work of situated learning theorists and their own research of apprenticeships Lave and Wenger (1991) introduced the term community of practice in their seminal book on the subject *Situated learning: Legitimate Peripheral Participation,* in 1991. A community of practice, as described by cognitive anthropologists Jean Lave and Etienne Wenger, consists of a group of people who share an interest, a craft, and/or a profession (Lave & Wenger, 1991; Wenger, 1998). Wenger later expanded the definition of a community of practice. Using an insurance claims processing team to show how members participate in a community of practice, Wenger (1998) demonstrated how through social and cognitive interactions individuals learn and construct knowledge in daily activities.

Communities of practice often occur with little or no formal recognition or support (Wenger, 1998). Communities of practice are evident in everyday situations including family units, social organizations, academia, and the workplace. Communities of practice do not exist in vacuum. Instead they exist alongside of and within other communities of practice (Wenger, 1998). Novices entering a community of practice must dedicate time and gain experience prior to receiving access to community resources and thereby transitioning into the role of old-timers or experts (Driscoll, 2005). A CoP exists to foster the growth of the practice through the initiation and support of those entering the practice by those considered 'masters' of the practice in a process that is founded upon mutual respect and the desire to contribute to the practice (Lave & Wenger, 1991). The community of practice shares not only a common interest and passion; it also consists of and creates its own knowledge and resources. It is only through shared experience that learners come to understand common language, slogans, and various artifacts of the culture of a particular situation (Henning, 2004). Communities of practice must consist of both participation (conversations, activities, reflections) and reification (artifacts, documents, processes, methods) for meaning making to occur (Wenger, 2010). The community of practice contributes to and expands both knowledge and resources. Members of a community of practice interact regularly for this to occur.

Participants in a typical community of practice serve in different roles and are found on a spectrum of trajectories. There are opportunities for all participants to find identity and to learn from a community of practice, even when participation is on periphery (Brown et al., 1989).

Wenger (1998) identified five trajectories or paths for participants to find identity in a community of practice: (1) peripheral trajectories- the outside edge of a community that provides participants access to a community, but never leads to full participation; (2) inbound trajectories-participants are invested in becoming active members of the community even though they may still be on the periphery of the community; (3) insider trajectories- full membership, but a commitment to continued improvement through new demands; (4) boundary trajectories-participants sustain an identity that spans and connects different communities of practice; and (5) outbound trajectories- participants no matter the cause are in the process of leaving the community and developing new identities. Understanding the different trajectories can help designers create guidelines that meets the needs for all participants of a community of practice.

Designing, Maintaining, Growing a Community of Practice

Communities of practice take many forms. Verburg and Andriessen (2006) identified five typical forms of communities of practice found in the workplace or professional organizations: (1) daily practice community − workers or participants who meet regularly to share and create knowledge, generally face-to-face; (2) formal expert community − consists of a limited number of experts who influence knowledge for a larger community; (3) informal network community − open membership group forms through common interests, generally administered through electronic means, (4) problem solving community − consists of geographically and organizationally dispersed members who deal with the same issues or problems, can also be an advisory group that is formed to solve a solitary problem; and (5) latent network community − consists of members of a professional organization like AECT. Additionally communities of practice are used in electronic classrooms to enhance collaborative learning experiences (Palloff & Pratt, 1999; Scardamalia & Bereiter, 1994). Though communities of practice often form naturally, instructional designers who want to form and foster communities of practice around a common theme to serve as a way to influence organizational or academic learning must understand the different configurations that community may embody and the way communities form and develop. Wenger et al. (2002) identified five stages of a community development cycle: (1) potential − the beginning phase of development when potential community members discover they share similar problems or share a passion for the same issue; (2) coalescing − events that foster community are planned and implemented, relationships are strengthened; (3)

maturing — community shifts from establishing value to developing focus, boundaries and producing new knowledge; (4) stewardship — this phase involves rejuvenation and designed change so that members are moving into new roles and positions in the community to avoid stagnation or disbandment; and (5) transformation — natural end to the community in which the community dies or changes so dramatically that is becomes a different community altogether. In similar fashion, Gongla and Rizzuto (2001) identified five stages describing the same life cycle of a community of practice. Designers wanting to form a community of practice should pay close attention to the Wenger et al. potential and coalescing stages or Gongla and Rizzuto's potential and building stages.

Designing community. Though groups may form sporadically around a topic that participants are passionate about, passion is not enough to effectively form and coalesce a community of practice. Potential participants in a community of practice must be willing to engage in mutual engagement with a negotiated activity, must see the community as a joint enterprise that demands ownership and accountability, and must view meaning making in the community as a shared repertoire (Wenger, 1998). During the potential and coalescing stage of community development it is critical that a strong core of leadership is developed and that community events provide opportunities for interaction for newly recruited members (Wenger, McDermott, & Snyder, 2002). Designing a community of practice requires a strong core group of members and a facilitator that is dedicated to the creation of the community. Depending on the group participation in a community of practice, teachers, group leaders, or others in a leadership role in a community should serve in a facilitative role to guide discussions, find consensus for goals, and help navigate the group through growth (Fischer, 1998; Palloff & Pratt, 1999; Wenger, 1998). Facilitators must prompt interaction and form dialogue opportunities for community participants to engage in peer interactions and expert-novice interactions so that there can be knowledge construction and community coalescence (Bielaczyc & Collins, 1999; Wenger, 1998). To illustrate how important a facilitator or core leadership team is to the creation and maintenance of a community of practice, Tarmizi and de Vreede (2005) identified thirty-three different facilitator tasks that are essential for sustaining communities of practice. During the earliest stages, the community of practice relies heavily on the core leadership to recruit members, set goals, plan activities, build trust, and establish norms, roles and scope of the community of practice (Gongla & Rizzuto, 2001; Tarmizi & de Vreede, 2005; Wenger et al.,

2002). To build a thriving community of practice it is important to understand the essential tasks and to implement them accordingly.

Maintaining community. Maintaining a community of practice is a daunting task. As has been discussed, a strong facilitator or core group in a community of practice is critical to a community's success (Wenger, 1998; Wenger et al., 2002). Though a community of practice may exist with little or no formal support, deliberately formed communities of practice must have a comprehensive plan of support for sustainability. While Wenger et al. (2002) refer to the maintenance phases as maturing and stewardship, Gongla and Rizzuto (2001) call them the active and engaged. Regardless of the title of the stage that a designer may choose, the tasks remain the same. In order to maintain or sustain an active community of practice there must a concerted effort to keep participants engaged through collaboration, problem solving, knowledge building and sharing, feedback, and the opportunity to contribute to the larger organization by adding newly created knowledge to an existing knowledge base (Gongla & Rizzuto, 2001; Wenger, McDermott, & Snyder, 2002).

It is imperative to have guidelines to design and develop thriving communities. Gherardi, Nicolini, and Odella (1998), when researching a community of construction site managers, found that organizational learning through a community of practice is bound by a naturally occurring situated curriculum. As a result of the situated nature of any organizational community of practice, researchers or instructors wanting to create learning opportunities within a community must first develop an understanding of the natural workflow and norms of a given community (Gherardi, Nicolini, & Odella, 1998). Additionally, care must be taken when promoting or fostering situated learning in a community of practice to ensure that the natural processes of the community are not interrupted (Gherardi, Nicolini, & Odella, 1998). In a case study of a naturally occurring community of practice that was co-opted by organizational management, Thompson, (2005) found that organizational management can only nurture the development and sustainment of a community of practice. While organizational support is imperative for communities to thrive, too much structure may stifle or bring about the end of a community.

Organizational communities of practice are hard to form and even harder to maintain. Probst and Borzillo (2008) conducted a qualitative study of 57 communities of practice from major European and US companies. From their study they constructed ten governance mechanisms to steer communities of practice, and five practices to avoid in corporate settings.

Using best practices as observed from 45 successful communities, Probst and Borzillo (2008) suggest that organizations wishing to form and sustain communities of practice (1) create and abide by clear and strategic objectives; (2) divide objectives into subtopics to promote clarity among all stakeholders; (3) form governance committee consisting of community of practice leaders and organization sponsors to provide clear communication channels; (4) include opportunities for evaluation; (5) regularly introduce community to outside expertise to enhance knowledge creation; (6) promote access to inter and intra-organizational networks to increase membership and active participation; (7) select and train community of practice leaders that are drivers and promoters of the community; (8) provide mechanism for showing measureable performance for the sponsor; (9) overcome hierarchy related pressures by promoting trust and autonomy; and (10) illustrate results for members through knowledge-sharing or storytelling repositories. Lessons learned from the twelve communities of practice that failed provide common practices to avoid. Probst and Borzillo (2008) found five commonalities present in those communities that failed: (1) a lack of a core group of participants; (2) low levels of interaction amongst members; (3) unhealthy competition for resources; (4) lack of identification with the community; and (5) practices that are not described in a concrete manner. Organizations wishing to develop and sustain communities of practice can learn much from such studies.

Though a community of practice may experience some natural lull in activity, it is important for community leaders to reignite the spark for members by providing opportunities for conflict and controversy. Wenger et al. (2002) suggests energizing participants by inviting controversial speakers, engaging with other communities of practice, starting a dialogue through debate. No matter what the focus of the community of practice building trust, maintaining membership, engaging participation through continual activity, and fostering ownership are key components for sustainability. Continuous participation provides a community of practice the ability to create the relationships that help develop the sense of trust and identity that defines the community (Hildreth, Kimble, & Wright 2000). Designed opportunities for such tasks may help to sustain a community of practice.

In order to maintain membership and drive participation, communities of practice must also develop a plan for innovation or knowledge creation. West (2009) insists that communities of practice must do more than just provide members competence or meaning-making. Instead communities of practice should become communities of innovation by shifting focus from just

maintaining the status quo to creating and fostering an innovative flow (West, 2009). Sawyer (2007) identified ten key conditions for encouraging innovation in a group: (1) a shared goal; (2) close or deep listening to each other; (3) complete concentration; (4) being in control of the group's actions and environment; (5) blending of individual egos; (6) equal participation; (7) members' familiarity with each other; (8) constant communication; (9) elaboration of each others' ideas; and (10) frequent failure (and learning from failure). Using the latter conditions, designers can create guidelines for maintaining innovative practices in a community of practice.

A community of practice must grow to survive. As mentioned in an earlier discussion about trajectories in a community of practice, there must be participant movement from the periphery to the core group as experts in the core group transition out of a community of practice (Wenger, 1998). New members must be recruited as participant roles change. Member recruitment is a significant task for not only maintaining, but also growing a community of practice. Participants who participate on the peripheral edges of the community are usually engaged in legitimate participation (Gray, 2004). While it is appropriate for participants who are most comfortable in this role to stay on the periphery, it is helpful to the maintenance of the community for participants to actively engage in the community and to assume roles left vacant as "seasoned participants" transition out.

Designing Virtual Communities

In recent years, online virtual communities, such as the online groups, listserv service, and bulletin board systems, have developed as a new way for people who have the same interests or expertise to share experience or knowledge with each other (Wang & Lai, 2006). Moving a community of practice to a virtual environment or trying to replicate the knowledge sharing that occur in naturally occurring virtual communities can be a daunting task. Designing effective electronically mediated environments that support communities of practice has been a major focus of researchers in the learning sciences as well as researchers examining computer supported collaborative learning or computer mediated communication (Sawyer, 2006). This section will explore how research has informed the development of best practices for designing, implementing, evaluating communities of practice in virtual environments.

Instructional Design for Virtual Community

There are many models and definitions for instructional design. After a brief review of literature defining instructional design, Richey, Klein, & Tracey (2011) provided a synthesized definition. Instructional design is the systematic process that includes specific tasks "for the development, evaluation, and maintenance of situations, which facilitate learning and performance" (Richey et al., 2011, p. 3). As such, designing a virtual community of practice must include learning opportunities that lead to knowledge creation or skill acquisition. It is easy to think of this process in terms of the ADDIE model. There must be an analysis of goals, tools and audience, design that takes into account objectives and assessment, development of activities and tool selection, implementation of the virtual community, and evaluation of the process at all stages (Schwier, Campbell & Kenny, 2007).

With the growing use of computers, mobile devices, and other communicative technologies, the need to design computer-aided communication has intensified. When designing a virtual community of practice, it is important to consider the environment and tools that support interactivity in that environment. Computer supported collaborative learning and learning sciences research can help designers as they build or select technology to mediate a virtual community. Computer supported collaborative learning (CSCL) environments are designed to help facilitate authentic learning (Stahl, 2006). Although CSCL researchers and learning scientists adhere to many of the same research principles they do seem to be at odds when it comes to the value of adult learning research. "Researchers in CSCL investigate how designed media influence learning and collaborative work, including the forms that unfold in academic, workplace, entertainment, and community settings" (Nathan & Alibali, 2010, p. 334).

Workplace collaborative environments can be used to enhance adult learning informally through daily use, but computer supported collaborative learning systems can also be used for formal teaching and learning in the workplace and in university classes, as well (Stahl, 2006). Providing opportunities for interaction through innovation and knowledge construction leads to a research community where individual contributions are combined with others to develop a shared knowledge base (Hong & Sullivan, 2009). Designing or selecting electronic mediums for housing a virtual community of practice should make affordances to allow participation in accordance with each metaphor by implementing a new fragmented metaphor (Paavola,

Lipponen, & Hakkarainen, 2004). One can easily apply computer supported collaborative learning research to adult learning as it happens in formal and informal virtual communities.

Designed mediums that foster collaboration, knowledge sharing, and conversation among learners is critical for learning (Sawyer, 2006). Computer supported collaborative learning researchers operate under the assumption that there are three metaphors for learning: acquisition metaphor, participation metaphor, and knowledge-creation metaphor (Lipponen, Hakkarainen, & Paavola, 2004). Acquisition metaphor places the focus of learning on the individual, the participation metaphor emphasizes the individual and their environment and that knowledge cannot be separated from situations, and the goal of the knowledge creation metaphor is to advance knowledge by creating it and adding to the value of conceptual artifacts (Lipponen et al., 2004). Providing opportunities for interaction through innovation and knowledge construction leads to a research community where individual contributions are combined with others to develop a shared knowledge base (Hong & Sullivan, 2009). Designing or selecting electronic mediums for housing a virtual community of practice should make affordances to allow participation in accordance with each metaphor by implementing a new fragmented metaphor (Paavola et al., 2004). While researching building computer aided learning environments for K-12 schools, Scardamalia and Bereiter (1994) found that technology must provide the infrastructure for collaboration instead of being the catalyst. Opportunities for interaction must be designed to support knowledge-building communities by: (1) providing a community database at the center of discourse; (2) emphasizing writing and intentionality as mechanisms for discourse; (3) leveraging distributed model of computing; and (4) encouraging multiple modes of communication (Scardamalia & Bereiter, 1994). Dube, Bourhis, and Jacob (2006) identify four key domains that must be taken into account when creating any virtual community of practice. Design should be different depending on (1) demographics-orientation of the group, maturity level of the group, and lifespan of the group; (2) organizational context-leadership, support, institutionalization, boundaries, and creation process; (3) membership characteristics- geographic distribution, heterogeneous makeup of the group, member selection, enrollment, size, and stability; and (4) technological environment-usability of technology, degree of reliance, and variety of communication tools (Dube et al., 2006). It is clear that such considerations would guide the design process for virtual communities. Using such models can help designers design, maintain, and assess virtual communities.

Virtual Knowledge Management

Computer mediated communication or computer supported collaborative learning structures must provide a database to serve as a repository for co-constructed knowledge and allow all participants access to the community knowledge. In an ever-changing workplace, potential members of a virtual community of practice are bombarded with information and knowledge overload daily. Virtual community environments must be mindful of the knowledge overload that may happen when communicating or building knowledge in electronic environments (Hemp, 2009). Hiltz and Turoff (1985) found that the design and structure of online discussion systems must include facilities for users to control and structure online discussions to ensure interactions did not lead to knowledge overload. Even periphery participants benefit from a repository of knowledge by gaining access to the group's identity and its collective knowledge (Brown & Duguid, 2001).

Motivation to participate in knowledge sharing is an important consideration when designing virtual communities of practice. Participants who feel confident in their abilities and skills are more likely to participate in knowledge sharing in a community. Wang and Lai (2006) found a significant correlation between capability (expert knowledge) and motivation for sharing knowledge in virtual communities. When participants are given access to participate anonymously they are less likely to be motivated to participate in knowledge sharing than when they are identified (Wang & Lai, 2006; Wasko & Faraj 2005). This may be attributed to the positive correlation between concern for reputation and motivation to share knowledge (Wasko & Faraj, 2005). Knowledge sharing can also cause less participation in a virtual community. For some experts, sharing knowledge can mean giving up a sense of power that comes from holding onto that same knowledge (Carroll, Choo, Dunlap, Isenhour, Kerr, McLean, & Rossen, 2003; Gray, 2001). In this case, there must be a comparable incentive or reward for sharing knowledge. It is possible that enhanced reputation may be enough to entice participation and knowledge sharing (Wasko & Faraj, 2005). Other factors that may increase motivation to share knowledge are the desire to help others or altruism (Kankanhalli, Tan, & Wei, 2005; Wasko & Faraj, 2000) and a desire for a reciprocal relationship that lends help or other opportunities for knowledge sharing in the future (Bock, Zmud, Kim, & Lee, 2005). Ye, Chen, and Jin (2006) found significant correlations between self-efficacy and self-image and motivation for knowledge sharing.

Zhao and Bishop (2011) found that there must not only be a knowledge building component for an online community of practice, but also opportunities for interaction, and meaning making, as well. Wikis have been used effectively to house knowledge as it is created in a virtual community (Forte & Bruckman, 2006). Wikis allow users to collaboratively create knowledge while allowing participation on many levels. Experts develop content alongside novices through new content creation and editing, while peripheral participants gain knowledge through content immersion (Bryant, Forte, & Bruckman, 2005; Forte & Bruckman, 2006; Fuchs-Kittowski & Köhler, 2005). Wikis allow participants to build new knowledge, edit existing knowledge, and interact collaboratively.

There are limitations to building knowledge through a wiki. Since participants in a community of practice exist in varying roles and have different levels of expertise, participation in wikis can lead to wrong information or content being accepted as fact (Arnold, Ducate, Lomicka, & Lord, 2009). Additionally, structuring knowledge in a wiki may become cumbersome and lead to information overload or loss (Fuchs-Kittowski & Köhler, 2005). It is also possible that virtual communities of practice fail because there is discourse about practice, but no actual practice or use for the knowledge that is created (Hung & Nichani, 2002). Virtual communities are most successful when participants can create and share knowledge within actual practice.

When investigating Wikipedia as a virtual community of practice, Zhao and Bishop (2011) found the key to the success for Wikipedia was that the interface allows for actual practice through article creation and discourse-based interaction. For example, Wikipedia offers article creation that includes a comprehensive history alongside an asynchronous discussion board. Participants can create knowledge in a very specific practice and discuss the content in a meaningful way as it is edited and recreated. Understanding the importance of actual practice and knowledge creation can help designers either build or select appropriate tools for hosting virtual communities. Designed interactions are key to development of any community of practice (Wenger et al, 2002).

Virtual Community Through Interaction

Designing opportunities for participants of a community of practice to build communal knowledge must encourage interaction, collaboration, and cooperation. Interaction that is

mediated through technology has its own set of challenges. An important part of any learning community is the feeling of community that comes from interaction. In fact, as discussed throughout this literature review, there can be no community without interaction (Brown et al., 1989; Wenger, 1998). The idea of meeting learners where they meet and interact naturally is not a new concept. Educational leaders and researchers have understood this for many years. John Dewey (1916) wrote "A society which is mobile, which is full of channels for the distribution of a change occurring anywhere, must see to it that its members are educated to personal initiative and adaptability" (p. 102). Providing opportunities for participants to interact together in a mobile society today is much different from what it meant for the mobile society of Dewey's age, but the basic concept has implications for virtual community.

Not all participants of a community of practice see the need for group discussion or group knowledge building. Many peripheral participants may prefer to learn from others contributions, without contributing themselves. This can cause some to report frustration with group work, but the overall learning experience is enhanced by the development of shared knowledge development. Mu and Gnywali, (2003) found that reported frustration is often linked to poor design. Kirschner and colleagues suggest that any collaborative design must not only take into account the usability and utility of the instructional design of an online community, but must also contend with social, educational, and technological affordances (Kirschner, Strijbos, Kreijns, & Beers, 2004). Technology must be user-friendly and inviting, and there must be a well-defined purpose for the collaboration. For instance, when college students participating in group-work are provided descriptions of how the skills developed in cooperative teams will help them in future careers, they report a higher degree of satisfaction and a higher degree of perceived learning from the activity (Mu & Gnywali 2003). Instructor or moderator-student or interaction and student-student or peer-peer interaction is an important component for any interactive learning environment. Designing tasks for a community of practice that encourage interaction, collaboration, and cooperation in online environments can greatly enhance the educational and social experience for all.

Though the importance of interaction is hard to quantify, it is possible to readily determine the quality of online interactions. Research concerning how designed computer-aided interactions in online courses can enhance community may have implications for designing communities of practice in virtual environments. Walther (1992) completed a critical evaluation

of the theories and research on computer-mediated communication and found that long-range qualitative studies tend to be more useful for gauging interaction in the online course than one-shot, short-term quantitative studies. Over time, computer mediation should have very limited effect on relational communication (Walther, 1992).

Connectedness and social presence. Garrison and his colleagues (1999) suggested a model called the Community of Inquiry model. According to the model, for classes taught using computer mediated communication to be worthwhile, courses must allow for the interaction of three essential elements: social presence, cognitive presence, and teacher presence. For the purposes of the study, the researchers examined teacher presence, but indicated that facilitation of any online learning community requires a strong presence by a group leader, facilitator, or instructor (Garrison, Anderson, & Archer, 1999). In the Community of Inquiry model advocated by Garrison et al. (1999) and even more so since its acceptance, many researchers have sought to understand how important social presence and teacher presence are to student perceptions of learning. In a more recent review of the Community of Inquiry model introduced by Garrison et al. (1999), Garrison admits that research has proven that social presence alone will not impact learning (Garrison & Arbaugh, 2007). Though this may seem unrelated to building online communities of practice, from this research there is much learn about how to conduct further investigation for designing interactions in an online environment for hosting community of practice interactions.

Using the Community of Inquiry model, Rourke, Anderson, Garrison, and Archer (1999) created a tool to measure social presence in the asynchronous online classroom. Using the following twelve indicators of social presence researchers scoured through electronic discussion threads:

- expression of emotions;
- use of humor;
- self-disclosure;
- continuing a thread;
- quoting from others' messages;
- referring explicitly to others' messages;
- asking questions;
- complimenting, expressing appreciation;
- expressing agreement;
- vocatives;
- addresses or refers to the group using inclusive pronouns; and

- phatics, salutations

This measurement has merit and has been replicated in various online interaction studies. Using an adaption of this study, Swan (2002) found a significant relationship was found between perceived interaction with other students and students' satisfaction with their courses and perceived learning. Other studies have found that social presence is not important when teaching adults and that some learners do not wish to interact with peers (Yoon & Johnson, 2008). It is clear that those participants on the peripheral edges of the community would most certainly not find benefit from tools that enhance presence and community, but core members and those participants new to the community may find it impossible to interact without such community building efforts (Yoon & Johnson, 2008). Additionally, it is possible that student perceptions of learning may not predict real learning, but there are implications for comfort and motivation for participating in an online community.

Facilitation. Providing interaction opportunities to build learning communities provide an opportunity for participants to create shared knowledge. Palloff and Pratt (1999) recognize the importance of a facilitator or group leader for virtual communities. They recommend that group leaders or instructors act as guides who facilitate discussions in appropriate directions. As such, facilitators must help the group determine goal criteria, a means for evaluation of whether the goals have been met, and encourage a continuous process of peer and self-evaluation (Palloff & Pratt, 1999). For interaction in an online environment to be effective, participants must be provided clear instructions on expectations, skills necessary, and potential benefits (Colbeck, Campbell, & Bjorklund, 2000). Gray (2004), when researching a virtual community of coordinators of Alberta Community Adult Learning Councils, found that the role of moderator or facilitator was key to the community's success by sustaining the group "through the anticipated ebbs and flows of interactivity and to facilitate the learning that is a critical dimension of the experience" (p. 34). The role of the facilitator seems to be most important in helping to sustain a virtual community. Gray (2004) identified four key characteristics required for a moderator or facilitator of a community of practice in an electronic environment: (1) technical competence; (2) an understanding of community building or relationship building; (3) an orientation for learning; and (4) sufficient knowledge of the practice to demonstrate credibility. While this list of characteristics is not by any means exhaustive, it appears to be a great starting point for further research.

Interaction can be class based or used more broadly to include institutional interaction. No matter what the context of the community of practice, there must be significant effort to build trust among all participants. Wang and Chen (2009) discovered that higher order collaborative problem solving was only possible when trust was fostered through social interactions and conversation. Careful facilitation is required to balance social interactions with on task conversations (Wang & Chen, 2009). By studying the interactions of email, bulletin boards, and threaded discussions of online courses, Chih-Hsiung and McIsacc (2002) determined that incorporating concepts such as building trust online, providing "hand-holding" techniques, support, and promoting informal relationships can help make online learning environments more interactive and improve sense of community. Haythornthwaite, Kazmer, and Robins (2000) found when researching a community of practice in a distributed course that a virtual community must provide multiple means of communication and have constant monitoring and support for continued participation. Participants in the community of practice reported that they were more likely to feel a sense of community if they were given opportunities for social interactions alongside educational participation (Haythornthwaite et al., 2000).

Social media: Web 2.0, Facebook, and Twitter. Social media or Web 2.0 technologies may have implications for the development of communities of practice. Due to the specialized nature of most social media, there has been little research conducted. As discussed in earlier discussion, wikis are used effectively for housing and helping to construct community knowledge. Other Web 2.0 technologies like social bookmarking, Facebook, and Twitter may have implications for building communities and require further study. Social bookmarking sites allow participants to share web resources in an organized manner. Sites like Delicious (www.delicious.com), CiteULike (www.CiteUlike.com), and Mendeley (www.mendeley.com) offer participants the opportunity to share resources, work collaboratively, and create a repository for the larger group. Hammond, Hannay, Lund, and Scott (2005) insist that social bookmarking can enhance community through resource sharing and dialogue centered on those resources. Due to fairly recent acceptance of Facebook and Twitter as agents for housing learning communities, research is sparse. Early results indicate that both Facebook and Twitter may provide the social structures for building community, but lack infrastructure for knowledge creation and sharing (Aspden & Thorpe, 2009; Schroeder & Greenbowe, 2009). Additionally, there may be some complications caused from the blurring of lines between professional and

personal identities (Durkee, Brant, Nevin, Odell, Williams, Melomey, Roberts, Imalfdon, Perryman & Lopes, 2009). More research in the use of social media use for community of practice design is needed to understand its implications.

Blended Design

Providing social interactions in at least one face-to-face meeting can help foster the development of a virtual community. Hildreth et al. (2000) conducted a study of two internationally distributed communities of practice and found that the community of practice that engaged in a face-to-face meeting formed more quickly and developed more meaningful interactions that led to richer knowledge sharing. Haythornthwaite et al. (2000) found similar results when researching a community of practice in an online course, with students reporting that the single face-to-face meeting created a feeling of community in the course. Conrad (2002) investigating online courses, found that an initial face-to-face meeting helped students feel connected to other students in an online course. While beneficial, face-to-face interactions are not required for creating community (Palloff & Pratt, 1999; Wenger et al, 2002). Finding logical opportunities for synchronous meetings through technology may help community building and enhance other forms of interaction.

Synchronous tools. Not all hybrid or blended learning requires physical synchronous activity. With a variety of technologies, synchronous interactions can happen in a simulated environment. Virtual synchronous interactions can lead to a greater sense of community (McInnerney & Roberts, 2004). Using live chats for virtual communication and learning has had mixed results. While there is some benefit, such as personal involvement, increased interaction in social conversation, motivation for participation, and varied meaning making when utilizing a live chat, there is also a greater level of distraction and diminished knowledge acquisition (Cox, Carr, & Hall, 2004; Kear, 2011; Kirkpatrick, 2005). Additionally, synchronous discussion using a live chat can easily disintegrate into surface level comments due to the rapid response rate required in a live chat (Palloff & Pratt, 1999). Meaningful discussion is possible in a live chat, but may become overwhelming for participants. The use of synchronous chats may have further implications for helping participants feel connected to the community, but may diminish educational value for discussions.

Synchronous meeting spaces such as Go To Meeting, Elluminate, Centra, or Adobe Connect allow for real time communication using voice, video, and text chat. Synchronous meeting places provide opportunities for interaction that are meant to make online communities more collaborative (Laurillard, 2009). There are many implications for using synchronous conferencing tools for hosting community of practice discussions and knowledge creation. Most synchronous conferencing tools allow users to share documents, computer screens, and other artifacts live while holding live voice or video commentary. Additionally, such systems are enhanced with recording capabilities for participants to review after the meeting has concluded. Kear (2011) concluded that synchronous environments only work when effectively facilitated. The facilitator plays a key role for setting up the session, fostering conversation (especially turn-taking), tool training, and artifact creation (Kear, 2011). It is important to foster collaborations that lead to full participation. Otherwise, interactions are surface level at best by remaining facilitator-centered or teacher-centered (Laurillard, 2009). There are many implications for synchronous learning environments to enhance virtual community. The area of virtual synchronous community building is relatively new and has implications for future research.

Evaluating a Virtual Community

Since communities of practice are sometimes viewed as social gatherings or groups, rather than valuable resources within organizations, designed communities often fail because they are not viewed as contributing educational or workplace knowledge of the organization (Wenger, 2010). Even though a community of practice is hard to measure, it is important to evaluate the community to prove organizational value and worth. Evaluating a community of practice requires a systematic plan for assessment that is specific to the community being evaluated. Evaluation must occur through all phases of community design from conception through implementation and continuously through maintenance (Schwier et al., 2007). As mentioned in earlier discussions, there are many types of communities of practice. There is not a "one size fits all" approach to evaluating communities of practice (Ke & Hoadley, 2009). Finding an assessment that adequately measures most communities of practice may be impossible. Verburg and Andriessen (2006) developed an assessment instrument called the community assessment toolkit (CAT). The CAT consists of a two-part assessment including a key informant interview about the general structure of the company, the knowledge management

activities and the role of knowledge communities using an open questionnaire, and the administration of a survey for all community participants. The CAT as published was only pilot tested and there has been no further research validating the CAT. While the CAT is a great starting point, more evaluation strategies may be employed. Similar studies for evaluating community of practice use measures that mimic those in the CAT and observation for determining participants sense of community and inherent worth of the community for individuals and the larger community as well. For example, Alem and Kravis (2005) evaluated the success of a virtual community of practice based on active membership, lurkers, number of messages per participant, on topic discussions, level of trust and satisfaction, and average length of membership. Other researchers focus on knowledge creation and sharing. Derry and DuRussel (1999) advocated evaluating the value of the community of practice by the quality and quantity of knowledge that is shared. Researchers also advocate evaluations that focus on the technology. Teo, Chan, Wei, and Zhang (2003) suggested evaluating the usefulness and usability of the medium housing the community of practice. It is clear that any evaluation should use a variety of measures to triangulate results before making any judgments regarding the worth of a community of practice.

Community of Practice for Professional Development

Communities are found in situ in many organizations. Bruckman (2006) offered an example of soldiers collaborating in a computer supported collaborative environment as an example of a community of practice that provides life-saving information. While most examples provided here are not nearly as dramatic, it is important to think of information sharing as critical to organizational learning. Organizations consist of many roles and varying levels of participants. As new people enter any organization they must learn how navigate the many layers of the organization by relying on more competent peers. Learning is fostered when access to and membership within a given community is not hindered (Brown & Duguid, 1991). It is only logical that communities of practice have been the focus of organizational professional development and training program research.

Long before Lave and Wenger introduced the concept of communities of practice Malcolm Knowles understood the important role that community plays in the learning process for adults. He posited that knowledge and attitudes were formed when adults collaborated in

study groups (Knowles, 1950). More recently, Knowles, Holton, and Swanson (2005) insist that adult learners are more responsive to learning when it is grounded in authentic tasks. Communities of practice provide an opportunity for participants to create shared knowledge and often are applicable in real world situations. Formal descriptions of work such as training manuals or job descriptions are not enough to describe what really happens on the job. Too often the job description or training documentation does not fully address the process in terms of the social aspects required to solve complex problems or dilemmas as they arise (Russ-Eft & Preskill, 2009). Narration or storytelling helps workers diagnose and solve problems as they arise and helps to accumulate a shared body of knowledge that training manuals do not address (Russ-Eft & Preskill, 2009; Wenger, 1998). There are many benefits for organizations to embrace communities of practice as a way to enhance professional development, including performance improvement, a knowledgeable workforce, and higher customer satisfaction (Land, Draper, Ma, Hsieh, Smith, & Jordan, 2009). Trading stories with coworkers allows for problem solving within a given situation. Through this social construction of knowledge a community of practice is formed. As each member of the group shares stories and work together to create solutions, members increase their participation and take on different roles as their shared experience grows (Wenger, McDermont, & Snyder, 2002). Learning is achieved by providing access to and membership of the target community of practice, not by training manuals alone (Brown & Duguid, 1991). Using communities of practice for workplace learning may impact the way professional development and on-the-job training is designed.

Communities of practice are found throughout the corporate world. Companies like Caterpillar, IBM, Xerox, Ford, and Chevron all report the formation of communities of practice for knowledge sharing and authentic learning (Ellis, 2001). Even with the proliferation of communities of practice in so many large companies there is still much that is unknown about the development and sustainment of communities of practice for professional development. For example, Boud and Middleton (2003) had difficulty identifying informal learning characteristics for communities of practice in their workplace. When examining the learning of communities in their organization, it was clear that communities of practice could not provide all forms of professional development (Boud & Middleton, 2003). Likewise, Fuller, Hodkinson, Hodkinson, and Unwin (2005) found through case study research that community of practice theory cannot account for the important role that teaching may play in knowledge acquisition. When

completing a review of community of practice literature for a comprehensive empirical study Ardichvili, Page, and Wentling (2002) found that even though virtual communities of practice are found "in business organizations around the world, very little is known about factors leading to their success or failure" (p. 95). The review of literature presented here reflects the scarcity of research on communities of practice for professional development.

When researching communities of practice at IBM, Global, Gongla, and Rizzuto (2001) found that with organizational support, communities of practice form and exist in various phases of interaction. No matter the stage or phase of development, participants in a community of practice must feel safe when sharing knowledge, interacting with peers, and communicating with leaders. For example, when researching a community of practice in a pharmaceutical sales company, Hayes and Walsham (2001) found participation in the community was highest when participants were given the opportunity to interact in private areas they termed "safe enclaves" (p. 267). Watland, Hallenbeck, and Kreese (2008) conducted a qualitative study on the development of a community of practice for police officers that involved knowledge sharing over food. They found that 84% of participants were comfortable sharing knowledge and that community bonds were strengthened by the opportunity to interact over food (Watland et al., 2008).

Since there are political implications and different power structure hierarchies evident in organizational communities of practice, they are difficult to create and sustain (Wenger, 1998). A review of organizational learning and community of practice literature for the workplace, several models for organizational communities of practice were discovered. During a review of organizational communities of practice research, Sharratt and Usoro (2003) found that participants in a institutionally sponsored community of practice are more likely to participate when the (1) information systems are easy to use and useful; (2) the community is perceived as credible, honest, reliable, and competent, and (3) there is opportunity for recognition, such as career advancement or reputation building. When examining a community of practice in a public defender's office, Hara and Schwen (2006) identified six characteristics for scaffolding organizational learning through a community of practice. Attributes for scaffolding include a group of practitioners with a common practice, shared meaning, informal social networks, a supportive culture, engagement in knowledge building, and individual recognition or the development of professional identities (Hara & Schwen, 2006).

Ardichvili et al., (2002) conducted a case study of three virtual communities of practice in various states of maturity at Caterpillar to determine how communities of practice share knowledge. One community was mature, lively, and established with a large membership. The other two communities were struggling to maintain with a small membership and minimal participation. From their investigation Ardichvili et al. (2002) developed guidelines of four essential elements for knowledge sharing in a community of practice. First, a set of institutional norms that promote trust and communicate the importance of knowledge sharing as a moral obligation is important to create a culture of sharing and community that demonstrates institutional support (Ardichvili et al., 2002). Without strong institutional or organizational support communities of practice tend to fade away. Secondly, synchronous meetings are important for communities of practice. Acknowledging that some communities of practice may never move fully into virtual environments will allow for the selection of appropriate virtual tools for a given community of practice even when the community exists in a blended way (Ardichvili et al., 2002). The third element is clearly communicated standards about what constitutes knowledge sharing and what specific information violates security policy or other rules (Ardichvili et al., 2002). Participants in a community of practice in the workplace may have anxieties about the nature and security of any knowledge that is shared with the community. Last, and most importantly, there must be a strong group of volunteers who act as experts or leaders for a given community of practice. (Ardichvili et al., 2002; Gray, 2004; Wenger et al., 2002). After conducting an extensive review of community of practice leadership studies Fallah (2011) surmised "The key issue is to balance the control - the authority and power - with enough influence, and to promote trust, motivation, accountability, and participation" (p. 367). Communities that rely on one or two experts, refuse to distribute leadership amongst its members, or are co-opted by managers that are appointed will not survive.

Community for faculty/teacher professional development. Since the ultimate goal of the literature reviewed here is to provide a foundation for researching a community of practice for university faculty who teach online courses, it is important to explore literature that addresses communities of practice aligned with professional development for educators. Teachers in K-12 and university faculty face pressures that may be mediated through membership in a community of practice. Research indicates that participating in a teaching or faculty community of practice can have a direct impact on professional growth through various forms of informal collegial

interactions (Barab & Duffy, 2000). Communities of practice for educators can take many forms. Barab, Makinster, Moore, and Cunningham (2001) describe real problem solving and reflection on the practice as critical components for a teacher community of practice. Authentic problems and community knowledge sharing are keys for any professional community of practice. Since learning communities are grounded in social learning theory they are also often employed with K-12 and higher education faculty to provide teaching faculty a space to share resources and strategies. Fishman and Davis (2006) examined major theoretical and methodological contributions that the learning sciences offer to research on teacher learning especially through the creation of robust communities of practice. Yandell and Turvey (2007) question the ability of communities of practice to address the needs of new teachers entering the workplace for the first time, noting that new teachers are thrust into a position of master even though they are still novices. Peripheral participation in schools may be more complicated than other professional communities. Alternatively, in a mixed methods study of new and experienced middle school teachers participating in a community of practice, Vavasseur and MacGregor (2008) found that teachers participating in a community of practice reported higher self-efficacy related to teaching practices than teachers not involved in a community of practice. Additionally, teachers given the chance to examine their teaching practices with others find professional fulfillment. In a study of teachers collaborating in a community of practice with researchers to improve teaching practices, Triggs and John (2004) found that teachers reported a reduction of a sense of isolation, increased contact with others who share your professional interests and concerns, meaningful interactions that served as a basis for knowledge transformation, support in analyzing why things go wrong and how they might improve.

Developing faculty communities of practice in higher education settings has many implications for faculty professional development. Participants in faculty communities find collaboration across academic units, new ideas, and lasting friendships. Cox (2004) describes two different forms of faculty communities of practice as organizational professional development at Miami University. One group is cohort-based and the other is curriculum specific. Depending on the specific needs of individual faculty, a community of practice can be found for most any educational or professional need. Anecdotal evidence suggests that the communities of practice at Miami University have impact on student learning. Faculty, who are

members of a community of practice at Miami University have higher student perceptions of learning scores (Cox, 2004).

Faculty communities of practice do not need to be large to be effective. Trowler and Knight (2000) conducted a case study of new faculty entering academia, and found that opportunities for shadowing, work sharing, and socialization were critical for individual faculty member success. In a study of a group of women scholars navigating the academic tenure process through peer mentorship, Driscoll, Parkes, Tilley-Lubbs, Brill, and Pitts Bannister (2009) reported that through collaboration and mentoring, individuals found independence and clear sense of direction for scholarship. Wildman, Hable, Preston, and Magliaro (2000) explored a faculty collaboration group at Virginia Tech and reported greater problem solving through a learning community. Faculty members who become involved and active participants in learning communities report positive results. For many faculty who already feel isolated by the culture of higher education, navigating the existing communities of practices of the institution may mean the difference between tenure and the end of a career. When conducting a study of communities of practice within a research university. Jawitz (2007) found that moving from peripheral participation within a departmental community of practice was key to acceptance in the research community and the larger academic community, as well. Cox (2004) identified seven long-term goals for faculty communities of practice: (1) build university-wide community through teaching and learning; (2) increase faculty interesting undergraduate teaching and learning; (3) nourish the scholarship of teaching and its supplication to student learning; (4) broaden the evaluation of teaching and the assessment of learning; (5) increase faculty collaboration across disciplines; (6) encourage reflection about general education and coherence on learning across disciplines, and (7) create an awareness of the complexity of teaching and learning. Developing a community of practice as a means of organizational professional development may have implications for improving faculty teaching practices and organizational goals as well.

Disrupting Community: Problems and Criticism

Communities of practice are not without criticism. There are many things to consider when designing, growing, and maintaining a community of practice. For instance, Gongla and Rizzuto (2004) assert that communities of practice can disappear or fade in nonexistence, especially when there is formal inquiry within the larger organization that houses the community

of practice. It is important to understand the various roles of the participants of community of practice as well as the norms and rules for the particular community so as not to hinder the natural flow of knowledge creation. Kimble and Hildreth (2004) examined several case studies that looked at communities of practice in various organizations in Europe. They concluded that due to the naturally self-directed and self-managed nature of communities of practice true benefits may be uncertain (Kimble & Hildreth, 2004). For example, there is a constant threat of groupthink for any community of practice. Just because a group comes to a consensus does not mean that constructed meaning is the correct meaning or the appropriate path forward (Janis, 1972; Lindkvist, 2005; Palloff & Pratt, 1999).

When communities of practice are cultivated and designed there are additional complexities to consider. Continuing in the tradition of Vygotsky (1978) educational researchers have examined the importance of cultural context. Communities often consist of diverse populations with a variety of traditions, languages, and symbols. Cross-cultural interaction can lead to problems and great care must be taken to ensure interactions are culturally sensitive for learning to be effective for all participants (McLoughlin, 2001). Sensitivity to all members of the community is hard to accomplish, but necessary. Due to cultural differences and misconceptions, a cultural needs assessment should be conducted prior to developing a distributed community of practice (Ardichvili, Maurer, Li, Wentling, & Stuedemann, 2006).

The desire to provide a formal structure can inadvertently create a culture built around deadlines, milestones, and rigid structures that hinders meaning making for the community (Lindkvist, 2005; Wenger et al., 2002). Wenger et al. (2002) identifies thirteen internal disorders that may affect the development and continuation of communities of practice: (1) narcissism-the community may become self-absorbed pursuing their own agenda without any regard to outside interests; (2) marginality- communities outside the mainstream have no decision-making power within an organization and often our made up of participants who share discontent; (3) factionalism- communities can be torn apart internally by members fighting for their own personal interests or ideas; (4) cliques- communities focus on relationships among a core membership while minimizing efforts to recruit new members, causing stagnation; (5) egalitarianism- similar to groupthink, a community can constrain creativity, new ideas are viewed as treasonous, rather than explored; (6) dependence- community is reliant on the charisma or leadership of one person or small group of people; (7) stratification- power or

decision making for the community concentrated in a small core group of experts, leading to lack of diversity or distinct classes of participants; (8) disconnectedness- participants in a community participate superficially, there is no personal connection to the group or its central ideals; (9) localism- a community defined by its geographical, departmental, or other boundaries; (10) documentism- the focus of the community becomes documentation rather than knowledge sharing and construction; (11) amnesia- there is no documentation or knowledge management, instead members focus on social discussions; (12) dogmatism-members refuse to deviate from established canons and methods, and (13) mediocrity- communities fall into a routine that accepts the status quo rather than forge new ideas or innovations. Threats to a thriving community must be considered when designing and maintaining any community of practice.

Need for Community of Practice Model for Faculty Professional Development

There is confusion as to what constitutes professional development. Professional development can be defined as almost any way that working professionals are "supported in efforts to increase their capabilities and competencies including courses, mentoring, workshops with experts, discussions with peers, and (in some cases) onsite observation, etc" (Hara & Kling, 2006, p. 849). Recent statistics reveal that delivering course content to students is of continuing interest to university faculty. Despite faculty interest in online course delivery, professional support and development opportunities provided by higher education often fall short of faculty expectations (Association of Public and Land-grant Universities-Sloan National Commission on Online Learning, 2009). While nearly one-third of faculty currently teach online and faculty engagement in online learning is growing, faculty consistently express dissatisfaction with the support services provided by public universities (Association of Pubic and Land-grant Universities-Sloan National Commission on Online Learning, 2009). Faculty who teach at a distance may care deeply about teaching, yet still feel isolated and disconnected from like-minded colleagues (Eib & Miller, 2006). Smith and Smith (1993) found common concerns for teaching staff at colleges and universities included a sense of isolation, lack of community, and lack of belonging. To support faculty participation in distance education, efforts should be directed toward providing access to appropriate technology, on-site support units or experts and assistance in course design and technical support (Tabata & Johnsrud, 2008). Finding ways to meet the professional development needs of faculty who have to navigate the tenure process of

research, institution involvement, and teaching responsibilities offers unique challenges (Cox, 2004). Virtual communities of practice may help improve online teaching practices while helping faculty feel more supported. A recent study by the American Association for Higher Education (Rice, Sorcinelli, & Austin, 2000) as reported by Vaughan (2004) suggests that faculty

> want to pursue their work in communities where collaboration is respected and encouraged, where friendships develop between colleagues within and across departments, and where there is time and opportunity for interaction and talk about ideas, one's work, and the institution (p. 101).

Any external strain on a faculty member's time may be met with resistance. Understanding that faculty have limited time, Vaughan and Garrison, (2004) suggest faculty professional development be offered through a blended approach with faculty interacting with content and each other in both face-to-face and virtual meetings. Sherer, Shea, and Kristensen (2003) found that providing a virtual space for a faculty community provided participants the ability to network with experts, search a library of knowledge created by members, explore best practices, and participate in the community without the constraints of time. As mentioned earlier in this review, any virtual community of practice must incorporate technology that is easy to navigate and must not bombard users with information overload (Hemp, 2009; Wang & Lai, 2006). This is especially true for faculty already overwhelmed by the academic tenure process (Trowler & Knight, 2000). Designing a virtual community of practice for faculty professional development for faculty teaching a distance must incorporate time-saving measures.

Though there is a scarcity of research on virtual communities of practice for university faculty professional development, the research available encourages further study. Waddock and Walsh (1999) called for further study of professional training initiatives for faculty that involve building a community that integrates theory, research, and practice across multiple disciplines to solve social problems. Brooks (2010) asserted that "researching the enactment of community online will bring about enhanced understandings of what it means to be a faculty member in contemporary times" (p. 267). Eib and Miller (2006), while describing a blended, but mostly face-to-face faculty community of practice, encouraged the exploration of a faculty community of practice tailored especially for distance learning environments. Guidelines for building an online community of practice based on the existing research may help fill the gap in the literature and inform higher education organizational and professional development practices

Summary

Faculty involved in online teaching report feelings of isolation and dissatisfaction with development and support opportunities (Association of Pubic and Land-grant Universities-Sloan National Commission on Online Learning, 2009). Virtual communities of practice designed to offer support and relationship-building opportunities for faculty may provide a means for professional development and support. Building and maintaining a community of practice is not easy. Likewise designing a virtual community of practice for faculty professional development will present unique challenges. This developmental study will use the three pronged model for creating and maintaining a community of practice presented by Wenger et al., (2002), empirical studies from communities of practice in workplace settings (Ardichvili et al., 2002; Gongla & Rizzuto, 2001; Probst & Borzillo, 2008), and CSCL research for designing virtual communities (Lipponen et al., 2004; Sawyer, 2006), to develop and evaluate a comprehensive set of guidelines for designing a virtual community of practice for faculty professional development. The guidelines will inform the practices of faculty professional development professionals for creating a virtual community of practice. Specifically the study will seek to describe the development of a community using an instructional design model. There must be a concerted, systematic effort that provides guidance for design and development (Wenger et al., 2002). Developing an understanding of the type of community and potential membership characteristics is essential to building a successful community of practice (Palloff & Pratt, 1999; Wenger et al., 2002). Virtual communities of practice must offer relevance, usable interfaces, knowledge management structures, opportunities for meaningful interaction, and a strong core of participants dedicated to supporting and facilitating community (Lipponen et al., 2004; Sawyer, 2006; Scardamalia & Bereiter, 1994). This study seeks to fill a gap in the literature for building a virtual community of practice for faculty involved in distance teaching and learning efforts at large research institutions.

CHAPTER 3: RESEARCH METHODOLOGY

Introduction

This section describes the development and evaluation process used in the creation of a set of guidelines for designing and maintaining a virtual community of practice for online teaching faculty at large research institutions. The purpose of this study was to develop a set of guidelines based on a comprehensive review of literature that can easily be implemented by faculty development professionals.

Study Design

Developmental Research

Given the nature of forming a set of guidelines for a virtual community of practice for faculty teaching online courses at large research institutions, developmental research appears to be the most appropriate research methodology. Developmental research is defined as the "systematic study of design, development, and evaluation processes with the aim of establishing an empirical basis for the creation of instructional and non-instructional products, tools, with new or enhanced models that govern their development" (Richey & Klein, 2007 p. 1). Developmental research is an empirical research methodology to support instructional design problem solving processes (Ross, Morrison, Hannafin, Young, van der Akker, Wilmad, Richey, & Klein, 2007). As such, studies are generally formed from actual workplace settings, new technology, or questions prompted by literature (Ross et al., 2007). Developmental research studies take many forms including quantitative, qualitative, and mixed methods approaches. Richey and Klein (2007) insist that while developmental research can focus on only one phase of instructional design, frequently the entire process is documented and has proven that instructional design processes can be used to develop and inform informal education. Richey, Klein, and Nelson (2004) identify two types of developmental research. Developmental research can be categorized as research that studies the process and impact of specific design and development projects or as research that studies the design and development process as a whole or of particular components (Ross et al., 2007). In either case, there is a distinction made between whether the study is doing design and development or studying the processes. While Type 1 developmental research emphasizes specific product or program design, development,

and evaluation, Type 2 research is the study of design, development, or evaluation processes, tools, or models (Richey et al., 2004).

Type 1 developmental research often involves the development of an instructional product or tool using instructional design processes, specific project phases or the development or study of a tool used by instructional designers (Richey & Klein, 2007). Using a variety of methods, Type 1 researchers are concerned with describing, analyzing, and evaluating instructional design processes used in a particular situation. Type 2 developmental research studies are more concerned with model development, validation, or use. Model researchers focus on specific instructional design models and processes themselves, rather than demonstration (Ross et al., 2007). Though Richey et al. (2004) categorized developmental research as Type 1 or Type 2, more recently Richey and Klein (2007) refer to the different types of developmental research as product and tool research or model research. Depending on the type of developmental research, and the focus of the project, conclusions may be generalizable or contextual. Product and tool research (Type 1), due to the authentic setting in which it occurs, produces conclusions that are context specific and model research (Type 2) is not project specific, which allows for more generalizable conclusions (Richey et al., 2004). This form of research is also called formative research since it involves researching the formation of an instructional product through all phases of instructional design (Ross et al., 2007). This is especially true for model development or Type 2 developmental research (Richey & Klein, 2007; Ross et al., 2007). Based on the focus of this study of using instructional design for the formation of a framework for building a virtual community, a model (Type 2) developmental research methodology seemed most appropriate. Using development research by Weston et al. (1995) as described by Richey and Klein (2007) as a guide, this study is based on a comprehensive review of current literature, guidelines design, and an expert review.

Using a Type 2 developmental research approach, this study was executed over three phases: (a) Phase One: Guideline design and development, (b) Phase Two: Formative evaluation, and (c) Phase Three: Revision process. The first phase consisted of an analysis of current literature and the synthesis of the literature through guidelines development. Commonly cited articles and texts for community of practice design and development served as the content and foundation for guidelines creation (Richey & Klein, 2007; Weston et al., 1995). The second phase focused on the evaluation of the guidelines by three expert reviewers. The final phase

includes an analysis of the findings from the formative evaluation. Findings from the expert review provided validation of guideline design.

Phase One: Design and Development

Phase One began with a review of the literature on the theoretical and practical considerations for implementing a virtual community of practice. Drawing from a comprehensive literature review, guidelines for future implementation of a virtual community of practice for faculty who teach at a distance were designed to assist faculty development professionals and instructional designers with forming virtual communities of practice at their respective institutions.

Research Design

Developmental research is always applied research and related to instructional design (Ross et al., 2007). There are many models and definitions for instructional design. Richey et al. provided a synthesized definition. Instructional design is the systematic process that includes specific tasks "for the development, evaluation, and maintenance of situations, which facilitate learning and performance" (Richey et al., 2011, p. 3). It is important to identify a model for instructional design and use it as a guide when undertaking any instructional design project (Gustafson & Branch, 2002). Regardless of the model there must be an analysis of goals, tools and audience, design that takes into account objectives and assessment, development of activities and tool selection, implementation of the virtual community, and evaluation of the process at all stages (Wenger, Trayner, & de Laat, 2011). Richey and Klein (2007) insist that while model development research can focus on only one phase of instructional design, frequently the entire process is documented and has proven that instructional design processes can be used to develop informal education. Weston et al. (1995), as described by Richey and Klein (2007), used only three phases in an instructional design model: analysis, design, and evaluation. Using a Type 2 developmental research model based on the design employed by Weston et al., it was possible to inform the practice of instructional design processes involved in creating a virtual community for university faculty through analysis (literature review), design (guidelines design), and evaluation (expert review).

Richey and Klein (2009) identified four areas that cause concern when conducting developmental research and provided suggestions for addressing those concerns. Establishing validity, controlling for casual inferences, understanding the effects of context for generalization and interpretations, and anticipating problems or obstacles to research lead to more accurate studies (Richey & Klein, 2007). The procedures for how the guidelines were designed and validated in this study used suggested techniques (see Table 1) as described by Richey and Klein (2007).

Table 1

Design Techniques in Model Research

Research and Design Concern	Techniques Used to Address Concern
Validity of Model Development	• Use design tasks that are realistic in scope. • Record reactions during design.
Validation of Model	• Use pre-defined expert selection criteria.
Causal Inferences for Model Development	• Relate design behaviors to product impact.
Causal Inferences for Model Use	• Relate design activities to ISD model.
Generalization and Interpretation for Model Development	• Collect data from natural work settings. • Collect context data.
Generalization and Interpretation for Model Validation	• Validate models in terms of context. • Determine necessary ID practice revisions.
Anticipating Problems	• Audio-record and transcribe interviews.

Identification and Operationalization of Theoretical Underpinnings

Designing a virtual community of practice must include learning opportunities that lead to knowledge creation or skill acquisition (Wenger, 2010). It is easy to think of this process in terms of the ADDIE model. The ADDIE model emphasizes the five core elements of the instructional design process: analyze, design, develop, implement, and evaluate (Richey et al., 2011). This study used the common instructional design tasks using the ADDIE model as identified by Richey et al. (2011) and Ni and Branch (2010) as a model for operationalizing the tasks necessary for building and maintaining a virtual community of practice (see Table 2).

Developmental model development is a process that involves applying a diverse body of research and thinking to individual instructional design tasks (Richey & Klein, 2007). Guidelines for this study were developed by identifying the theoretical components for building a community of practice in electronic environments. Wenger et al. (2002) identified three elements that guide community development efforts for focusing efforts to the various areas for fostering a well-rounded community: domain, community, and practice. Domain refers to the shared repertoire of the community, community addresses the interaction and role definition of members, and practice is the knowledge building and sharing efforts required for a community of practice to thrive. Sherer et al. (2003) expanded Wenger et al.'s (2002) model by further defining each element:

- The domain: A community of practice (COP) is not just a group of friends. Involvement in the community requires some knowledge and some competence in the focus area, or domain.
- The community: Members of the community interact and learn together, they engage in joint activities and discussions, help each other, and share information
- The practice: Members of the community develop a shared repertoire of resources: experiences, stories, tools, ways of addressing recurring problems—in short a shared practice (Sherer et al., 2003).

Within each element there are significant tasks that can be operationalized within an ADDIE model framework.

Identification of essential tasks for building a virtual community of practice. Using the three prong model described by Wenger et al. (2002) for defining a community of practice, instructional design tasks were defined and described through the lens of the ADDIE model.

Additionally, empirical studies and research from communities of practice in workplace settings (Ardichvili et al., 2002; Gongla and Rizzuto, 2001; Probst & Borzillo, 2008), combined with CSCL research for designing virtual communities (Dube et al., 2006; Lipponen et al., 2004; Sawyer, 2006; Scardamalia & Bereiter, 1994), informed operationalization of tasks within given phases of the ADDIE model. A new framework was created that operationalizes design of a virtual community of practice. The guidelines may provide instructional designers and faculty development professionals a framework and guide for building a virtual community of practice for online teaching faculty.

A review of literature related to the research problem has revealed that designing a virtual community of practice involves specific tasks that can be operationalized within an instructional design framework. Tasks for building a virtual community of practice are summarized in table format (see Table 2) with specific tasks associated with each design phase of the ADDIE model as they correspond within a given element of the community of practice model as described by Wenger et al. (2002). During Phase One the guidelines will be expanded in handbook form.

Table 2

Operationalization of Tasks for Community of Practice Development by Design Phase and Fundamental Element

Phase	Common Instructional Design Tasks (Ni & Branch, 2010; Richey et al., 2011)	Domain	Community	**Practice**
Analysis	-Needs Assessment -Problem/ Solution Identification -Resource Identification -Learner Identification -Goal/ Objective Analysis	-Analyze the scope of the domain (Wenger et al., 2002). Determine primary intent of the community (Verburg & Adriessen, 2006; Wenger et al., 2002). -Assess organization alignment and seek organization support (Ardichvili et al., 2002; Gongla & Rizzuto, 2001; Probst & Borzillo, 2008; Wenger et al., 2002).	-Identify and recruit potential leaders, facilitators. (Ardichvili et al., 2002; Probst & Borzillo, 2008; Wenger et al., 2002). -Identify and assess needs of potential members (Wenger et al., 2002).	-Identify common knowledge needs (Hara & Schwen, 2006; Wenger et al., 2002). -Create community design (Wenger et al. 2002).

(table continued)

Table 2 (continued)

Phase	Common Instructional Design Tasks (Ni & Branch, 2010; Richey et al., 2011)	Domain	Community	Practice
Design	-Goal/ Objective Formulation -Sequencing of Goals -Assessment/ Evaluation Planning -Formulation of Instructional/ Non-instructional Strategies -Media/Tool Selection	- Create clear and strategic objectives and divide them into subtopics to promote clarity (Probst & Borzillo, 2008). Design clear rules and expectations for knowledge sharing (Ardichvili et al., 2002; Wenger et al., 2002). - Design evaluation plan based on established objectives and phases of community development (Alem & Kravis, 2005; Derry & DuRussel, 1999; Schwier et al., 2007; Wenger, Trayner, & da Laat, 2011).	-Form governance committee or facilitator group (Gray, 2004; Palloff & Pratt, 1999; Probst & Borzillo, 2008; Wenger et al.,2002).	-Select or design virtual medium that is easy to use, provides communication channels, and knowledge sharing capabilities (Probst & Borzillo, 2008; Scardamalia & Bereiter, 1994; Sharrat & Usoro, 2003).

Table 2 (continued)

Phase	Common Instructional Design Tasks (Ni & Branch, 2010; Richey et al., 2011)	Domain	Community	Practice
Develop	-Author and Produce Interventions -Generate Resources -Validate Materials	-Create plan to mitigate disorders that may affect the development and continuation of the community of practice (Gongla & Rizutto, 2004; Lindvist, 2005; McLouglin, 2001; Probst & Borzillo, 2008; Wenger et al., 2002). -Develop plan for incentives or rewards for member participation (Sharatt & Usoro, 2003; Wasko & Faraj, 2005). -Market community of practice to potential members (Probst & Borzillo, 2008; Wenger et al., 2002).	-Train core membership/ leadership/ facilitation group (Ardichvili et al., 2002 Gray, 2004; Probst & Borzillo, 2008; Wenger et al., 2002). -Provide mechanisms for new members to enter community (Borzillo, Azner, Schmitt, 2011; Probst & Borzillo, 2008; Wenger et al, 2002)	-Plan face-to-face and electronic meetings/ interactions (Ardichvili, et al., 2002; Hildreth et al.., 2000; Probst & Borzillo, 2008; Wenger et al., 2002).

Table 2 (continued)

Phase	Common Instructional Design Tasks (Ni & Branch, 2010; Richey et al., 2011)	Domain	Community	Practice
Implement	-Development of Materials -Implementing procedures -Program Facilitation -Prepare Environment -Engage Learner	-Launch the community of practice (Wenger et al., 2002). -Design opportunities interaction with outside expertise (Probst & Borzillo, 2008; Wenger et al., 2002).	-Promote trust within the community membership (Hildreth et al., 2000; Probst & Borzillo, 2008; Wenger et al.). -Mentor new members (Palloff & Pratt, 1999; Wenger et al., 2002). -Facilitate discussions (Clawson & Bostrom, 1996; Fischer, 1998; Gray, 2004; Palloff & Pratt, 1999; Wenger et al., 2002). -Recruit new core leadership/ facilitation group members (Gongla & Rizzuto, 2001; Wenger et al., 2002).	-Provide training for interaction and knowledge sharing through the virtual medium (Chih-Hsiung &McIsaac, 2002; Wenger et al., 2002). -Build and organize a knowledge repository (Scardamalia & Bereiter, 1994; Wenger et al., 2002; Zhao & Bishop, 2011). -Expand knowledge sharing to knowledge creation with well-defined research agenda (Waddock & Walsh, 1999; Wenger et al.).

Table 2 (continued)

Phase	Common Instructional Design Tasks (Ni & Branch, 2010; Richey et al., 2011)	Domain	Community	Practice
Evaluate	-Evaluation Based on Objectives -Formative and Summative Evaluation -Software testing and revision	-Evaluate the effectiveness of the community in context within the larger organization (Probst & Borzillo, 2008; Wenger et al., 2002).	-Evaluate active membership through quality and quantity of member interactions and level of trust (Alem & Kravis, 2005; Wenger et al., 2011). -Evaluate participant perceptions of learning and performance improvement (Verburg & Adriessen, 2006; Wenger et al., 2011).	-Evaluate the effectiveness of the knowledge sharing medium (Teo et al., 2003). -Evaluate quality and quantity of knowledge sharing (Derry & DuRussel, 1999; Wenger et al., 2011).

Phase Two: Formative Evaluation

Phase Two consisted of a formative evaluation of the guidelines for designing a virtual community of practice. Developmental research involves the study of the development process with a final product evaluated through a formative approach (Richey et al., 2004). Dr. Peter Doolittle, an expert in the field of faculty professional development, Dr. Aaron Powell, an expert in the field of community of practice research, and Dr. Nada Dabbagh, an expert in online engagement, served as expert reviewers for the guidelines.

Evaluation Protocol

Upon completion of the guidelines, the expert reviewers were provided the framework for review. To ensure soundness and accuracy of developmental research, Richey and Klein (2007) suggest using pre-defined evaluation criteria. The predetermined criteria for evaluation during the review by experts are provided in this section. The expert reviewers evaluated the guidelines for designing and maintaining a virtual community of practice for faculty professional development using the evaluation protocol described in this section. Evaluation criteria for the expert review was based on the operationalization of the instructional design tasks associated with building a virtual community of practice for faculty development as compartmentalized by the three essential elements in the community of practice model created by Wenger et al. (2002).

Designing a virtual community of practice for faculty professional development requires a significant amount of planning and analysis (Wenger et al., 2002). Using the ADDIE model to operationalize tasks associated with the formation of each fundamental element of a community of practice allows for clear design and provides a more objective rubric for evaluation. Table 3 provides guiding questions for expert reviewers. Questions were designed to ensure that essential tasks for creating a virtual community of practice are represented in the each phase of design guidelines.

Table 3

Evaluation Protocol by Design Phase and Fundamental Element

Phase	Domain	Community	Practice
Analysis	Do guidelines describe appropriate methods to analyze the scope of the community of practice including description of defining intent of the community and organizational alignment (Ardichvili et al., 2002; Probst & Borzillo, 2008; Wenger et al., 2002)? Do guidelines provide direction for obtaining organizational support (Ardichvili et al., 2002; Probst & Borzillo, 2008; Verburg & Adriessen, 2006; Wenger et al., 2002)?	Do guidelines give clear directions for the identification and recruitment of potential leaders or facilitators (Ardichvili et al., 2002; Probst & Borzillo, 2008; Wenger et al., 2002)? Do guidelines adequately address how to identify and assess needs of potential faculty community members (Wenger et al., 2002)?	Are there directions for identifying common knowledge needs among potential members in the guidelines (McDermott, 2001; Wenger et al., 2002)? Do guidelines provide clear examples of how to create community design (Wenger et al., 2002)?

(table continued)

Table 3 (continued)

Phase	Domain	Community	Practice
Design	Do guidelines give clear directions for how to create clear and strategic objectives that are divided into subtopics (Probst & Borzillo, 2008)? Do guidelines include a description of the process for designing rules and expectations for knowledge sharing that addresses intellectual property issues (Ardichvili et al., 2002; Wenger et al., 2002)? Is the process for creating an evaluation plan that aligns evaluations with objectives for the community as defined by the core group (Alem & Kravis, 2005; Derry & DuRussel, 1999; Schwier et al., 2007; Wenger et al., 2011)?	Is the process for forming a governance committee or facilitator group described in detail in the guidelines (Gray, 2004; Palloff & Pratt, 1999; Probst & Borzillo, 2008; Wenger et al., 2002)?	Are processes for selecting appropriate tools for communication/ interaction and knowledge sharing described in the guidelines (Scardamalia & Bereiter, 1994; Sharrat & Usoro, 2003)?

Table 3 (continued)

Phase	Domain	Community	Practice
Develop	Do guidelines describe the process to develop a plan for mitigating disruptions to community (Gongla & Rizutto, 2004; Lindvist, 2005; McLoughlin, 2001; Probst & Borzillo, 2008; Wenger et al., 2002)? Are there processes for developing mechanisms for member recognition or incentive programs described in the guidelines (Sharratt & Usoro, 2003; Wasko & Faraj, 2005)? Do guidelines describe the development of a marketing plan to reach potential members and disseminate community successes (Probst & Borzillo, 2008; Wenger et al., 2002)?	Are competencies for training core leadership/facilitation group identified and described in the guidelines (Ardichivili, Page, & Wentling 2002; Gray. 2004; Probst & Borzillo, 2008; Wenger et al. 2002)? Do the guidelines address how to provide mechanisms for new members to enter community (Borzillo et al., 2011; Probst & Borzillo, 2008; Wenger et al, 2002)?	Do guidelines describe methods for selecting and planning for event meetings through face-to-face, virtual, and blended delivery methods (Ardichivili, Page, & Wentling, 2002; Hildreth et al., 2000; Probst & Borzillo, 2008; Wenger et al. 2002)?

<div align="right">(table continued)</div>

Table 3 (continued)

Phase	Domain	Community	Practice
Implement	Is the process for launching a virtual community of practice described in the guidelines (Wenger et al., 2002)? Do the guidelines provide clear directions for introducing outside expertise into the community of practice (Probst & Borzillo, 2008; Wenger et al. 2002)?	Are strategies for promoting trust in the community of practice described in the guidelines (Ardichivili, Page, & Wentling, 2002; Hildreth et al., 2000; Probst & Borzillo, 2008; Wenger et al. 2002)? Do the guidelines provide clear objectives for providing mentoring for new members (Palloff & Pratt, 1999; Wenger, McDermott, Snyder, 2002)? Are strategies for effective facilitation identified and described in the guidelines (Clawson & Bostrom; Fischer, 1998; Gray, 2004; Palloff & Pratt, 1999; Wenger et al. 2002)? Are strategies for leadership or core group recruitment described in the guidelines (Gongla & Rizzuto, 2001; Wenger et al., 2002)?	Are training strategies for interaction and knowledge sharing through a virtual medium identified and described in the guidelines (Kear, 2011; Wenger et al., 2002)? Do the guidelines provide a description of strategies for building and managing a knowledge database (Scardamalia & Bereiter, 1994; Wenger et al. 2002; Zhao & Bishop, 2011;)? Are strategies for creating and implementing a community-wide research agenda described in the guidelines (Waddock & Walsh, 1999; Wenger et al., 2002)?

(table continued)

Table 3 (continued)

Phase	Domain	Community	Practice
Evaluate	Do the guidelines describe the evaluation process for assessing the value of the community in context within the larger organization including a plan for periodic review (Probst & Borzillo, 2008; Wenger et al., 2002)?	Are processes for evaluating the membership in terms of quality and quantity of interactions described in the guidelines (Alem & Kravis, 2005; Wenger et al., 2011)? Do the guidelines provide strategies for evaluating the value of the community through faculty perceptions of learning and performance improvement (Verburg & Adriessen, 2008; Wenger et al., 2011)?	Do the guidelines describe processes for evaluating the value of the virtual knowledge sharing medium (Teo et al. 2003)? Are processes for evaluating the quality and quantity of knowledge sharing artifacts described in the guidelines (Derry & DuRussell, 1999; Wenger et al., 2011)?

Data Collection

Using the evaluation protocol above an interview was conducted with each expert reviewer as needed to help clarify unclear suggestions in the feedback provided in the review. Interviews were recorded and transcribed to minimize inaccuracies in data collection (Richey & Klein, 2007). The results of the expert review are presented in Chapter 5.

Phase Three: Revision

Developmental research explores the development process through formative evaluation and revision (Richey et al., 2004). Once the virtual community of practice guidelines were reviewed and evaluated, a plan for how to incorporate evaluation findings was devised. Data collected during Phase Two was used to inform the revision discussion. This process included the recommendations or modifications suggested by the expert reviewers and was used to guide improvements for the guidelines.

CHAPTER 4

GUIDELINES FOR BUILDING COMMUNITIES OF PRACTICE IN ELECTRONIC ENVIRONMENTS

Introduction

As colleges, universities, and other learning institutions explore teaching and learning through online environments, online communities of practice may provide solutions to organizational and professional development needs. Guidelines for building an online community of practice based on an extensive literature review may inform higher education organizational and professional development practices. Developing a framework for online teaching and learning may help administrators evaluate faculty training needs, provide an additional resource for faculty support and development, and inform how online communities are formed and maintained (Bonk & Dennen, 2003). The purpose of this handbook is to develop a set of guidelines for creating a virtual community of practice for faculty teaching at a distance that can easily be implemented by faculty development professionals.

Designing a virtual community of practice can be operationalized using the ADDIE model to guide the process. Based on an instructional systems design process, the ADDIE model emphasizes the five core elements of the instructional systems design process: analyze, design, develop, implement, and evaluate (Richey et al., 2011). Often the ADDIE model serves as a project management tool or to provide a visual aid for organization of relevant tasks. Though the elements of the design process are used routinely for instructional design, they are general enough to be applicable in overall program design as well (Richey et al., 2011). The guidelines will use the common instructional design tasks using the ADDIE model as identified by Richey et al. (2011) and Ni and Branch, (2010) to serve as a model for operationalizing the tasks necessary for building and maintaining a virtual community of practice.

The guidelines are based on the theoretical components for building a community of practice in electronic environments. Wenger et al. (2002) identified three elements that guide community development efforts to focus on the various areas for fostering a well-rounded community: domain, community, and practice. Domain refers to the shared repertoire of the community, community addresses the interaction and role definition of members, and practice is

the knowledge building and sharing efforts required for a community of practice to thrive. Sherer et al. (2003) expands Wenger et al. model by further defining each element:

- The domain: A community of practice (COP) is not just a group of friends. Involvement in the community requires some knowledge and some competence in the focus area, or domain.

- The community: Members of the community interact and learn together, they engage in joint activities and discussions, help each other, and share information

- The practice: Members of the community develop a shared repertoire of resources: experiences, stories, tools, ways of addressing recurring problems—in short a shared practice (Sherer et al., 2003).

Within each element there are significant tasks that can be operationalized within an ADDIE model framework. The guidelines consist of a description of those significant tasks and are operationalized according to each of phase of the ADDIE model. As with most instructional design projects, the guidelines are presented in a categorical fashion and the tasks are not meant to be linear (Gustafson & Branch, 2002). Each fundamental element of a community of practice requires a distinct approach, but all three elements must be developed in parallel (Wenger et al., 2002). For example, many of the tasks require coordination with other tasks and should not be undertaken in a vacuum.

Analysis

Fundamental Element: Domain

Determination of community intent. Communities of practice take many forms. Determining the intent of the community of practice in the early planning stages can help alleviate any misunderstandings about the goals of the community of practice later on (Wenger, McDemott, & Snyder, 2002). The American Productivity and Quality Center (2000) identified four different intentions for the formation of communities of practice for professionals: (1) problem solving for everyday discipline related issues, (2) best practice development and sharing, (3) tool and job aid creation, and (4) innovation. As communities of practice must have interaction and reification in order to be effective (Wenger, 1998), it is likely that a faculty community of practice would have elements of all the intentions listed above. Though there may be a variety of intentions for a community of practice, it is important to determine a primary

Table 4

Operationalization of Tasks for Community of Practice Development by Design Phase and Fundamental Element

Phase	Common Instructional Design Tasks (Ni & Branch, 2010; Richey et al., 2011)	Domain	Community	Practice
Analysis	-Needs Assessment -Problem/ Solution Identification -Resource Identification -Learner Identification -Goal/Objective Analysis	Determine primary intent of the community (Verburg & Adriessen, 2006; Wenger et al., 2002). -Define the scope of the domain (Wenger et al., 2002). -Assess organization alignment and seek organization support (Ardichvili et al., 2002; Gongla & Rizzuto, 2001; Probst & Borzillo, 2008; Wenger et al., 2002).	-Identify potential leaders, facilitators. (Ardichvili et al., 2002; Probst & Borzillo, 2008; Wenger et al., 2002). -Identify and assess needs of potential members (Wenger et al., 2002).	-Identify common knowledge sharing infrastructure needs (McDermott, 2001; Wenger et al., 2002). -Create community design (Wenger et al., 2002).

Table 4 (continued)

Phase	Common Instructional Design Tasks (Ni & Branch, 2010; Richey et al., 2011)	Domain	Community	Practice
Design	-Goal/ Objective Formulation -Sequencing of Goals -Assessment/ Evaluation Planning -Formulation of Instructional/ Non-instructional Strategies -Media/Tool Selection	-Create clear and strategic objectives and divide them into subtopics to promote clarity (Probst & Borzillo, 2008). -Design clear rules and expectations for knowledge sharing (Ardichvili et al., 2002; Wenger et al., 2002). - Design evaluation plan based on established objectives and phases of community development (Alem & Kravis, 2005; Derry & DuRussel, 1999; Schwier et al., 2007; Wenger et al., 2011).	-Form governance committee or facilitator group (Gray, 2004; Palloff & Pratt, 1999; Probst & Borzillo, 2008; Wenger et al. 2002).	-Select or design virtual medium that is easy to use, provides communication channels, and knowledge sharing capabilities (Probst & Borzillo, 2008; Scardamalia & Bereiter, 1994; Sharrat & Usoro, 2003).

Table 4 (continued)

Phase	Common Instructional Design Tasks (Ni & Branch, 2010; Richey et al., 2011)	Domain	Community	Practice
Develop	-Author and Produce Interventions -Generate Resources -Validate Materials	-Create plan to mitigate disorders that may affect the development and continuation of the community of practice (Gongla & Rizutto, 2004; Lindvist, 2005; McLouglin, 2001; Probst & Borzillo, 2008; Wenger et al., 2002). -Develop plan for incentives or rewards for member participation (Sharatt & Usoro, 2003; Wasko & Faraj, 2005). -Market community of practice to potential members (Probst & Borzillo, 2008; Wenger et al., 2002).	-Train core membership/ leadership/ facilitation group (Ardichvili et al., 2002; Gray, 2004; Probst & Borzillo, 2008; Wenger et al., 2002). - Provide mechanisms for new members to enter community (Borzillo et al., 2011; Probst & Borzillo, 2008; Wenger et al, 2002)	-Plan face-to-face and electronic meetings/ interactions (Ardichvili et al., 2002; Hildreth et al., 2000; Probst & Borzillo, 2008; Wenger et al., 2002).

Table 4 (continued)

Phase	Common Instructional Design Tasks (Ni & Branch, 2010; Richey et al., 2011)	Domain	Community	Practice
Implement	-Development of Materials -Implementing procedures -Program Facilitation -Prepare Environment -Engage Learner	-Launch the community of practice (Wenger et al., 2002). -Design opportunities interaction with outside expertise (Probst & Borzillo, 2008; Wenger et al., 2002).	-Promote trust within the community membership (Hildreth et al., 2000; Probst & Borzillo, 2008; Wenger et al.). -Mentor new members (Palloff & Pratt, 1999; Wenger et al., 2002). -Facilitate discussions (Clawson & Bostrom, 1996; Fischer, 1998; Gray, 2004; Palloff & Pratt, 1999; Wenger et al., 2002). -Recruit new core leadership/ facilitation group members (Gongla & Rizzuto, 2001; Wenger et al., 2002).	-Provide training for interaction and knowledge sharing through the virtual medium (Chih-Hsiung & McIsaac, 2002; Wenger et al., 2002). -Build and organize a knowledge repository (Scardamalia & Bereiter, 1994; Wenger et al., 2002; Zhao & Bishop, 2011). -Expand knowledge sharing to knowledge creation with well-defined research agenda (Waddock & Walsh, 1999; Wenger et al., 2002).

(table continued)

Table 4 (continued)

Phase	Common Instructional Design Tasks (Ni & Branch, 2010; Richey et al., 2011)	Domain	Community	Practice
Evaluate	-Evaluation Based on Objectives -Formative and Summative Evaluation -Software testing and revision	-Evaluate the effectiveness of the community in context within the larger organization (Probst & Borzillo, 2008; Wenger et al., 2002).	-Evaluate active membership through quality and quantity of member interactions and level of trust (Alem & Kravis, 2005; Wenger et al., 2011). -Evaluate participant perceptions of learning and performance improvement (Verburg & Adriessen, 2006; Wenger et al., 2011).	-Evaluate the effectiveness of the knowledge sharing medium (Teo et al., 2003). -Evaluate quality and quantity of knowledge sharing (Derry & DuRussel, 1999; Wenger et al., 2011).

intent, adapt structures, roles, and activities, and then fit other activities into those structures (Wenger et al., 2002). Likewise, Verburg and Andriessen (2006) identified five typical forms of communities of practice found in the workplace or professional organizations: (1) daily practice community- workers or participants who meet regularly to share and create knowledge, generally face-to-face, (2) formal expert community- consists of a limited number of experts who influence knowledge for a larger community, (3) informal network community- open membership group forms through common interests, generally administered through electronic means, (4) problem solving community- consists of geographically and organizationally dispersed members who deal with the same issues or problems, can also be an advisory group that is formed to solve a solitary problem, (5) latent network community- consists of members of a professional organization like AECT. A community of practice that is designed to meet the professional development needs of faculty teaching at a distance may meet the definition of a problem solving community as described by Verburg and Andriessen (2006), but could easily fit one of the other forms. Determining the intent of the community will help with other areas of the design process.

Defining the scope. Defining the scope of a design project can create parameters with appropriate boundaries, prepare allocation of resources, and set the stage for goal or objective setting in later planning stages (Morrison, Ross, Kemp, & Kalman, 2010; Richey et al., 2011). Since the scope of a community of practice for faculty teaching at a distance may vary widely, it is important to define the scope by limiting the community of practice knowledge sharing ideas to specific topics. Wenger et al. (2002) suggests that the scope be wide enough to bring in new people, but still narrow enough to keep members interested in the community. Faculty teaching at a distance may have interests or needs that span the normal spectrum of faculty life, including tenure, work/life conflict, and other university commitments (Schroeder, 2011). Though it is tempting to try to address every interest or need that faculty may need in a single community of practice, the focus of a community of practice for online teaching and learning will have greater success if the scope defines parameters that limit potential topics to online teaching pedagogy and technology. Defining the focus and purpose of a community of practice early in the design process will provide an identity that will carry through all other design tasks (Wenger et al., 2002).

Assess organizational alignment and secure support. Smith and Ragan (2004) insist that instructional system design must include an analysis of organization philosophies and

restrictions. In order to be successful, communities of practice must have support of the organization within which they exist. Communities of practice must align with the objectives of the organization in order to secure buy in from the larger organization leadership and the community members (Wenger et al., 2002). If there is no support from the larger college, department, or university for improving distance teaching and learning practices, faculty will be less compelled to participate. Additionally, without strong institutional or organizational support, communities of practice tend to fade away (Ardichvili et al., 2002). A thorough needs assessment can help determine whether a community of practice for faculty teaching at a distance fits within the organization's goals, management, value system, and infrastructure (Gongla & Rizzuto, 2001). Conducting a needs assessment can help determine whether a community of practice model for professional development is the best intervention for faculty and organizational needs.

Since communities of practice that exist without the support of organization leaders rarely last, securing buy-in from the organizational leadership is imperative (Gongla & Rizzuto, 2004). University administrators and other managers are more likely to offer support for a community of practice if presented with a well-researched proposal (Wenger et al., 2002). Building a case for a community of practice can help with other tasks described so far, such as narrowing the focus and intent of the community of practice. Wenger et al. (2002) suggest that a proposal for building a community of practice contain: (1) an introduction to the potential value of the community of practice to the organization and rationale for supporting it, (2) a description time saving benefits of knowledge sharing ("not reinventing the wheel"), and (3) a demonstration of how a community of practice can improve practices and prepare members to be thought leaders in the field. Probst and Borzillo (2008) found that an unhealthy competition for resources caused many communities of practice to fail even though they had organizational support. Therefore, it might prove prudent to extend the proposal to include a request for resources and include a means for administrative participation in the community itself. Depending on the needs assessment, a proposal to secure buy in for a community of practice for faculty teaching at a distance may stress a community of practice as a means for faculty to (1) improve morale, (2) share teaching practices, (3) add to the research in the field of distance learning or teaching practices in a specific discipline. The addition of a list of possible ways that a college, department, or university can offer resources or provide support to the community of practice

might include (1) leave to attend community of practice events, (2) conference fees or travel, or (3) software or tools needed to participate in community events or try out new teaching tools. Securing support early will clarify the community of practice domain and help mitigate problems that may arise as the community is formed (Wenger et al., 2002).

Table 5

Operationalization of Domain Related Tasks During the Analysis Phase

Task	Faculty Development Operationalized Example
Determine primary intent of the community (Verburg & Adriessen, 2006; Wenger et al., 2002).	Determine whether the primary intent of the distance learning faculty community will be problem solving, best practice development, tool creation, innovation, or a combination.
Define the scope of the domain (Wenger et al., 2002).	Limit scope to distance teaching and learning topics that are central to the faculty community's identity.
Assess organization alignment and seek organizational support (Ardichvili et al., 2002; Probst & Borzillo, 2008; Wenger et al., 2002).	Conduct needs assessment to determine whether a community of practice for faculty teaching at a distance aligns with organizational goals and meet faculty needs. Build case for a community of practice and secure organizational support.

Fundamental Element: Community

Identify and recruit core group. Designing a community of practice requires a strong core group dedicated to the creation of the community. Wenger et al. (2002) insist that the most important component of a community's success is the vitality of its membership. During the earliest stages, the community of practice relies heavily on the core leadership to recruit members, set goals, plan activities, build trust, and establish norms, roles and scope of the community of practice (Gongla & Rizzuto, 2001; Tarmizi & de Vreede, 2005; Wenger et. al., 2002). Community of practice development often begins with an established social network. An informal group whose members are already discussing a topic can be more easily transitioned into a community of practice. Those who are already participating in an informal group are more

likely to form the core group of a community of practice and take the lead in its construction (Wenger et al., 2002).

Identifying faculty teaching at a distance who already share practices and resources is an important first step in forming the core facilitation or leadership group. Additionally, faculty support personnel should be actively recruited as they may have access to the most current teaching and learning research and can help identify faculty teaching at a distance who might benefit from participation in a community of practice (Heath & McDonald, 2012). It is important to identify and recruit potential leaders that are known as thought leaders in the field, on the cutting edge, who are well-seasoned practitioners to legitimize the community of practice (Wenger et al., 2002), and passionate about the community topic (Gray, 2004). Core membership for a community of practice for distance faculty should be comprised of members who are excited about distance learning and who exhibit distance teaching and learning best practices in their courses.

Once potential members of the core group have been identified, a plan for recruitment can be devised. It is important to understand why potential leaders would want to participate in a community of practice. Faculty are motivated by a variety of intrinsic and external factors. While Kiziltepe (2008) found enthusiastic students, social status, and prestige from research publications as factors influencing faculty motivation, Meyer and Evans (2003) found peer recognition, opportunity to advance in their field, study leave, access to resources, and conference attendance to be among the highest ranked motivating factors. Based on those motivational factors, participation in the core leadership group of community of practice for distance faculty may fit well with the professional needs of potential leaders. Recruitment activities should include a description of how potential leaders can find research opportunities, peer recognition, and incorporate teaching best practices that enhance student enthusiasm through participation. If institutional support includes financial incentives, then recruitment may include conference attendance and study leave. Recruitment activities should include a description of how potential leaders can benefit from research opportunities, study leave, and conference attendance.

Identify and assess potential members' needs. It is important to have a good understanding of the potential members that the community of practice may serve. As has been discovered, communities of practice usually build on preexisting personal networks (Wenger et

al., 2002). Since communities of practice have varying levels of participation, it is important to identify faculty teaching at a distance who are currently engaged in ongoing conversations around teaching and learning, as well as those not engaged in those activities. Though they may not participate, all faculty teaching at a distance are potential members of a community of practice.

Once potential members have been identified, thorough needs assessment can help determine whether a community of practice for faculty teaching at a distance fits the professional development needs of the potential members (Wenger et al., 2002). As mentioned in the last section, faculty are motivated by a variety of factors. Finding ways to match potential benefits with faculty needs is an important step when developing a community of practice. Wenger et al. (2002) suggests that members of the core leadership group or a community coordinator should interview potential members in order to better understand common issues and needs shared by potential community members. Having an open dialogue rather than a formal interview may uncover an array of issues or topics that may not fit well within a community of practice model or change the focus and intent of the community of practice design. If a community of practice does seem to fit the potential member needs it is important to express how a community of practice may help meet the identified needs.

Table 6

Operationalization of Community Related Tasks During the Analysis Phase

Task	Faculty Development Operationalized Example
Identify and recruit potential leaders, facilitators. (Ardichvili et al., 2002; Gongla & Rizzuto, 2001; Gray, 2004; Heath & McDonald, 2012; Kiziltepe, 2008; Meyer &Evans, 2003; Probst & Borzillo, 2008; Wenger et al., 2002).	Identify faculty support personnel and faculty teaching at a distance to serve as potential members of the core leadership group and then actively recruit the core group membership using motivational factors for faculty to encourage participation.
Identify and assess potential members needs (Wenger et al., 2002).	Identify faculty who teach at a distance and conduct interviews to assess potential member needs.

Fundamental Element: Practice

Identify common knowledge-sharing infrastructure needs. A significant part of developing an understanding of potential community members in the analysis phase is the determination of the knowledge needs of potential members. Though communities of practice frequently form around topics community members have invested many years in developing, communities of practice are not formed just around a common interest. Communities of practice focus on practice, problems, tools, developments in the field, and things that work and things that do not work (McDermott, 2001). As discussed in the last section, conducting a needs assessment is a critical part of the analysis stage. When interviewing potential members to discover issues and needs, it is important to determine knowledge sharing needs for the virtual community of practice. There are many potential knowledge-sharing needs that should be addressed. Wenger et al. (2002) identified the seven online technology infrastructure considerations that are critical for knowledge sharing (1) a home page, (2) a conversation space for online discussions, (3) a repository for documents, research reports, best practices, and standards, (4) a search engine to find things in the knowledge base, (5) a directory of membership, (6) a shared workspace for collaboration, and (7) community management tools including page counters, participation tracking, etc. There are a number of tools that can meet the infrastructure considerations as described above. When designing a virtual community of practice for faculty the selection of a particular tool should be based on the specific needs as identified by a needs assessment.

Create community design. As with any design project, needs assessment and planning is key. It is in the analysis phase when it becomes clear whether the issue or problem has a possible design solution (Richey et al., 2011). During the analysis stage it is important to develop a clear plan for the community of practice that includes multiple opportunities for assessing needs of potential members, organizational needs, and the infrastructural or framework needs for a community of practice to develop (Wenger et al., 2002). Wenger et al. suggest employing a work plan in the early planning stages to define the community's focus, identify and build relationships, and identify topics and projects.

Table 7

Operationalization of Practice Related Tasks During the Analysis Phase

Task	Faculty Development Operationalized Example
Identify common knowledge sharing infrastructure needs (McDermott, 2001; Wenger et al., 2002).	Through interviews with potential members and core leadership group membership assess infrastructure needs for sharing knowledge.
Create community design (Wenger et al., 2002).	Create comprehensive community design plan using the Analysis Phase Sample Community Design Planning Document (see Figure 4.1).

Using a checklist or a planning document may help ensure that all essential tasks are considered (see Appendix A). Once the planning document has been completed designers can move the plan into action in later phases of the design process. It is important to note that the planning document can be used to determine whether a community of practice for faculty teaching at a distance is the appropriate solution for the audience, issues, or problem that one is seeking to address. It is possible that a community of practice model will not meet a given institution, potential membership, or programmatic need. Appropriate planning and assessment in the analysis phase may deter potential problems in later phases (Smith & Ragan, 2004). Appendix A provides an example of a community design document that incorporates all components and tasks for a faculty community of practice during the analysis phase.

Design

Fundamental Element: Domain

Goal/objective creation and categorization. Formation of goals and objectives help guide the design and development process. Also called outcomes, objectives "serve as a road map—an instructional mission statement of where you're headed and what you are trying to achieve" (Cennamo & Kalk, 2005, p. 51). When researching common factors impacting the viability of communities of practice in 57 separate organizations, Probst and Borzillo (2008) found that the formation of strategic goals, divided into subtopics for clarification for all stakeholders, is critical for communities of practice to grow and thrive. Since objectives provide clear and measurable

goals, community of practice participants are more likely to actively participate in the process of best practice development and sharing because potential benefits and outcomes are clearly defined (Probst & Borzillo, 2008). Additionally, organizational leaders are more likely to provide support for a community of practice when goals and outcomes are clearly delineated (Probst & Borzillo, 2008, Wenger et al., 2002). Objectives that define the areas of focus, describe expected outcomes, and outline participant responsibilities can provide the "road map" for moving a community of practice forward.

Objectives or outcomes for a virtual community of practice for online teaching faculty should address institutional and participant needs, encourage improved instructional practices, and define how the community will move to reification. Objectives will vary depending on the specific goals and needs of a particular institution or group of faculty. Table 9 offers examples of possible objectives.

Knowledge sharing rule and expectation design. Knowledge sharing is a key element of a community of practice. Though groups may form sporadically around a topic about which participants are passionate, passion is not enough to effectively form and coalesce a community of practice. Potential participants in a community of practice must be willing to engage in collaboration with a negotiated activity, must see the community as a joint enterprise that demands ownership and accountability, and must view meaning making in the community as a shared repertoire (Wenger, 1998). Communities of practice must consist of both participation (conversations, activities, reflections) and reification (artifacts, documents, processes, methods)

Table 8

Sample Objectives by Fundamental Element

Fundamental Element	Examples
Domain	The virtual community of practice for online teaching faculty will define how institutional support is in alignment with university or departmental strategic plan.
	The virtual community of practice for online teaching faculty will support institutional goals.
Community	Members of the virtual community of practice for online teaching faculty will demonstrate online teaching and learning best practices.
	Members of the virtual community of practice for online teaching faculty will participate in knowledge sharing.
	Members of the virtual community of practice for online teaching faculty will assist one another to improve instructional practices across the institution or department.
Practice	Members of the virtual community of practice for online teaching faculty will add to the field of online teaching and learning by researching instructional practices in their courses.
	Members of the virtual community of practice for online teaching faculty will add to the field of online teaching and learning by disseminating research findings at conferences or through publications.

for meaning making to occur (Wenger, 2010). When conducting a study of virtual communities of practice in several different organizations, Ardichvili et al. (2002) found that without clearly communicated standards about what constitutes knowledge sharing and what specific information violates security policy or other rules, participants were less likely to engage in knowledge sharing.

Participants in a faculty community of practice may have anxieties about the nature and security of any knowledge that is shared with the community. Faculty may be concerned about how sharing instructional practices is effected by institutional policies or federal or state regulations such as FERPA. Additionally, faculty may have reservations about preserving their

intellectual property (Meyer & Evans, 2003). When constructing rules and expectations for knowledge sharing and reification within the community of practice, the core leadership team must address the institutional policies, FERPA regulations, and how to protect faculty intellectual property.

    Evaluation plan creation. Evaluation is a key element of the design process. There are many possible avenues for evaluating the effectiveness of a community of practice. Communities of practice can be evaluated to determine the effectiveness of the community of practice in context of the larger organization (Verburg & Adriessen, 2006; Wenger et al., 2002), by the quality and quantity of member interactions and level of trust (Alem & Kravis, 2005; Wenger et al., 2011), from participant perceptions of learning and performance improvement (Wenger et al., 2011), by quality and quantity of knowledge sharing (Derry & DuRussel, 1999; Wenger et al., 2011), and the overall performance of the knowledge sharing media (Teo et al., 2003). The areas of focus for evaluation will be discussed at length in the evaluation phase section. In this section alignment of evaluations will be focus. Evaluation can occur at any time during the design phase (Richey et al., 2011). To ensure that an evaluation is an effective measure, the evaluation plan should be formed when goals and objectives are created (Ni & Branch, 2010; Smith & Ragan, 2004). Evaluation should align with established goals or objectives as defined by the core membership and measure whether desired outcomes are met (Wenger et al., 2011). Creating an evaluation plan at this stage with overarching questions can help determine later whether outcomes are being met by the community of practice (Smith & Ragan, 2004; Wenger et al., 2002). Additionally, creating an evaluation plan can help right the course of the community of practice if it seems to be stalling, veering away from established objectives, or is being disrupted. In previous sections, objectives were discussed and example objectives for a faculty community of practice were defined. Using those objectives as an example, Table 9 offers examples of how evaluation planning can ensure alignment.

Table 9

Evaluation Questions Alignment with Sample Objectives

Sample Objectives	Evaluation Question
The virtual community of practice for online teaching faculty will define how institutional support is in alignment with university or departmental strategic plan.	Does the virtual community of practice define its role within the larger university or departmental strategic plan?
The virtual community of practice for online teaching faculty will support institutional goals.	Does the virtual community of practice support institutional goals?
Members of the virtual community of practice for online teaching faculty will demonstrate online teaching and learning best practices.	Do members of the virtual community of practice demonstrate best practices in their online courses?
Members of the virtual community of practice for online teaching faculty will participate in knowledge sharing.	Do members of the community participate in knowledge sharing?
Members of the virtual community of practice for online teaching faculty will assist one another to improve instructional practices across the institution or department.	Do members assist one another across departments or the institution to improve instructional practices?
Members of the virtual community of practice for online teaching faculty will add to the field of online teaching and learning by researching instructional practices in their courses.	Are members contributing to the field of online teaching and learning by researching their instructional practices?
Members of the virtual community of practice for online teaching faculty will add to the field of online teaching and learning by disseminating research findings at conferences or through publications.	Are members disseminating findings at conferences or through publications?

Table 10

Operationalization of Domain Related Tasks During the Design Phase

Task	Faculty Development Operationalized Example
Create clear and strategic objectives and divide them into subtopics to promote clarity (Probst & Borzillo, 2008).	Objectives for a virtual community of practice for faculty professional development should describe and encourage knowledge sharing, improved practices, and reification.
Design clear rules and expectations for knowledge sharing (Ardichvili et al., 2002; Wenger et al., 2002).	Rules and expectations created by the core membership should address faculty concerns including state and federal regulations, institutional policies or norms, and intellectual property.
Design evaluation plan based on established objectives and phases of community development (Alem & Kravis, 2005; Derry & DuRussel, 1999; Schwier et al., 2007; Wenger et al., 2011).	Create plan using broad questions to guide later evaluations. Align evaluation questions with established objectives to determine whether the community of practice is meeting established objectives and desired outcomes.

Fundamental Element: Community

Formation of core group. The most important factor impacting the viability of a
community of practice is the core group membership (Gray, 2004; Probst & Borzillo, 2008;
Wenger et al., 2002). In the analysis phase, potential community leaders are identified and
recruited. In this phase, community leaders are asked to coalesce and form a governance body.
Core members will help write objectives and form the knowledge sharing expectations for the
community of practice. As faculty have limited time to dedicate to extraneous activities, it is
important to provide expectations of time to potential leaders. Spreading responsibilities for
leadership among several key community members can help with time commitments. If possible,
dedicating a faculty support position or portion of a support position to organizing community
events can help further spread the community's organizational duties (Heath & McDonald,
2012). Having faculty and support personnel serve as members of the core group may help with

the viability of the larger community of practice. Several informal events should be planned to allow the core to define the community's goals, expectations, and rules. Informal meetings and discussions can allow the group to form relationships, and build trust (Wenger et al., 2002).

Table 11

Operationalization of Community Related Tasks During the Design Phase

Task	Faculty Development Operationalized Example
Form governance committee or facilitator group (Gray, 2004; Heath & McDonald, 2012; Palloff & Pratt, 1999; Probst & Borzillo, 2008; Wenger et al. 2002).	Promote core group coalescence through informal meetings and discussions. Core group members will define goals, objectives, expectations, and rules for the community of practice.

Fundamental Element: Practice

Media selection. Finding a platform for hosting a virtual community of practice is critical to building and maintaining a community of practice (Hemp, 2009). Any virtual platform for a community of practice will likely serve as a repository for co-constructed knowledge and a forum that allows all participants access to the community knowledge and storytelling (Probst & Borzillo, 2008). Scardamalia and Bereiter (1994) found that technology must provide the infrastructure for collaboration instead of being the catalyst. Opportunities for interaction must be designed to support knowledge-building communities by: (1) providing a community database at the center of discourse, (2) emphasizing writing and intentionality as mechanisms for discourse, (3) leveraging a distributed model of computing, (4) encouraging multiple modes of communication (Scardamalia & Bereiter, 1994). Though a potential virtual medium may have clear channels for communication and a repository, if the information systems are not easy to use or not perceived as useful by participants the platform will hinder the community (Sharrat & Usoro, 2003).

When considering tools or platforms for hosting a virtual community of practice for faculty teaching online it is important to consider technical competencies of potential members and find tools that match faculty competencies. If possible, using the same Learning

Management System (LMS) that faculty work within each day may be an effective to address any issues that may arise when using a tool or medium that faculty find unfamiliar. If the LMS does not meet knowledge sharing and discussion needs of the virtual community of practice, tools selected or created should reflect ease of use while providing a space that is secure, that allows for rich discussion, and that ensures a knowledge-sharing repository (Probst & Borzillo, 2008; Scardamalia & Bereiter, 1994; Sharrat & Usoro, 2003). Other tools, such as synchronous web conferencing, chat, and social media should be undertaken with great caution as the virtual community may be disrupted when there is lack of familiarity with tools or lines of professional and personal participation are blurred (Cox et al., 2004; Durkee et al., 2005; Kear, 2011).

Table 12

Operationalization of Practice Related Tasks During the Design Phase

Task	Faculty Development Operationalized Example
Select or design virtual media that is easy to use, provides communication channels, and knowledge sharing capabilities (Probst & Borzillo, 2008; Scardamalia & Bereiter, 1994; Sharrat & Usoro, 2003).	Faculty knowledge sharing needs and technical competencies must be considered when selecting virtual tools. Use institution supported LMS if possible. If not, select tools that provide a safe environment for discussion and a knowledge repository. Use synchronous tools and social media with caution, understanding possible distractions or disruptions from blurring professional and personal identities.

Develop

Fundamental Element: Domain

Create plan to mitigate potential disruptions. Communities of practice are not without problems. There is a constant threat of groupthink for any community of practice. Incorrect behaviors, ideals, and dogmas are often perpetuated through group participation due to the positive reinforcements that consensus provides (Rogers & Skinner, 1956; Skinner, 1967). Just because a group comes to a consensus does not mean that constructed meaning is the correct meaning or the appropriate path forward (Janis, 1972; Lindkvist, 2005). It is important to

safeguard the integrity of the knowledge building process while minimizing the persistence of groupthink. Possible interventions for a community of practice for faculty teaching online might include exposure to external perspectives and approaches, course reviews, and submission of research to peer reviewed conferences or publications.

The desire to provide a formal structure can inadvertently create a culture built around deadlines, milestones, and rigid structures that hinders meaning making for the community (Lindkvist, 2005; Wenger et al. 2002). For instance, Gongla and Rizzuto (2004) assert that communities of practice can disappear or fade in nonexistence, especially when there is formal inquiry within the larger organization that houses the community of practice. Wenger et. al. (2002) identifies thirteen internal disorders that may affect the development and continuation of communities of practice: (1) narcissism-the community may become self-absorbed, pursuing their own agenda without any regard to outside interests, (2) marginality- communities outside the mainstream have no decision-making power within an organization and often are made up of participants who share discontent, (3) factionalism- communities can be torn apart internally by members fighting for their own personal interests or ideas, (4) cliques- communities focus on relationships among a core membership while minimizing efforts to recruit new members, causing stagnation, (5) egalitarianism- similar to groupthink, a community can constrain creativity, new ideas are viewed as treasonous, rather than explored, (6) dependence- community is reliant on the charisma or leadership of one person or small group of people, (7) stratification-power or decision making for the community concentrated in a small core group of experts, leading to lack of diversity or distinct classes of participants, (8) disconnectedness- participants in a community participate superficially, there is no personal connection to the group or its central ideals, (9) localism- a community defined by its geographical, departmental, or other boundaries, (10) documentism- the focus of the community becomes documentation rather than knowledge sharing and construction, (11) amnesia- there is no documentation or knowledge management, instead members focus on social discussions, (12) dogmatism-members refuse to deviate from established canons and methods, (13) mediocrity- communities fall into a routine that accepts the status quo rather than forge new ideas or innovations.

Threats to a thriving community must be considered when designing and maintaining any community of practice. A community of practice for faculty teaching online may face unique challenges not yet identified. Each community of practice must rely on the core members or

facilitators to identify potential threats and implement appropriate interventions (Wenger et al., 2002).

     Form rewards/incentives plan. For many teaching faculty the possibility of enhanced reputation or the altruism of helping others is incentive enough to share knowledge and best practices. The expectation of knowledge sharing can cause less participation in a virtual community. For some experts, sharing knowledge can mean giving up a sense of power that comes from holding onto that same knowledge (Gray, 2001; Carroll et al., 2003). In this case, there must be a comparable incentive or reward for sharing knowledge. Regardless of the motivating factors affecting knowledge sharing, there must be an incentive or reward plan for encouraging continued participation. As institutions and departments face budget cuts, there is little money to spare for funding monetary rewards or incentives. For that reason the discussion here will focus on the creation of a rewards/incentives plan that does not involve monetary commitments. Finding ways to reward participation in a community of practice can be a daunting task. There are ways to reward participation, however. Sharrat and Usoro (2003) found that when there is opportunity for recognition, such as career advancement or reputation building, members are more likely to participate in community of practice dialogue and knowledge sharing. Likewise, Wasko and Faraj (2005) found that enhanced reputation may provide reward enough for some community of practice participants. As mentioned in the analysis section, faculty are motivated by social status and prestige from research publications (Kiziltepe, 2008), peer recognition, opportunity to advance in their field, study leave, and access to resources (Meyer & Evans, 2003). If there is limited funding a plan for rewarding or incentivizing faculty who participate in the virtual community of practice must include ways to recognize and acknowledge the contributions of members. Faculty looking for career advancement may be reluctant to participate in a community of practice if the community does not have institutional support. Using institutional support to provide recognition such as a certificate of appreciation from senior level management can be an incentive those wishing to enhance their reputation or advance in their field. Since faculty are motivated by peer recognition, one reward strategy might be to publish names and contributions on departmental, institution, and community of practice websites, newsfeeds, or other dissemination methods available across the university. Additionally, the resources and peer mentoring available through a community of practice can also serve as an incentive.

Market the community to potential members. In order for potential community of practice members to join a community of practice, they must first know that it exists. It is often the community coordinators or facilitators who drive the information and recruitment efforts of a community of practice (Probst & Borzillo, 2008; Wenger et. al., 2002). Recruiting potential members of a virtual community of practice for faculty teaching online requires unique marketing strategies. As mentioned in separate areas of the guidelines, faculty are motivated by a variety of factors and marketing efforts should center on the motivational factors as described in the analysis phase and in the previous section. Wenger et. al., suggest that marketing efforts follow a two-pronged approach that highlights the benefits of contributing and the value of learning from other's experiences. Using university dissemination methods including LISTSERV services, websites, publications, or events it is possible to describe the potential benefits of participation in a community of practice for faculty teaching online at little or no cost. It also places the community of practice within the scope of the larger institution.

Fundamental Element: Community

Core membership training. As described in other areas of the guidelines, the core membership is often described as the most important factor for the success of a community of practice. Gray (2004) identified technical competence, an understanding of community or relationship building, an orientation for learning, and sufficient knowledge of the practice as key characteristics of a member of the core team or a facilitator of a community of practice. Wenger et al. (2002) identified seven key functions that community coordinators perform: (1) identify important issues in the domain, (2) plan and facilitate community events, (3) link community members with assets, organizational units, and institutional leaders, (4) foster development of community members, (5) manage the boundary between the community and other organizational units, (6) help build the practice, and (7) assess the health of the community of practice and evaluate its contributions. Given the important role that core leaders play in the development of a thriving community, training and professional development of potential

Table 13

Operationalization of Domain Related Tasks During the Development Phase

Task	Faculty Development Operationalized Example
Create plan to mitigate disorders that may affect the development and continuation of the community of practice (Gongla & Rizutto, 2004; Lindvist, 2005; McLouglin, 2001; Probst & Borzillo, 2008; Wenger et al., 2002).	Use internal and external peer review process to minimize persistence of groupthink. Core group members should identify potential threats and create plan to address potential disruptions to the community of practice. (See Table 10)
Develop plan for incentives or rewards for member participation (Sharatt & Usoro, 2003; Wasko & Faraj, 2005).	Utilize institutional support to create awards. Employ institutional dissemination methods to publish names, pictures, and contributions of faculty participants. Promote community of practice mentorships and access to resources.
Market community of practice to potential members (Probst & Borzillo, 2008; Wenger et al., 2002).	Employ institutional dissemination methods to build a case for membership. Recruit members using the benefits of contributing and the value of learning from other's experience.

facilitators should be taken seriously. Training should encompass facilitation techniques, relationship building, technologies used for the community of practice, how to balance authority and power, how to promote trust, and how to encourage participation (Ardichvili et al., 2002; Fallah, 2011). As every community of practice is different, it will be imperative to identify and leverage the different skill sets that a given group of leaders possess. Specific professional development will depend on the particular needs of a community of practice and the skills that a group of coordinators may have.

  Build mechanisms for onboarding new members. As mentioned earlier when discussing threats to a thriving community, communities of practice that do not actively recruit and engage new members face stagnation or decline (Probst & Borzillo, 2008; Wenger et al., 2002). In order to encourage growth, a plan can be devised to allow new members to assimilate into the

community of practice for online teaching faculty. It is important to remember that not all new members will actively participate in the community of practice even though they will benefit from participating on the periphery. Potential members should have access to participation in an open and peripheral manner. Communities of practice can ease the onboarding process for new members by providing a clear set of directions for joining the community. Gaining access to a community of practice LISTSERV or the institution supported LMS should be an open process. If potential members perceive a community of practice as closed or not welcoming, they will not attempt to join the community of practice (Borzillo et al., 2011). Core group members or facilitators of the community of practice for faculty teaching at a distance should design clear directions for joining the community of practice and post them prominently on institution, departmental, or community practice websites with contact information for those responsible for technical issues or further information.

Table 14

Operationalization of Community Related Tasks During the Development Phase

Task	Faculty Development Operationalized Example
Train core membership/leadership/ facilitation group (Ardichvili et al., 2002; Gray, 2004; Probst & Borzillo, 2008; Wenger, McDermott, Snyder, 2002).	Provide professional development that encompasses facilitation techniques, relationship building, technologies used for the community of practice, how to balance authority and power, how to promote trust, and how to encourage participation and reification.
Provide mechanisms for new members to enter community (Borzillo et al., 2011; Probst & Borzillo, 2008; Wenger et al, 2002)	Display directions for joining the virtual community with contact information for core group members responsible for the technical support or further information.

Fundamental Element: Practice

Plan interactions. While virtual community of practice participants may meet informally to discuss topics of interest or to work on reification projects at any time, regular meetings with the larger community are required. Wenger et al. (2002) suggest that regularly scheduled events

help establish a sense of familiarity and create a rhythm for the community of practice. Whether meetings are held face to face, solely online, or a mix of both delivery methods, continuous participation provides a community of practice the ability to create the relationships that help develop the sense of trust and identity that defines the community (Hildreth et al., 2000). When building a virtual community of practice for faculty teaching online, it is important to be respectful of the enormous time drains that faculty face everyday. Synchronous meetings should be limited to just the amount of time needed to accomplish the goal of the meeting. Additionally, providing faculty a schedule of upcoming events, discussions, etc., will ensure timely participation and allow faculty to plan their own schedules in advance. If meeting in a virtual space faculty may need instructions for participating via the medium.

Table 15

Operationalization of Practice Related Tasks During the Development Phase

Task	Faculty Development Operationalized Example
Plan face-to-face and electronic meetings/ interactions (Ardichvili et al., 2002; Hildreth et al., 2000; Probst & Borzillo, 2008; Wenger et al., 2002).	Schedule a series of regularly occurring events to create a rhythm and a sense of familiarity. Provide schedule of upcoming events and limit meeting time to just what is needed to accomplish goals.

Implement

Fundamental Element: Domain

Launch community of practice. When ready to implement a community of practice it can be important to hold an event to introduce the community of practice to the larger organization and potential members. Wenger et al. (2002) suggests that a visible launch with endorsement from management allows people to become more aware of the community, its focus, and potential benefits. When launching a virtual community of practice for faculty teaching at a distance, a face-to-face event may provide a way for relationships and trust to form for members. Hildreth et. al. (2000) conducted a study of two internationally distributed

communities of practice and found that the community of practice that engaged in a face-to-face meeting formed more quickly and developed more meaningful interactions that led to richer knowledge sharing. Whether virtual or face-to-face or a combination of both, launching the community of practice with an event of some kind will likely attract broader support and participation (Wenger et al, 2002).

Include outside expertise. As discussed in earlier sections, providing opportunities for community of practice members to interact with outside expertise can mitigate problems arising from isolated communities of practice (Wenger et al, 2002). Probst and Borzillo, 2008 found that organizations wishing to form and sustain communities of practice must design regular interactions with outside expertise. When implementing a virtual community of practice for faculty teaching at a distance, it is possible to design opportunities for faculty to interact with experts from other universities or from distance learning associations. With travel costs prohibiting many potential experts from traveling, using synchronous online tools to introduce the community to other perspectives is a possibility.

Table 16

Operationalization of Domain Related Tasks During the Implementation Phase

Task	Faculty Development Operationalized Example
Launch the community of practice (Wenger et al., 2002).	Launch community with a kick off event to showcase institutional support. Face-to-face event may need to stronger relationships, richer interactions, and more knowledge sharing in the virtual community of practice.
Design opportunities interaction with outside expertise (Probst & Borzillo, 2008; Wenger et al., 2002).	Use synchronous communication tools to allow for guest speakers, colleagues from other universities, or other experts in the field to interact with community members.

Fundamental Element: Community

Build trust. Building trust is a critically important step in the development of a community of practice. No matter what the context of the community of practice there must be significant effort to build trust among all participants (Wenger et al., 2002). If participants do not

feel comfortable participating, they will not participate. During the earliest stages, the community of practice relies heavily on the core leadership to promote trust with and among participants. Wang and Chen (2009) discovered that higher order collaborative problem solving was only possible when trust was fostered through social interactions and conversation. By studying the interactions of email, bulletin boards, and threaded discussions of online courses, Chih-Hsiung and McIsacc (2002) determined that incorporating concepts such as building trust online, providing "hand-holding" techniques, support, and promoting informal relationships can help make online learning environments more interactive and improve sense of community (Chih-Hsiung & McIsaac, 2002). Core group members must be available to foster trust.

Mentor new members. Participants in a typical community of practice serve in different roles and are found on a spectrum of trajectories. There are opportunities for all participants to find identity and to learn from a community of practice, even when participation is on the periphery (Brown et al., 1989). Wenger (1998) identified five trajectories or paths for participants to find identity in a community of practice: (1) peripheral trajectories- the outside edge of a community that provides participants access to a community, but never leads to full participation, (2) inbound trajectories- participants are invested in becoming active members of the community even though they may still be on the periphery of the community, (3) insider trajectories- full membership, but a commitment to continued improvement through new demands, (4) boundary trajectories- participants sustain an identity that spans and connects different communities of practice, and (5) outbound trajectories- participants no matter the cause are in the process of leaving the community and developing new identities.

Once a community of practice is established and relationships have formed, new members will need to learn how to navigate the established norms and expectations of the community while overcoming social nuances. Mentoring new members is a key function of the community of practice core group. When researching how members of a community of practice move from periphery to active membership, Borzillo et al. (2011) found that in the early stages of membership, community of practice leaders played a significant role in the movement. A formal mentorship program for new members can enhance the community by stabilizing membership, steering reification efforts, and sharpening the saw for core membership (Wenger et al, 2002).

University faculty are already accustomed to the benefits that mentoring programs provide. In a study of a group of women scholars navigating the academic tenure process through peer mentorship, Driscoll et al. (2009) reported that through collaboration and mentoring, individuals found independence and clear sense of direction for scholarship. Wildman et al. (2000) explored a faculty collaboration group at Virginia Tech and reported greater problem solving through a learning community. A formal mentoring program for new members of a community of practice for faculty teaching at a distance should provide guidance for navigating the community of practice and help faculty improve instructional practices while providing an avenue for scholarly research in the field.

Facilitation. Facilitation of any online learning community requires a strong presence by a group leader, facilitator, or instructor (Garrison et al., 1999). In order to maintain or sustain an active community of practice there must a concerted effort by facilitators to keep participants engaged through collaboration, problem solving, knowledge building and sharing, feedback, and the opportunity to contribute to the larger organization by adding newly created knowledge to an existing knowledge base (Gongla & Rizzuto, 2001; Wenger et al., 2002). Members of the core leadership group often serve in a facilitative role to guide discussions, find consensus for goals, and help navigate the group through growth (Fischer, 1998; Palloff & Pratt, 1999; Wenger, 1998). Facilitators lead meetings or events, form dialogue opportunities for community participants to engage in peer interactions, encourage knowledge construction, and mediate community coalescence (Bielaczyc & Collins, 1999; Wenger, 1998). There are many roles and tasks associated with facilitating discussion, meetings, and knowledge sharing in online environments. Clawson and Bostrom (1996) identified sixteen different facilitator role dimensions that are essential for effective facilitation of interactions in computer-mediated environments (see Appendix B).

Using the facilitator role dimensions and associated tasks as defined by Clawson and Bostrom (1996), it is possible to create clear expectations for community facilitators. At minimum, community facilitators should be aware of the many role dimensions and associated tasks. The role of group facilitators in a virtual community of practice for online teaching faculty will vary, but the focus of the facilitation should be to guide community members to share instructional best practices, mediate conflicts as they arise, promote rich discussion, answer

questions for community members, encourage networking, and provide technical support as needed.

Recruit new core group members. As mentioned in earlier sections, building and maintaining a community of practice requires a strong group of core members and leaders. Over time community of practice members cycle through the community and core members or leaders move on from the community or step into different roles within the community (Wenger, 1998). Planning for succession and finding new core members and leaders are important tasks for community leaders. It is possible to mitigate problems that may arise from a leadership vacuum caused when core members leave without defined successors. Leaders should plan for succession. Wenger et al. (2002) suggests rotating leadership roles through the core membership. A rotating membership can prepare members to take on new leadership roles as needed. Succession planning must address how to recruit new core member and leaders. Potential core members or leaders should be experts, thought leaders, practitioners, or midcareer professionals who might like to take a more active role in the community of practice (Wenger et al., 2002). For more information about recruiting new members for a virtual community of practice refer to *Identify and Recruit Core Group* in the Analysis section.

Fundamental Element: Practice

Provide medium/tool training. In order for members to participate in knowledge sharing in the virtual environment they must first know how to navigate the medium and use tools. Participants must feel comfortable with any tool used in the virtual environment or they will not participate (Sharrat & Usoro, 2003). Facilitators are responsible for technical support, technical knowledge, and for providing training for use in knowledge sharing tools (Chih-Hsiung & McIsaac, 2002, Gray 2004). It is not necessary to hold a formal training on use of the tool or tools that house the community of practice. Many online technologies have prepared tutorials or training materials that can provide necessary information for participants. If no tutorials or training materials are available, the creation of tutorials will provide participants with the help they need to successfully participate in community activities. As the community grows, making

Table 17

Operationalization of Community Related Tasks During the Implementation Phase

Task	Faculty Development Operationalized Example
Promote trust within the community membership (Hildreth et al., 2000; Probst & Borzillo, 2008; Wenger et al.).	Core facilitators must engage in trust building activities including "hand holding" support and encourage participation with no judgment.
Mentor new members (Borzillo et al., Palloff & Pratt, 1999; Wenger et al., 2002).	Mentoring program should help new members navigate community of practice norms and expectations, improve instructional practices, and engage in scholarly work.
Facilitate discussions (Clawson & Bostrom, 1996; Fischer, 1998; Gray, 2004; Palloff & Pratt, 1999; Wenger et al., 2002).	Facilitation should encourage instructional best practice knowledge sharing, thoughtful discussions, mediate discussion, provide answers to member questions, and provide technical support. Facilitators should be aware of facilitator role dimensions and associated tasks (see Table 15).
Recruit new core leadership/ facilitation group members (Gongla & Rizzuto, 2001; Wenger et al., 2002).	Plan for succession. Recruit new core members and leaders to replace outgoing leaders and to promote fresh ideas.

such materials available and accessible for members can minimize technical support issues and promote knowledge sharing (Wenger, 2002).

Build and organize a knowledge repository. One of the main goals for a virtual community of practice is the development of a knowledge-sharing repository. Zhao and Bishop (2011) found that there must not only be a knowledge building component for an online community of practice, but also opportunities for interaction, and meaning making, as well. How a repository is organized will depend on the tools selected during the design phase. An institution supported learning management system (LMS) may have tools such as wikis or chats, but most have threaded discussion forums. Knowledge can be shared through discussion and other forms of interaction. As topics are discussed, how the content is organized will be an important consideration. Virtual community environments must be mindful of the knowledge overload that

may happen when communicating or building knowledge in electronic environments. (Hemp, 2009). As knowledge is shared or created in a virtual community of practice through threaded discussions, information can easily become overwhelming and disorganized. Hiltz and Turoff (1985) found that the design and structure of online discussion systems must include facilities for users to control and structure online discussions to ensure interactions did not lead to knowledge overload. Organizing the repository is critical to successful knowledge sharing.

As repositories shave multiple modes for members to engage and interact with one another there must be a deliberate design for how knowledge is shared in electronic environments (Scardamalia & Bereiter, 1994). Effective facilitation and planning can overcome problems associated with organizing a repository. Since knowledge repositories are meant to meet the needs of both knowledge sharers and knowledge seekers, community of practice facilitators should organize discussion threads by topic and moderate posts (Wenger et al., 2002). To minimize confusion the repository should also delineate personal and public spaces. Predetermined criteria should describe where in the repository to hold informal discussion or chats, while reserving special spaces for more formal discussion and reification (Wenger et al., 2002)

Expand to research agenda. Reification is an important outcome for communities of practice. Without engaged knowledge creation a community of practice is relegated to a social group (Wenger, 1998; Wenger et al., 2002). In order to maintain membership and drive participation communities of practice must also develop a plan for innovation or knowledge creation. West (2008) insists that communities of practice must do more than just provide members competence or meaning-making. Instead, communities of practice should become communities of innovation by shifting focus from just maintaining the status quo to creating and fostering an innovation (West, 2008). When researching a university wide community of practice, Waddock and Walsh (1999) found that engaging faculty and administrators in a variety of collaborative reification efforts including research, publications, grants, community outreach, and internal professional development efforts grew and sustained the community of practice. A community of practice for faculty interested in improving their online teaching practices can easily emulate the model as described by Waddock and Walsh (1999).

Table 18

Operationalization of Practice Related Tasks During the Implementation Phase

Task	Faculty Development Operationalized Example
Provide training for interaction and knowledge sharing through the virtual medium (Chih-McIsaac, 2002; Wenger et al., 2002).	Provide access to tutorials or other training materials for how to use the medium or tools to share knowledge and interact with other faculty participants.
Build and organize a knowledge repository (Scardamalia & Bereiter, 1994; Wenger et al., 2002; Zhao & Bishop, 2011).	Avoid information overload by providing an organized repository. Provide facilitation to ensure knowledge is organized appropriately for knowledge sharing and knowledge seeking members.
Expand knowledge sharing to knowledge creation with well-defined research agenda (Waddock & Walsh, 1999; Wenger et al.).	Engage faculty in reification efforts that add to the literature in the field of distance learning teaching and learning best practices. Encourage conference attendance and publication of research.

Evaluation

Fundamental Element: Domain

Effectiveness of the community in context. Evaluating a community of practice requires a systematic plan for assessment that is specific to the community being evaluated. Evaluation must occur through all phases of community design from conception through implementation and continuously through maintenance (Schwier et al., 2007). Since communities of practice are sometimes viewed as social gatherings or groups, rather than valuable resources within organizations, designed communities often fail because they are not viewed as contributing educational or workplace knowledge of the organization (Wenger, 2010). Organizational leaders are often concerned with the bottom line and want to know that there is a return on investment (Wenger et al., 2002). Evaluating whether the community of practice is providing value to the organization and is in alignment with the organizational goals is key to sustaining a community of practice. If a community of practice loses institutional support or is perceived to lack value, it

will lose validity and participation (Wenger et. al, 2002). A virtual community of practice for faculty teaching at a distance can prove its worth to the institution through systematic evaluation. Institutional goals are generally wrapped around the improvement of instructional practices, student engagement, and other student centered areas. Ways to implement evaluative processes that show alignment will vary from institution but might include: student end of course surveys, faculty climate surveys, or volume of distance learning related research. Other evaluations as described in later fundamental element sections can also be used to show alignment with institutional goals.

Table 19

Operationalization of Domain Related Tasks During the Evaluation Phase

Task	Faculty Development Operationalized Example
Evaluate the effectiveness of the community in context within the larger organization (Probst & Borzillo, 2008; Wenger et al., 2002).	Use evaluations that show value to the larger institution and alignment with institutional goals.

Fundamental Element: Community

Level of trust and quality/quantity of interactions. Evaluation of a community of practice can be conducted by analyzing the level of trust displayed in the online interactions. If trust is not built in a community of practice it will show through the quality and quantity of interactions in the online forum (Palloff & Pratt, 1999). Wenger et al., (2011) identified five ways to measure quantity of interactions: (1) attendance at meetings, (2) number and characteristics of active participants, (3) subscribers, (4) logs and website statistics, (5) participant lists from synchronous meetings. Alem and Kravis (2005) evaluated the success of a virtual community of practice based on active membership, lurkers, number of messages per participant, on topic discussions, level of trust and satisfaction, and average length of membership. This information can be easily gathered by conducting an analysis of the artifacts, discussion threads, and other documentation developed by the community of practice.

Community of practice leaders can learn a great deal about the health of a community of practice by evaluating the quality and quantity of interactions (Ke & Hoadley, 2009; Wenger et al., 2002)

Perceptions of learning and improved performance. Member perceptions of a community of practice can be used as an evaluative tool. Verburg and Adriessen (2008) used community of practice member perceptions to evaluate the effectiveness of seven communities of practice. Wenger et al, (2011) argued that value of a community of practice can be measured by collecting participant perceptions of learning or improved performance. Though participant perceptions of learning or improvement does not always translate into real learning or improvement, it can help give a view into how participants perceive the value of the community of practice. Wenger et al. (2011) constructed an evaluative tool with a variety of questions covering 5 major value domains. See Appendix C, The instrument is designed to capture community of practice member perceptions of the value created from participation in a community of practice

While the table in Appendix C of potential evaluation questions above is extensive, it is not necessary to use all of the questions to conduct an evaluation of members. Several questions from each value domain can provide a picture of member perceptions of the value created from a community of practice. When evaluating a virtual community of practice for faculty teaching involved in distance education, this evaluative tool may serve as a guide.

Fundamental Element: Practice

Effectiveness of medium. In order to ensure that all components of a community of practice are examined for effectiveness, evaluations should also focus on the technology employed to host a virtual community of practice. Teo et. al. (2003) suggested evaluating the usefulness and usability of the medium housing the community of practice. Additionally, researchers in the same study examined perceived usefulness, sense of belonging, perceived ease of use, intentions for use, and adaptivity to evaluate the effectiveness of the medium for a virtual community of practice (Teo et al, 2003). Getting feedback on the medium from community of practice members can help community leaders make decisions about adjustments to the medium or whether to change the medium altogether.

Table 20

Operationalization of Community Related Tasks During the Evaluation Phase

Task	Faculty Development Operationalized Example
Evaluate active membership through quality and quantity of member interactions and level of trust (Alem & Kravis, 2005; Wenger et al., 2011).	Use existing artifacts to measure trust and participation by analyzing the quality and quality of member interactions.
Evaluate participant perceptions of learning and performance improvement (Verburg & Adriessen, 2006; Wenger et al., 2011).	Use predetermined criteria to gather member perceptions of value, learning, or performance improvement (see Table 19).

Quality/quantity of knowledge sharing. A community of practice can be evaluated by analyzing the quality and quantity of knowledge that is created (Derry & DuRussel, 1999). Wenger et al. (2002) suggests that the knowledge repository that is created at the center of the community of is itself a tool for evaluation. A thriving community should have a robust knowledge repository of shared knowledge and co-constructed new knowledge to analyze. One that is fading or stuck in a rut will have little or no knowledge repository. When analyzing a knowledge repository evaluators should look for intensity of discussions, challenges of assumptions, length of threads, the bringing of experiences of practice into the space, debates on important issues, feedback on quality of responses to queries, new knowledge construction, and any reification efforts (Wenger et al., 2011). Evaluation of the quality and quantity of knowledge sharing in a virtual community of practice for faculty teaching at a distance should include an analysis of existing artifacts, discussions, and any research projects associated with improving online teaching and learning practices.

Table 21

Operationalization of Practice Related Tasks During the Evaluation Phase

Task	Faculty Development Operationalized Example
Evaluate the effectiveness of the knowledge sharing medium (Teo et al., 2003).	Evaluate for perceived usability, perceived usefulness, sense of belonging, and adaptivity.
Evaluate quality and quantity of knowledge sharing (Derry & DuRussel, 1999; Wenger et al., 2011).	Use existing artifacts in the knowledge repository to analyze quality and quantity of knowledge sharing. Include any past or ongoing research projects

CHAPTER 5

EXPERT REVIEW

In an effort to validate the proposed guidelines presented in Chapter 4, this chapter describes the expert review process. Chapter 5 presents the results of the expert review including a summary of the data collected and findings from that data. It also provides a discussion of the recommendations that the expert reviewers made and how the recommendations influenced the final set of guidelines.

Findings

Expert Review

The expert review process was instigated to validate the set of guidelines, created from a comprehensive review of literature, for designing a virtual community of practice for faculty teaching online. Three experts agreed to review the guidelines using a predetermined set of evaluation criteria (see Table 3). Dr. Peter Doolittle (Virginia Tech), served as an expert in faculty professional development, Dr. Nada Dabbagh (George Mason University), represented expertise in engagement in online environments, and Dr. Aaron Wiatt Powell (Independent Consultant), provided expert guidance for communities of practice.

The review was conducted in two phases. The first phase consisted of an open-ended survey (see Appendix G), with opportunities for the reviewers to determine if the evaluation criteria were met and to provide specific feedback about each design phase. The second phase included a follow-up conversation during an interview (see Appendix H), to clarify or expand upon reviewer comments.

Results and Recommendations

The expert review phase produced feedback for improving the guidelines. Feedback from the expert reviewers was collected and analyzed. Qualitative data was analyzed within categories determined by the focus of questions in the questionnaire (Creswell, 1994; Gay, Mills & Airasian, 2009; Kumar, 1996; Taylor, 2000)

Common themes for improvement emerged from the information collected during the initial survey. Follow-up conversations with the reviewers centered on the common themes. Each

reviewer provided specific examples and recommendations for improving the guidelines. While not all comments are included, the specific themes that were identified by multiple reviewers and recommendations for improvement will be discussed in this section. From the feedback provided, revisions to the guidelines are provided in context. Expert reviewers identified several areas for improvement. In this section common areas identified by the expert reviewers and their recommendations for improvement are explored. Additionally, a discussion of how the guidelines will be revised to incorporate reviewer suggestions is included.

Needs assessment. Multiple reviewers noted the absence of specific guidance for conducting a needs assessment in the domain area during the analysis phase.

Reviewer 1:   "Though a needs assessment is mentioned, no method is provided."

Reviewer 2:   "It was not clear which analysis techniques will be used to identify the scope and intent of the CoP for faculty teaching at a distance."

Reviewer 3:   "It would seem that the identification of knowledge-sharing needs is a needs assessment." "Period." "That's it?" "Seems limited."

Additional feedback was provided in the follow-up interview and suggestions for improving this area were offered.

Reviewer 1:   "A lot of what you do depends on that needs analysis." "What could support what they do now in the way of sharing knowledge with each other or promote further membership in their group?" "I think its basically to have sit down interviews with key players…have them fill out a survey and then do follow-up interviews."

Reviewer 2:   "It doesn't mention anything about any specific method." "In fact, you mention the goals of what you would hope to accomplish doing this needs assessment, but you didn't specify the technique and in needs assessment we have multiple techniques." "We can do structured interviews." "We can do questionnaires."

Reviewer 3:   "My thought is that needs assessment is a kind of a complex approach…it can take six months to do a good needs assessment." "That's not what you are talking about." " I don't think." "I think you need to go to the more generic gap analysis." "It seems to me that gap analysis is something that people could understand intuitively, very quickly…because I am not sure that most developers would even know how to do one or at least a good one."

From the feedback provided from the expert reviewers it is possible to make revisions. In the analysis phase of the guidelines, needs assessment will be replaced with gap analysis, instead. The following information about how to conduct a gap analysis will be added to the guidelines:

Gap analysis is the process of determining the current state and identifying where you want to be (Franklin, 2006). In other words it is the definition of the problem. When performing a gap analysis for a virtual community of practice for faculty teaching at a distance, it is important to determine if a problem exists that can be solved with a community of practice. Franklin (2006) notes that when performing a gap analysis employee performance is the foundation upon which the success of an organization rests. Based on that model, it may be prudent to conduct a gap analysis that considers larger organizational goals and any performance (teaching and learning) gaps that faculty may have. Questions that can help conduct a gap analysis might include:

- Are there institutional gaps (online enrollments, student satisfaction, attrition rates) in which there are gaps between the current status and where the institution would like to be?
- What does the desired state look like? (more online enrollments, more faculty teaching online, greater faculty satisfaction with support opportunities, etc.)
- Are there professional development related gaps between faculty who teach on campus courses and those who teach online courses?
- Do faculty report isolation or problems managing online course loads?

From the gap analysis it is possible to better understand institutional and faculty needs. It is possible to determine whether a virtual community of practice is necessary and what specific support needs that the community of practice can address.

Rewards and incentives. Another area that multiple reviewers identified for improvement was in the domain area in the development phase. Two of the three reviewers noted that while incentives or reward systems were discussed, the guidelines lacked specificity and enough detail.

Reviewer 1:   "You could underline how the CoP could reinforce current method of incentives and recognition already in place at the institution, such as earning new tech and resources, or mentoring new faculty as you pointed out."

Reviewer 2:   "…more detail can be provided like establishing a more specific incentive or reward system (e.g. providing mentoring points for faculty who mentor others."

Feedback gathered through the follow-up interview provided ways to incorporate changes into the guidelines.

Reviewer 1: "Faculty do have a need for recognition by their peers." "They do have a need for the prestige that they might get." "So how do they get recognized for their participation, beyond the community of practice?" "Somehow faculty need to get recognition or credit from administration." "Maybe by participating in the community of practice they could earn a computer." "Maybe every semester there is a new set of leaders who can get a stipend."

Reviewer 2: "At (my institution) when faculty become dissertation chairs or members of a dissertation committee, we are given mentoring points." "If you accumulate five mentoring points then you can get a one course reduced teaching load." " If you could give them mentoring points that could eventually end up in reducing their teaching load."

Based on the feedback and suggestions from the expert reviewers, the Rewards and Incentives section of the guidelines will be revised. The following description will be added to the section:

Faculty participation may be motivated through a variety of ways. Providing multiple avenues for rewarding and incentivizing participation is key for knowledge sharing and participation in a community of practice (Wang & Lai, 2006; Wasko & Faraj 2005). Rather than inventing new structures, it may be possible to work within established reward and incentive structures at the institution.

Additionally the following table with possible rewards or incentives for faculty participation will be added in that section.

Table 22

Possible Incentives/Rewards by Motivation

Incentives/Rewards	Examples
Administrative Recognition	• Certificate of Appreciation • Course Load Release • Educational Leave • Research Leave
Peer Recognition	• Leadership Opportunities within the Community • News Releases/Promotions • Publications, Grants, etc.
Monetary	• Leadership Stipend • Conference Travel • Outreach Opportunities • Technology or Other Resources

Tool selection and knowledge management. Multiple reviewers found the tool selection

use and management area to be lacking.

Reviewer 1: "From the guidelines, I presume that more information about Blackboard, Sakai, or whatever tools and resources are probably scattered across various websites." "The more information is dispersed the less community you have." "If you want to draw people together, that is essentially your goal for faculty development, to have information all in place."

Reviewer 2: "Clear guidelines are provided, however more details in terms of the advantages and disadvantages of platforms that have been used to support a CoP would be useful."

Reviewer 3: "This section addresses the tools that may be necessary to support a virtual CoP." "Unfortunately, there are no criteria listed for determining an appropriate tool set." "Can some criteria or guiding questions be provided to the developer to guide the acquisition of useful technologies?"

In follow-up conversations with the reviewers how to address this issue became clear.

Reviewer 1: "If your system/portal can bring all the resources and tools together in one place, the tool selection will be much easier."

Reviewer 2: "The platform that supports the community of practice is one of the most important things in my opinion." "So it has to be easy to use and there's got to be places where people can upload things and connect with people that are like interest and then also talk."

Reviewer 3: "Part of my hesitation is if that (advantages/disadvantages of a particular tool) is in the document, then the document is old the moment you print it." "Thinking generically, learning management systems, blogs, and document repositories are all used for a purpose." "If you said, based on the community of practice there is a list of four basic things that people might want to do." "They might want to store documents, have conversations, and they might want to put up information about the community of practice." "For each of these four needs, here are potential technology types." "You could identify the four types of tools…and in the next column examples of those things."

The reviewer feedback here is very helpful and it is clear how the guidelines can be revised for improvement. Based on the feedback provided the tool selection area of the guidelines can be improved with the inclusion of a table that generically identifies possible tools based on community of practice needs. The following table will be inserted into the Media Selection of the guidelines.

Table 23

Possible Tools by Virtual Community of Practice Technology Need

Need	Possible Tool
Online Interaction/Discussion	• Institution Supported Learning Management System (Blackboard, Sakai, Desire2Learn, etc.) • LISTSERV • Forums (Piazza, LMS Discussion Board, etc.) • Blogs (Blogger, Word Press, etc.) • Web Conferencing (Centra, WebX, GoToMeeting, Adobe Connect, Collaborate, etc.) • Social Media (Facebook, Twitter, etc.)
Knowledge Creation/Sharing	• Wikis (LMS wiki, Wikispaces, etc.) • Blogs (Blogger, Word Press, etc.) • Web Conferencing • Document Collaboration Tools (Google Drive, Dropbox, etc.)
Document Repositories	• Institution Supported Learning Management System (Blackboard, Sakai, Desire2Learn, etc.) • Wikis (LMS wiki, Wikispaces, etc.) • Document Collaboration Tools (Google Drive, Dropbox, etc.)

Building trust. Expert reviewers identified building trust as an area for improvement in community area during the implementation phase. Reviewers noted that such an important area for a community of practice needed more specificity.

Reviewer 1:   "Promoting trust is highlighted, but no strategies are outlined."

Reviewer 2:   "While broad guidelines like 'hand holding' techniques are mentioned, no specific guidelines on how to build trust or what constitutes lack of trust are provided."

Reviewer 3:   "The building trust section addresses that trust is necessary, but doesn't provide any strategies for doing the building."

Follow-up interviews provided additional information and suggestions for improving the guidelines.

Reviewer 1:   "Part of the trust scenario is trusting that they'll share…but up front there should be a policy of reciprocity." "People in this community are free to use the ideas shared by others, but in turn you are expected to contribute."

Reviewer 2:   "I think what builds trust in something like this is that they trust they're going to get the knowledge that they are looking for." "They trust that it's probably coming from a reputable source."

Reviewer 3:   "You are going to have to go outside the community of practice literature and go to the trust literature." "Find out, what in a general sense fosters trust and then you are going to have to be the inventive mind that determines what this looks like in a community of practice." "You are going to have to make that bridge yourself."

It is clear that the reviewers found the section in the guidelines that addresses building trust in the community of practice, lacking. The reviewers' formative feedback provides guidance for incorporating revisions in this section. The following descriptive text will be added to the guidelines:

Virtual communities of practice must work harder to create a base of trust among members by intentionally connecting people, and finding multiple opportunities for members to interact and build relationships (Wenger, McDemott, and Snyder, 2002). Much of the promotion of trust must be facilitated by the core membership or by the community facilitators (Gray, 2004; Palloff & Pratt, 1999). Jarvenpaa and Leidner (1998), when researching trust in virtual teams found that trust is developed in stages. In early stages, trust is fostered when members are given opportunities for social exchanges or interactions, are allowed to suggest topics for discussion, and communication is enthusiastic and supportive (Jarvenpaa & Leidner, 1998). In later stages trust can be facilitated through regular intervals of interactions, substantive and prompt feedback, and rotating leadership roles (Jarvenpaa & Leidner, 1998). When promoting trust in a virtual community of practice for faculty teaching online courses, core members or facilitators can deliberately plan and hold social events where members can interact with colleagues, interact regularly with members, be responsive to member's needs, and establish rules for knowledge sharing. Core members or facilitators must be aware of the institutional culture and encourage an environment of reciprocity.

Evaluation. There were areas for improvement identified when evaluating the value of the community in the context of the larger organization. Feedback from the reviewers pointed to the need for more guidance in this area.

Reviewer 1:   "I am concerned that the evaluation guidance does not include how the CoP is meeting the larger needs."

Reviewer 2:   "The variable or what to evaluate is clear, but not how." "A more specific summative evaluation plan is needed. Perhaps using Kirkpatrick's levels might be suitable here."

Reviewer 3:   "This section does address the evaluation process of the CoP, but only in one sentence." "This discussion needs to be expanded."

Follow-up conversations helped further clarify reviewer comments and possible methods for improving the guidelines.

Reviewer 1:   "On some level you have to acknowledge the institutional role here." "I think you have to." "You can't hide that." "You have to make that out in the open and clear, that you are serving institutional goals as well." "You have to include that you are meeting those needs, as well." "It must meet faculty needs also."

Reviewer 2:   "Are you familiar with Kirkpatrick's four levels?" "So at level one you're really sort of getting reaction of the community members in terms of their perceived reactions." "Questions like are you satisfied with this community of practice, is it working for you, what do you like about this community of practice, and is it easy to use." "Level two you are looking at learning." "Level three is transfer." "Level four would look at the return on investment." "That would be at the institutional level." "So for the folks that actually joined the community of practice, you could compare their teaching evaluations." "The return on investment for the institution would be, how many more people are teaching online, are evaluations better, and how many new courses have been generated." "The return on investment level—measuring the institutional progress with respect to the number of online courses, the number of students signing up for those courses, and in between you are measuring faculty perceptions."

Though all reviewers identified this area for improvement, only two reviewers offered suggestions for improvement. From the feedback provided by the expert reviewers it is possible to rectify identified deficiencies in the overall evaluation section. The following descriptive text will be added in the Evaluation section of the guidelines:

A comprehensive evaluation can determine whether the community of practice is meeting institutional and faculty needs. When conducting the gap analysis it is possible to create a plan for evaluation that measures whether the gap has been mitigated and if the community of

practice is creating value for the institution and faculty (Wenger, Trayner, & de Laat, 2011). Core members or community facilitators should work together to determine a regular schedule for evaluation and administer evaluations accordingly. It is possible to use Kirkpatrick's Four-Level Evaluation Model (1998) to evaluate the virtual community of practice for faculty teaching online (Wenger et al., 2011). Table 24 details the evaluation focus for each level and corresponding questions for a virtual community of practice for faculty teaching at a distance.

The following table will also be incorporated into the Domain element evaluation:

Table 24

Virtual Community of Practice Evaluation Based on Kirkpatrick's Four-Level Model

Level and Technique (Kirkpatrick, 1998)	Possible Questions/Areas for Evaluation
Level 1-Reaction (Faculty perceptions of the community of practice) Surveys for participant perceptions.	• Are you satisfied with the community of practice? • Is it easy to use? • What do you like/dislike about the community? • Are the facilitators friendly?
Level 2-Learning (The extent to which faculty participants change attitudes, improve knowledge, and/or increase skill as a result of participating in the community of practice) Survey for perceptions, evaluate for learning through discourse analysis.	• What skills, knowledge, attitude has changed as a result of your participation? • Can you describe how you will incorporate what you have learned in your courses? • Is there quality knowledge being shared by members?
Level 3-Behavior (Extent that faculty are using the newly acquired skill, knowledge, or attitude in their online teaching) End of Course Evaluations, Peer Evaluations	• Comparison of end of course evaluations • Faculty peer review for online course development and teaching.
Level 4-Results (The extent of the return on investment or value to the institution that the community provides) Institutional measures	• Increase in online courses being developed or taught? • Decreased attrition in online courses? • Increased enrollments in online courses?

CHAPTER 6

OBSERVATIONS AND SUMMARY

Purpose of the Study

The purpose of this study was to develop a framework for building electronic communities of practice that support professional development for faculty involved in online teaching at large research centered universities. As a result of the study, a set of guidelines for operationalizing tasks for building a virtual community of practice for faculty teaching at a distance within the ADDIE model were developed. Using a developmental study model, a thorough review of community of practice related literature was used to develop the guidelines and to operationalize design tasks. The three-prong model described by Wenger et al. (2002) for community of practice design, provided the foundation for defining and describing instructional design tasks through the lens of the ADDIE model. Additionally, empirical studies and research from communities of practice in workplace settings (Ardichvili et al., 2002; Gongla and Rizzuto, 2001; Probst & Borzillo, 2008), combined with CSCL research for designing virtual communities (Dube et al., 2006; Lipponen et al., 2004; Sawyer, 2006; Scardamalia & Bereiter, 1994), were used to operationalize tasks within given phases of the ADDIE model. A new framework was created that operationalized the design of a virtual community of practice. A expert review validated the guidelines through a formative evaluation and provided guidance for improving the guidelines.

This chapter provides a summary of the developmental research study and describes how this research may inform how instructional designers and other support professionals design, implement, and maintain electronic communities of practice as a means for supporting faculty engaged in distance learning.

Study Summary

Though more institutions report an increase in online programs and course offerings, faculty report poor institutional support for teaching faculty engaged in online courses (Association of Public and Land-grant Universities-Sloan National Commission on Online Learning, 2009; Sloan National Commission on Online Learning, 2013). In this developmental study, guidelines for designing a virtual community of practice were designed to demonstrate

how research-based tasks could be mapped to the design tasks in the ADDIE model. Any design project starts with a needs assessment to determine what problems exist and to find solutions to those problems (Morrison et al., 2010). A review of literature showed a gap exists in the area of community of practice literature and faculty development literature for how to use a community of practice to support online faculty. Through a review of the literature and analysis of the feedback from the expert reviewers the guidelines were validated and revised. This developmental study successfully validated guidelines developed through a thorough literature review and consultation with experts in the field of instructional design, faculty development, and community of practice.

With the growing number of faculty engaged in online teaching and learning there is a need for innovative approaches to faculty professional development and support (Association of Public and Land-grant Universities-Sloan National Commission on Online Learning, 2009). Communities of practice for faculty teaching at a distance may provide opportunities for professional development and support. Since instructional design models are tied to human learning and organizational learning, it is possible to use developmental research to study how instructional design tasks can be operationalized to construct guidelines for designing a community of practice (Richey & Klein, 2009). In this developmental study research-based strategies were combined with instructional design tasks to create guidelines for creating a virtual community of practice. Expert reviewers validated the design process with formative evaluation and recommendations for improvement.

Developmental studies often promote a deeper understanding of the instructional design field, promote knowledge production, and are generalizable (Richey & Klein, 2009). The purpose of the guidelines is for instructional designers, faculty support professionals, and/or faculty developers to have a framework, based in research to design communities of practice in their respected institutions. Though designed for supporting faculty engaged in distance learning, instructional designers, faculty support personnel, and/or faculty developers may be able to use the guidelines that emerged from this study, to design virtual communities of practice for all university teaching faculty. The guidelines are meant to be a suggested prescription for certain support or development related issues affecting faculty. There may be instances, situations, or institutions where the guidelines for building a community of practice for faculty teaching at a distance may not be appropriate.

Design and developmental research is designed to bridge the gap between theory and practice (Richey & Klein, 2009). Through this research study, a set of guidelines were formed by combining community of practice literature, instructional design processes, and incorporating recommendations through expert review process. Each reviewer analyzed the set of guidelines that was created from a comprehensive literature review, and identified areas for improvement. Each reviewer also contributed to the final set of guidelines by offering suggestions and recommendations for their improvement. Reviewer feedback was based in research, practice, and represented the field of expertise for each reviewer. From the expert review, the set of guidelines was validated and a plan for revision was formed.

Developmental research leads to knowledge creation in the field of instructional design and provides validation of the process (Richey & Klein, 2009). Incorporating input from experts and practitioners, developmental research allows for the creation and validation of instructional design models and processes. Combining research-based practices with the ADDIE model led to the creation and validation of a set of guidelines that can be implemented and studied further.

Contribution of Study

This study established a set of guidelines for designing a virtual community of practice to support faculty engaged in distance learning efforts. Information gathered from this study has both theoretical and practical implications. The study adds to the current literature by describing and evaluating the developmental process for a theory-based framework that can be implemented within an existing organizational structure at large research institutions.

Theoretical implications. Developmental research is solution-based or action-based research (Richey & Klein, 2009). The study extends contributions to several fields of study by utilizing an instructional design model to design a framework for building a community of practice for faculty professional development and support. Using a developmental research model, a literature review informed the analysis and development of a framework and an expert review was used to validate and revise the guidelines (Richey & Klein, 2009; Weston et al., 1995). The collaborative relationship between the researcher and the expert reviewers is documented and the process for revision open for review (Richey & Klein, 2009). The description of the developmental process may also contribute to literature concerning developmental research products and may lead to further research projects using the same model.

Designing a virtual community of practice is difficult to do. As noted throughout the study, there are multiple areas where community of practices can fall apart. Through the development and review process several deficiencies were identified. The importance of the analysis phase of development and the gap analysis in particular for designing a virtual community of practice became clear. The analysis phase is an important piece of the larger design puzzle. A recent study of instructional designers found that the analysis phase was rated as a high operational priority, both in terms of the frequency and diversity of comments (Ozdilek & Robeck, 2009). As with any instructional design project, a gap analysis can help ensure that the appropriate solutions or interventions are employed and can help mitigate future problems before they arise. As became clear through the expert review process, investing time and effort in the analysis phase by conducting a gap analysis, can help determine whether a community of practice for faculty teaching at a distance will help solve specific problems that individual institutions, departments, or faculty face.

Another area that proved problematic is the promotion of trust in a virtual community. Ardichvili et al. (2002) note that building trust is a critical component of a community of practice and cite the lack of trust among members as one of the reasons that communities of practice fail. While there is much literature that denotes the importance of trust building in communities of practice, there is little about how to do it. Finding specific examples of how to build trust required exploring other areas of literature. This study provides a fresh look at trust building and provides a comprehensive approach that examines both designed interactions and knowledge sharing mechanisms. Both approaches are necessary for fostering trust in a community of practice (Jarvenpaa & Leidner, 1998; Wenger et al. 2002).

Practical implications. Developmental research is meant to help mitigate the gap between theory and practice. Instructional design is by its nature a practical discipline. Instructional designers employ practices that are guided by theoretical underpinnings to provide solutions to real problems (Richey et al., 2011). This developmental study established a set of guidelines based in theory that has practical implications for solving the problem of how to support faculty who design and deliver instruction at a distance. "Developmental research strategies offer an opportunity to study the process of distance education while engaged in distance course or program implementation… Outcomes of this method can result in the creation of models of distance education that are generalizable to other settings." (Lockee, Burton, &

Cross, 1999, p. 39). By matching design tasks for building a community of practice with the ADDIE model, instructional designers, administrators, and faculty support professionals will have access to a research-based guide that can be easily adapted and employed. A set of guidelines that describes the design process and tasks related to building a virtual community of practice may provide a solution that addresses online faculty development needs.

The guidelines are meant to serve as a guide, but they may not fit every purpose or institution. The guidelines are not meant to be linear and can be employed in a rather cyclical manner. For instance, if a virtual community of practice already exists, there may not be a need for an intensive recruitment process. Instructional designers, support personnel, developers, and administrators can use the guidelines and adapt them to meet their faculty or institutional needs.

Tool selection is an important part of designing a virtual community of practice. Wenger et al. (2011) identify tool selection as a critical role for designers of a community of practice, but do not offer specific guidance about which tools to select. Providing guidance for faculty support professionals and instructional designers for which tools to select proved to be an area for more discussion. As a result of this study, it became clear that a broader discussion of tools and their uses was more practical than a look at specific tools. Providing a list of generic tools for a specific need was more practical and may provide flexibility and relevance for faculty support personnel during the tool selection process.

Another area of focus that was identified as problematic is evaluation of a community of practice. A critical component of instructional design is evaluation. Evaluating a community of practice requires a systematic plan for assessment that is specific to the community being evaluated. Evaluation must occur through all phases of community design from conception through implementation and continuously through maintenance (Schwier et al., 2007). A gap identified in the study was the lack of a progressive evaluation system that assessed a variety of low level and higher order benefits of the community of practice. Incorporating Kirkpatrick's four levels of evaluation helped address this issue (Kirkpatrick, 1998). Though the study addressed this identified issue, the evaluation process described in the guidelines may be problematic when evaluating a virtual community of practice for faculty teaching at a distance (Schroeder, 2011). Faculty members have many commitments and may become annoyed if the community of practice is constantly being evaluated. Communities of practice have a tendency to fall apart when members feel that there is an effort to institutionalize the community of practice

(Dube et al., 2006). Evaluation of the community of practice should be done sparingly. Evaluation can include all elements in one evaluation or concentrate on perceived areas of weakness (Wenger et al., 2011). It is important to apply caution and institutional considerations when undertaking any task as defined in the guidelines.

Next Steps

Implementation of the guidelines is the appropriate next step in the design process. As design and developmental research can be a continuous process of implementation and evaluation, the next phase of this study would be to have the guidelines tested in the field (Jonassen et al., 2007). Based upon the feedback from the expert reviewers the implementation of the complete guidelines is feasible. Additional research and testing of the guidelines can enhance the field of instructional design, faculty development, and community of practice literature, while informing how best to implement the guidelines. Small-scale implementation will produce lessons learned that can also inform potential issues of this proposed framework.

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APPENDIX A

ANALYSIS PHASE SAMPLE COMMUNITY DESIGN PLANNING DOCUMENT

Use this document to perform relevant tasks for building a community of practice for faculty teaching at a distance.

Intent of the community of practice for faculty teaching at a distance:

_____

Topics/Main ideas connecting potential faculty community members:

_____

_____

How does the community of practice for faculty teaching at a distance align with the larger university, department, or college?

_____

_____

Is there organizational support? Explain

_____

_____

If not, how will organizational support be secured?

_____

_____

Who are potential thought leaders, facilitators, or core members?

_____

_____

How will potential core members be recruited? Remember to incorporate factors that motivate faculty to participate.

_____

_____

Who are the potential community of practice faculty members?

_____

_____

Will a community of practice meet the needs of potential faculty members? Explain how.

_____

_____

How will potential faculty members be recruited?

_____

_____

What are common knowledge sharing needs of the potential faculty members?

_____

_____

APPENDIX B

FACILITATOR ROLE DIMENSIONS AND ASSOCIATED TASKS

Facilitator Role Dimensions and Associated Tasks

Facilitator Role Dimension	Associated Tasks
Plan and designs the meeting	• Plan the meeting ahead of time. • Include meeting leaders/initiators in planning • Develop clear meeting outcomes • Design agenda and activities based on outcome, time frame, and group characteristics.
Listen to, clarify, and integrate information	• Really listen to what the group is saying and make an effort to make sense out of it. • Clarify goals, agenda, terms and definitions with group.
Demonstrate flexibility	• Adapt agenda or meeting activities on the spot as needed. • Can do more than one thing as a time.
Keep group outcome-focused	• Clearly communicate outcomes to the group upfront. • Make outcome visible to the group. • Keep group focused on and moving toward its outcome.
Create and reinforce an open, positive, and participative environment	• Draw out individuals by asking questions. • Use activities and technology to get people involved early on. • Handles dominant people to ensure equal participation.
Select and prepare appropriate technology	• Match computer- based tools to the task(s) and outcome(s) the group wants to accomplish. • Select tools that fit group makeup.
Direct and manage the meetings	• Use the agenda to guide the group. • Use technology effectively to manage the group. • Set the stage for meeting and each activity. • Set time limits, enforces roles and ground rules.

(table continued)

Facilitator Role Dimensions and Associated Tasks (continued)

Develops and asks the "fight" questions	• Consider how to word and ask the "best" questions that encourage thought and participation.
Promote ownership and encourage group responsibility	• Help group take responsibility for and ownership of meeting outcomes and results. • Turns the floor over to others.
Actively build rapport and relationships	• Demonstrate responsiveness and respect for people, is sensitive to emotions. • Develop constructive relationships with and among members. • Greet and mingles with group.
Demonstrate self-awareness and self-expression	• Recognize and deal with own behavior and feelings. • Comfortable being self. • Keep personal ego out of the way of the group.
Manage conflict and negative emotions constructively	• Provides techniques to help group deal with conflict. • Gather and check group opinions and agreement level in disputes.
Encourage/support multiple perspectives	• Encourage looking at issues from different points of view. • Use techniques, metaphors, stories, and examples to get the group to consider different frames of reference.
Understand technology and its capabilities	• Knows how to operate the system. • Clearly understand tools and their functions and capabilities. • Figure out and solves common technical difficulties.
Create comfort with and promote understanding of the technology and technology outputs.	• Introduces and explain technology to group. • Address negative comments and inconveniences caused by technology.
Present information to group	• Give clear and explicit instructions. • Use clear and concise language in presenting ideas. • Gives group written information.

Note. Adapted from "Research-Driven Facilitation Training for Computer-Supported Environments," by V. K. Clawson and R. P. Bostrom, 1996, *Group Decision and Negotiation, 5*, p. 7-29. 1996 Kluwer Academic Publishers. Adapted with permission of Robert P. Bostrom, 2013

APPENDIX C

QUESTIONS FOR EVALUATING OF COMMUNITY OF PRACTICE MEMBER

PERCEPTIONS

Questions for Evaluating of Community of Practice Member Perceptions

Perceived Values (Wenger et al., 2011)	Questions
Immediate value: What was my experience of it?	• How much participation was there? • What was the quality of the mutual engagement? • Was it fun, inspiring, convivial? • How relevant to me was the activity/interaction? • With whom did I interact or make connections? • Which connections are most influential on my own development?
Potential value: What has all this activity produced?	• How has my participation changed me? • Have I acquired new skills or knowledge? • Has my understanding of the domain or my perspective changed? • Do I feel more inspired by the work I do? • Have I gained confidence in my ability to engage in practice? • How has my participation changed my social relationships? • What access to new people have I gained? • Do I know them well enough to know what they can contribute to my learning? • Do I trust them enough to turn to them for help? • Do I feel less isolated? • Am I gaining a reputation from my participation? • What access to resources has my participation given me? • Do I have new tools, methods, or processes? • Do I have access to documents or sources of information I would not have otherwise? • What position has the community acquired? • Has the community changed the recognition of our expertise? • Have we acquired a new voice through our collective learning? • How has my participation transformed my view of learning? • Do I see opportunities for learning that I did not see before? • Do I now see opportunities for convening a community of practice or network in the service of learning that I did not see before?

(table continued)

Questions for Evaluating of Community of Practice Member Perceptions (continued)

Perceived Values (Wenger et al., 2011)	Questions
Applied value: What difference has it made to my practice/life/context?	- Where have I used the products of the community/network? - Where did I apply a skill I acquired? - When did I leverage a community/network connection in the accomplishment of a task? - Was I able to enlist others in pursuing a cause I care about? - When and how did I use a document or tool that the community produced or made accessible? - How was an idea or suggestion implemented? At what level -- individual, team/unit, organization
Realized value: What difference has it made to my ability to achieve what matters to me or other stakeholders?	- What aspects of my performance has my participation in community/network affected? - Did I save time or achieve something new? - Am I more successful generally? How? - What effect did the implementation of an idea have? - Did any of this affect some metrics that are used to evaluate performance? - What has my organization been able to achieve because of my participation in community/network?
Reframing value: Has it changed my or other stakeholders' understanding and definition of what matters?	- Has the process of social learning led to a reflection on what matters? - Has this changed someone's understanding of what matters? - Does this suggest new criteria and new metrics to include in evaluation? - How has this new understanding affected those who have the power to define criteria of success? - Has this new understanding translated into institutional changes? - Has a new framework or system evolved or been created as a result of this new understanding?

EXPERT REVIEW OF DISSERTATION

Expert Review Survey Instrument

Please use the form to record your notes as you review the document. Then provide your review for the " Guidelines for Building Communities of Practice for Faculty Professional Development in Electronic Environments" using the electronic form at the url contained in the initial email. I have provided here as well: https://virginiatech.qualtrics.com/SE/?SID=SV_etTZadmS2TclXil

Reviewer Name:

Analysis Phase: Domain

Do guidelines describe appropriate methods to analyze the scope of the community of practice including description of defining intent of the community and organizational alignment?
❍ Yes
❍ No

Comments/Feedback

Do guidelines provide direction for obtaining organizational support?
❍ Yes
❍ No

Comments/Feedback

Analysis Phase: Community

Do guidelines give clear directions for the identification and recruitment of potential leaders or facilitator?
❍ Yes
❍ No

Comments/Feedback

Do guidelines adequately address how to identify and assess needs of potential faculty community members?
❍ Yes
❍ No

Comments/Feedback

Analysis Phase: Practice

Are there adequate directions for identifying common knowledge needs among potential members in the guidelines?
❍ Yes
❍ No

Comments/Feedback

Do guidelines provide clear examples of how to create community design?
❍ Yes
❍ No

Comments/Feedback

Design Phase: Domain

Do guidelines give clear directions for how to create clear and strategic objectives that are divided into subtopics?
❍ Yes
❍ No

Comments/Feedback

Do guidelines include a description of the process for designing rules and expectations for knowledge sharing that address intellectual property issues?
❍ Yes
❍ No

Comments/Feedback

Is the process for creating an evaluation plan that aligns evaluations with objectives for the community as defined by the core group described in the guidelines?
❍ Yes
❍ No

Comments/Feedback

Design Phase: Community

Is the process for forming a governance committee or facilitator group described in detail in the guidelines?
❍ Yes

❍ No

Comments/Feedback

Design Phase: Practice

Are processes for selecting appropriate tools for communication/interaction and knowledge sharing described in the guidelines?
❍ Yes

❍ No

Comments/Feedback

Develop Phase: Domain

Do guidelines describe the process to develop a plan for mitigating disruptions to community?
❍ Yes

❍ No

Comments/Feedback

Are there processes for developing mechanisms for member recognition or incentive programs described in the guidelines?
❍ Yes

❍ No

Comments/Feedback

Do guidelines describe the development of a marketing plan to reach potential members and disseminate community successes?
❍ Yes

❍ No

Comments/Feedback

Develop Phase: Community

Are competencies for training core leadership/facilitation group identified and described in the guidelines?
❍ Yes
❍ No

Comments/Feedback

Do the guidelines address how to provide mechanisms for new members to enter community?
❍ Yes
❍ No

Comments/Feedback

Develop Phase: Practice

Do guidelines describe methods for selecting and planning for event meetings through face-to-face, virtual, and blended delivery methods?
❍ Yes
❍ No

Comments/Feedback

Implement Phase: Domain

Is the process for launching a virtual community of practice described in the guidelines?
❍ Yes
❍ No

Comments/Feedback

Do the guidelines provide clear directions for introducing outside expertise into the community of practice?
❍ Yes
❍ No

Comments/Feedback

Implement Phase: Community

Are strategies for promoting trust in the community of practice described in the guidelines?
○ Yes
○ No

Comments/Feedback

Do the guidelines provide clear objectives for providing mentoring for new members?
○ Yes
○ No

Comments/Feedback

Are strategies for effective facilitation identified and described in the guidelines?
○ Yes
○ No

Comments/Feedback

Are strategies for succession planning or replacing leadership or core group members described in the guidelines?
○ Yes
○ No

Comments/Feedback

Implement Phase: Practice

Are training strategies for interaction and knowledge sharing through a virtual medium identified and described in the guidelines?
❍ Yes
❍ No

Comments/Feedback

Do the guidelines provide a description of strategies for building and managing a knowledge database?
❍ Yes
❍ No

Comments/Feedback

Are strategies for creating and implementing a community-wide research agenda described in the guidelines?
❍ Yes
❍ No

Comments/Feedback

Evaluation Phase: Domain

Do the guidelines describe the evaluation process for assessing the value of the community in context within the larger organization including a plan for periodic review?
❍ Yes
❍ No

Comments/Feedback

Evaluation Phase: Community

Are processes for evaluating the membership in terms of quality and quantity of interactions described in the guidelines?
❍ Yes
❍ No

Comments/Feedback

Do the guidelines provide strategies for evaluating the value of the community through faculty perceptions of learning and performance improvement?

❍ Yes

❍ No

Comments/Feedback

Evaluation Phase: Practice

Do the guidelines describe processes for evaluating the value of the virtual knowledge-sharing medium?

❍ Yes

❍ No

Comments/Feedback

Are processes for evaluating the quality and quantity of knowledge sharing artifacts described in the guidelines?

❍ Yes

❍ No

Comments/Feedback

APPENDIX E

EXPERT REVIEWER INTERVIEW QUESTIONS

Expert Reviewer Interview Protocol

Comments from all reviewers were coded and common themes were identified.

1. The overarching theme from your review, especially within the analysis phase focused on the usability of the guidelines. What suggestions do you have for improving this area of the guidelines?

2. When discussing needs assessment within the analysis phase you raise some interesting points about the lack of options for conducting needs assessments or the lack of a description of how to conduct a needs assessment. Can you expand your comments to provide suggestions for improvement by identifying possible options and instructions for conducting a needs assessment?

3. Do you have any suggestions for improving the areas for tool selection area or how to better describe the organization of the knowledge sharing repository?

4. In the building trust section it was noted that the section addresses that trust is necessary, but doesn't provide any strategies for doing the building. What suggestions do you have for improving this area?

5. In the evaluation section there were several areas for improvement noted. Can you expand on the need for evaluation of whether members are being met? Can you also provide suggestions for how trust and interaction quality be evaluated?

6. Are there any other areas for improvement that you would like to discuss?

APPENDIX F
REVISED GUIDELINES

REVISED GUIDELINES FOR BUILDING COMMUNITIES OF PRACTICE IN ELECTRONIC ENVIRONMENTS

Introduction

As colleges, universities, and other learning institutions explore teaching and learning through online environments, online communities of practice may provide solutions to organizational and professional development needs. Guidelines for building an online community of practice based on an extensive literature review may inform higher education organizational and professional development practices. Developing a framework for online teaching and learning may help administrators evaluate faculty training needs, provide an additional resource for faculty support and development, and inform how online communities are formed and maintained (Bonk & Dennen, 2003). The purpose of this handbook is to develop a set of guidelines for creating a virtual community of practice for faculty teaching at a distance that can easily be implemented by faculty development professionals.

Designing a virtual community of practice can be operationalized using the ADDIE model to guide the process. Based on an instructional systems design process, the ADDIE model emphasizes the five core elements of the instructional systems design process: analyze, design, develop, implement, and evaluate (Richey et al., 2011). Often the ADDIE model serves as a project management tool or to provide a visual aid for organization of relevant tasks. Though the elements of the design process are used routinely for instructional design, they are general enough to be applicable in overall program design as well (Richey et al., 2011). The guidelines will use the common instructional design tasks using the ADDIE model as identified by Richey et al. (2011) and Ni and Branch, (2010) to serve as a model for operationalizing the tasks necessary for building and maintaining a virtual community of practice.

The guidelines are based on the theoretical components for building a community of practice in electronic environments. Wenger et al. (2002) identified three elements that guide community development efforts to focus on the various areas for fostering a well-rounded community: domain, community, and practice. Domain refers to the shared repertoire of the community, community addresses the interaction and role definition of members, and practice is

the knowledge building and sharing efforts required for a community of practice to thrive. Sherer et al. (2003) expands Wenger et al. model by further defining each element:

- The domain: A community of practice (COP) is not just a group of friends. Involvement in the community requires some knowledge and some competence in the focus area, or domain.

- The community: Members of the community interact and learn together, they engage in joint activities and discussions, help each other, and share information

- The practice: Members of the community develop a shared repertoire of resources: experiences, stories, tools, ways of addressing recurring problems—in short a shared practice (Sherer et al., 2003).

Within each element there are significant tasks that can be operationalized within an ADDIE model framework. The guidelines consist of a description of those significant tasks and are operationalized according to each of phase of the ADDIE model. As with most instructional design projects, the guidelines are presented in a categorical fashion and the tasks are not meant to be linear (Gustafson & Branch, 2002). Each fundamental element of a community of practice requires a distinct approach, but all three elements must be developed in parallel (Wenger et al., 2002). For example, many of the tasks require coordination with other tasks and should not be undertaken in a vacuum.

Analysis

Fundamental Element: Domain

Determination of community intent. Communities of practice take many forms. Determining the intent of the community of practice in the early planning stages can help alleviate any misunderstandings about the goals of the community of practice later on (Wenger, McDemott, & Snyder, 2002). The American Productivity and Quality Center (2000) identified four different intentions for the formation of communities of practice for professionals: (1) problem solving for everyday discipline related issues, (2) best practice development and sharing, (3) tool and job aid creation, and (4) innovation. As communities of practice must have interaction and reification in order to be effective (Wenger, 1998), it is likely that a faculty community of practice would have elements of all the intentions listed above. Though there may be a variety of intentions for a community of practice, it is important to determine a primary

Table A.1

Operationalization of Tasks for Community of Practice Development by Design Phase and Fundamental Element

Phase	Common Instructional Design Tasks (Ni & Branch, 2010; Richey et al., 2011)	Domain	Community	Practice
Analysis	-Needs Assessment -Problem/ Solution Identification -Resource Identification -Learner Identification -Goal/Objective Analysis	Determine primary intent of the community (Verburg & Adriessen, 2006; Wenger et al., 2002). -Define the scope of the domain (Wenger et al., 2002). -Assess organization alignment and seek organization support (Ardichvili et al., 2002; Gongla & Rizzuto, 2001; Probst & Borzillo, 2008; Wenger et al., 2002).	-Identify potential leaders, facilitators. (Ardichvili et al., 2002; Probst & Borzillo, 2008; Wenger et al., 2002). -Identify and assess needs of potential members (Wenger et al., 2002).	-Identify common knowledge sharing infrastructure needs (McDermott, 2001; Wenger et al., 2002). -Create community design (Wenger et al., 2002).

(table continued)

Table A.1 (continued)

Phase	Common Instructional Design Tasks (Ni & Branch, 2010; Richey et al., 2011)	Domain	Community	Practice
Design	-Goal/ Objective Formulation -Sequencing of Goals -Assessment/ Evaluation Planning -Formulation of Instructional/ Non-instructional Strategies -Media/Tool Selection	-Create clear and strategic objectives and divide them into subtopics to promote clarity (Probst & Borzillo, 2008). -Design clear rules and expectations for knowledge sharing (Ardichvili et al., 2002; Wenger et al., 2002). - Design evaluation plan based on established objectives and phases of community development (Alem & Kravis, 2005; Derry & DuRussel, 1999; Schwier et al., 2007; Wenger et al., 2011).	-Form governance committee or facilitator group (Gray, 2004; Palloff & Pratt, 1999; Probst & Borzillo, 2008; Wenger et al. 2002).	-Select or design virtual medium that is easy to use, provides communication channels, and knowledge sharing capabilities (Probst & Borzillo, 2008; Scardamalia & Bereiter, 1994; Sharrat & Usoro, 2003).

(table continued)

Table A.1 (continued)

Phase	Common Instructional Design Tasks (Ni & Branch, 2010; Richey et al., 2011)	Domain	Community	Practice
Develop	-Author and Produce Interventions -Generate Resources -Validate Materials	-Create plan to mitigate disorders that may affect the development and continuation of the community of practice (Gongla & Rizutto, 2004; Lindvist, 2005; McLouglin, 2001; Powell, 2012; Probst & Borzillo, 2008; Wenger et al., 2002). -Develop plan for incentives or rewards for member participation (Sharatt & Usoro, 2003; Wasko & Faraj, 2005). -Market community of practice to potential members (Probst & Borzillo, 2008; Wenger et al., 2002).	-Train core membership/ leadership/ facilitation group (Ardichvili et al., 2002; Gray, 2004; Probst & Borzillo, 2008; Wenger et al., 2002). - Provide mechanisms for new members to enter community (Borzillo et al., 2011; Probst & Borzillo, 2008; Wenger et al, 2002)	-Plan face-to-face and electronic meetings/ interactions (Ardichvili et al., 2002; Hildreth et al., 2000; Probst & Borzillo, 2008; Wenger et al., 2002).

Table A.1 (continued)

Phase	Common Instructional Design Tasks (Ni & Branch, 2010; Richey et al., 2011)	Domain	Community	Practice
Implement	-Development of Materials -Implementing procedures -Program Facilitation -Prepare Environment -Engage Learner	-Launch the community of practice (Wenger et al., 2002). -Design opportunities interaction with outside expertise (Probst & Borzillo, 2008; Wenger et al., 2002).	-Promote trust within the community membership (Hildreth et al., 2000; Probst & Borzillo, 2008; Wenger et al.). -Mentor new members (Palloff & Pratt, 1999; Wenger et al., 2002). -Facilitate discussions (Clawson & Bostrom, 1996; Fischer, 1998; Gray, 2004; Palloff & Pratt, 1999; Wenger et al., 2002). -Recruit new core leadership/ facilitation group members (Gongla & Rizzuto, 2001; Wenger et al., 2002).	-Provide training for interaction and knowledge sharing through the virtual medium (Chih-Hsiung & McIsaac, 2002; Wenger et al., 2002). -Build and organize a knowledge repository (Scardamalia & Bereiter, 1994; Wenger et al., 2002; Zhao & Bishop, 2011). -Expand knowledge sharing to knowledge creation with well-defined research agenda (Waddock & Walsh, 1999; Wenger et al., 2002).

(table continued)

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Table A.1 (continued)

Phase	Common Instructional Design Tasks (Ni & Branch, 2010; Richey et al., 2011)	Domain	Community	Practice
Evaluate	-Evaluation Based on Objectives -Formative and Summative Evaluation -Software testing and revision	-Evaluate the effectiveness of the community in context within the larger organization (Probst & Borzillo, 2008; Wenger et al., 2002).	-Evaluate active membership through quality and quantity of member interactions and level of trust (Alem & Kravis, 2005; Wenger et al., 2011). -Evaluate participant perceptions of learning and performance improvement (Verburg & Adriessen, 2006; Wenger et al., 2011).	-Evaluate the effectiveness of the knowledge sharing medium (Teo et al., 2003). -Evaluate quality and quantity of knowledge sharing (Derry & DuRussel, 1999; Wenger et al., 2011).

intent, adapt structures, roles, and activities, and then fit other activities into those structures (Wenger et al., 2002). Likewise, Verburg and Andriessen (2006) identified five typical forms of communities of practice found in the workplace or professional organizations: (1) daily practice community- workers or participants who meet regularly to share and create knowledge, generally face-to-face, (2) formal expert community- consists of a limited number of experts who influence knowledge for a larger community, (3) informal network community- open membership group forms through common interests, generally administered through electronic means, (4) problem solving community-consists of geographically and organizationally dispersed members who deal with the same issues or problems, can also be an advisory group that is formed to solve a solitary problem, (5) latent network community- consists of members of a professional organization like AECT. A community of practice that is designed to meet the professional development needs of faculty teaching at a distance may meet the definition of a problem solving community as described by Verburg and Andriessen (2006), but could easily fit one of the other forms. Determining the intent of the community will help with other areas of the design process.

Defining the scope. Defining the scope of a design project can create parameters with appropriate boundaries, prepare allocation of resources, and set the stage for goal or objective setting in later planning stages (Morrison, Ross, Kemp, & Kalman, 2010; Richey et al., 2011). Since the scope of a community of practice for faculty teaching at a distance may vary widely, it is important to define the scope by limiting the community of practice knowledge sharing ideas to specific topics. Wenger et al (2002) suggests that the scope be wide enough to bring in new people, but still narrow enough to keep members interested in the community. Faculty teaching at a distance may have interests or needs that span the normal spectrum of faculty life, including tenure, work/life conflict, and other university commitments (Schroeder, 2011). Though it is tempting to try to address every interest or need that faculty may need in a single community of practice, the focus of a community of practice for online teaching and learning will have greater success if the scope defines parameters that limit potential topics to online teaching pedagogy and technology. Defining the focus and purpose of a community of practice early in the design process will provide an identity that will carry through all other design tasks (Wenger et al., 2002).

Assess organizational alignment and secure support. and Ragan (2004) insist that instructional system design must include an analysis of organization philosophies and

restrictions. In order to be successful, communities of practice must have support of the organization within which they exist. Communities of practice must align with the objectives of the organization in order to secure buy in from the larger organization leadership and the community members (Wenger et al., 2002). If there is no support from the larger college, department, or university for improving distance teaching and learning practices, faculty will be less compelled to participate. Additionally, without strong institutional or organizational support, communities of practice tend to fade away (Ardichvili et al., 2002). A thorough gap analysis can help determine whether a community of practice for faculty teaching at a distance fits within the organization's goals, management, value system, and infrastructure (Gongla & Rizzuto, 2001).

Gap analysis is the process of determining the current state and identifying where you want to be (Franklin, 2006). In other words it is the definition of the problem. When performing a gap analysis for a virtual community of practice for faculty teaching at a distance, it is important to determine if a problem exists that can be solved with a community of practice. Franklin (2006) notes that when performing a gap analysis employee performance is the foundation upon which the success of an organization rests. Based on that model, it may be prudent to conduct a gap analysis that considers larger organizational goals and any performance (teaching and learning) gaps that faculty may have. Questions that can help conduct a gap analysis might include:

- Are there institutional gaps (online enrollments, student satisfaction, attrition rates) in which there are gaps between the current status and where the institution would like to be?
- What does the desired state look like? (more online enrollments, more faculty teaching online, greater faculty satisfaction with support opportunities, etc.)
- Are there professional development related gaps between faculty who teach on campus courses and those who teach online courses?
- Do faculty report isolation or problems managing online course loads?

From the gap analysis it is possible to better understand institutional and faculty needs. It is possible to determine whether a virtual community of practice is necessary and what specific support needs that the community of practice can address. Conducting a gap analysis can also help determine whether a community of practice model for professional development is the best intervention for faculty and organizational needs.

Since communities of practice that exist without the support of organization leaders rarely last, securing buy-in from the organizational leadership is imperative (Gongla & Rizzuto,

2004). University administrators and other managers are more likely to offer support for a community of practice if presented with a well-researched proposal (Wenger et al., 2002). Building a case for a community of practice can help with other tasks described so far, such as narrowing the focus and intent of the community of practice. Wenger et al. (2002) suggest that a proposal for building a community of practice contain: (1) an introduction to the potential value of the community of practice to the organization and rationale for supporting it, (2) a description time saving benefits of knowledge sharing ("not reinventing the wheel"), and (3) a demonstration of how a community of practice can improve practices and prepare members to be thought leaders in the field. Probst and Borzillo (2008) found that an unhealthy competition for resources caused many communities of practice to fail even though they had organizational support. Therefore, it might prove prudent to extend the proposal to include a request for resources and include a means for administrative participation in the community itself. Depending on the findings of the gap analysis a proposal to secure buy in for a community of practice for faculty teaching at a distance may stress a community of practice as a means for faculty to (1) improve morale, (2) share teaching practices, (3) add to the research in the field of distance learning or teaching practices in a specific discipline. The addition of a list of possible ways that a college, department, or university can offer resources or provide support to the community of practice might include (1) leave to attend community of practice events, (2) conference fees or travel, or (3) software or tools needed to participate in community events or try out new teaching tools. Securing support early will clarify the community of practice domain and help mitigate problems that may arise as the community is formed (Wenger et al., 2002).

Table A.2

Operationalization of Domain Related Tasks During the Analysis Phase

Task	Faculty Development Operationalized Example
Determine primary intent of the community (Verburg & Adriessen, 2006; Wenger et al., 2002).	Determine whether the primary intent of the distance learning faculty community will be problem solving, best practice development, tool creation, innovation, or a combination.
Define the scope of the domain (Wenger et al., 2002).	Limit scope to distance teaching and learning topics that are central to the faculty community's identity.
Assess organization alignment and seek organizational support (Ardichvili et al., 2002; Probst & Borzillo, 2008; Wenger et al., 2002).	Conduct gap analysis to determine whether a community of practice for faculty teaching at a distance aligns with organizational goals and meet faculty needs. Build case for a community of practice and secure organizational support.

Fundamental Element: Community

  Identify and recruit core group. Designing a community of practice requires a strong core group dedicated to the creation of the community. Wenger et al. (2002) insist that the most important component of a community's success is the vitality of its membership. During the earliest stages, the community of practice relies heavily on the core leadership to recruit members, set goals, plan activities, build trust, and establish norms, roles and scope of the community of practice (Gongla & Rizzuto, 2001; Taemizi & de Vreede, 2005; Wenger et. al., 2002). Community of practice development often begins with an established social network. An informal group whose members are already discussing a topic can be more easily transitioned into a community of practice. Those who are already participating in an informal group are more likely to form the core group of a community of practice and take the lead in its construction (Wenger et al., 2002).

  Identifying faculty teaching at a distance who already share practices and resources is an important first step in forming the core facilitation or leadership group. Additionally, faculty support personnel should be actively recruited as they may have access to the most current teaching and learning research and can help identify faculty teaching at a distance who might

benefit from participation in a community of practice (Heath & McDonald, 2012). It is important to identify and recruit potential leaders that are known as thought leaders in the field, on the cutting edge, who are well-seasoned practitioners to legitimize the community of practice (Wenger et al., 2002), and passionate about the community topic (Gray, 2004). Core membership for a community of practice for distance faculty should be comprised of members who are excited about distance learning and who exhibit distance teaching and learning best practices in their courses.

Once potential members of the core group have been identified, a plan for recruitment can be devised. It is important to understand why potential leaders would want to participate in a community of practice. Faculty are motivated by a variety of intrinsic and external factors. While Kiziltepe (2008) found enthusiastic students, social status, and prestige from research publications as factors influencing faculty motivation, Meyer and Evans (2003) found peer recognition, opportunity to advance in their field, study leave, access to resources, and conference attendance to be among the highest ranked motivating factors. Based on those motivational factors, participation in the core leadership group of community of practice for distance faculty may fit well with the professional needs of potential leaders. Recruitment activities should include a description of how potential leaders can find research opportunities, peer recognition, and incorporate teaching best practices that enhance student enthusiasm through participation. If institutional support includes financial incentives, then recruitment may include conference attendance and study leave. Recruitment activities should include a description of how potential leaders can benefit from research opportunities, study leave, and conference attendance.

Identify and assess potential members' needs. It is important to have a good understanding of the potential members that the community of practice may serve. As has been discovered, communities of practice usually build on preexisting personal networks (Wenger et al., 2002). Since communities of practice have varying levels of participation, it is important to identify faculty teaching at a distance who are currently engaged in ongoing conversations around teaching and learning, as well as those not engaged in those activities. Though they may not participate, all faculty teaching at a distance are potential members of a community of practice.

Once potential members have been identified, a thorough gap analysis can help determine whether a community of practice for faculty teaching at a distance fits the professional development needs of the potential members (Wenger et al., 2002). As mentioned in the last section, faculty are motivated by a variety of factors. Finding ways to match potential benefits with faculty needs is an important step when developing a community of practice. Wenger et al. (2002) suggests that members of the core leadership group or a community coordinator should interview potential members in order to better understand common issues and needs shared by potential community members. Having an open dialogue rather than a formal interview may uncover an array of issues or topics that may not fit well within a community of practice model or change the focus and intent of the community of practice design. If a community of practice does seem to fit the potential member needs it is important to express how a community of practice may help meet the identified needs.

Table A.3

Operationalization of Community Related Tasks During the Analysis Phase

Task	Faculty Development Operationalized Example
Identify and recruit potential leaders, facilitators. (Ardichvili et al., 2002; Gongla & Rizzuto, 2001; Gray, 2004; Heath & McDonald, 2012; Kiziltepe, 2008; Meyer &Evans, 2003; Probst & Borzillo, 2008; Wenger et al., 2002).	Identify faculty support personnel and faculty teaching at a distance to serve as potential members of the core leadership group and then actively recruit the core group membership using motivational factors for faculty to encourage participation.
Identify and assess potential members needs (Wenger et al., 2002).	Identify faculty who teach at a distance and conduct interviews to assess potential member needs.

Fundamental Element: Practice

Identify common knowledge-sharing infrastructure needs. A significant part of developing an understanding of potential community members in the analysis phase is the determination of the knowledge needs of potential members. Though communities of practice frequently form around topics community members have invested many years in developing, communities of practice are not formed just around a common interest. Communities of practice focus on practice, problems, tools, developments in the field, and things that work and things that do not work (McDermott, 2001). As discussed in the last section, conducting a gap analysis is a critical part of the analysis stage. When interviewing potential members to discover issues and needs, it is important to determine knowledge sharing needs for the virtual community of practice. There are many potential knowledge-sharing needs that should be addressed. Wenger et al. (2002) identified the seven online technology infrastructure considerations that are critical for knowledge sharing (1) a home page, (2) a conversation space for online discussions, (3) a repository for documents, research reports, best practices, and standards, (4) a search engine to find things in the knowledge base, (5) a directory of membership, (6) a shared workspace for collaboration, and (7) community management tools including page counters, participation tracking, etc. There are a number of tools that can meet the infrastructure considerations as described above. When designing a virtual community of practice for faculty the selection of a particular tool should be based on the specific needs as identified by a gap analysis.

Create community design. As with any design project, a needs assessment and planning is key. It is in the analysis phase when it becomes clear whether the issue or problem has a possible design solution (Richey et al., 2011). During the analysis stage it is important to develop a clear plan for the community of practice that includes multiple opportunities for assessing needs of potential members, organizational needs, and the infrastructural or framework needs for a community of practice to develop (Wenger et al., 2002). Wenger et al. suggest employing a work plan in the early planning stages to define the community's focus, identify and build relationships, and identify topics and projects.

Table A.4

Operationalization of Practice Related Tasks During the Analysis Phase

Task	Faculty Development Operationalized Example
Identify common knowledge sharing infrastructure needs (McDermott, 2001; Wenger et al., 2002).	Through interviews with potential members and core leadership group membership assess infrastructure needs for sharing knowledge.
Create community design (Wenger et al., 2002).	Create comprehensive community design plan using the Analysis Phase Sample Community Design Planning Document (see Figure 4.1).

Using a checklist or a planning document may help ensure that all essential tasks are considered (see Appendix A). Once the planning document has been completed designers can move the plan into action in later phases of the design process. It is important to note that the planning document can be used to determine whether a community of practice for faculty teaching at a distance is the appropriate solution for the audience, issues, or problem that one is seeking to address. It is possible that a community of practice model will not meet a given institution, potential membership, or programmatic need. Appropriate planning and assessment in the analysis phase may deter potential problems in later phases (Smith & Ragan, 2004). Appendix A provides an example of a community design document that incorporates all components and tasks for a faculty community of practice during the analysis phase.

Design

Fundamental Element: Domain

Goal/objective creation and categorization. Formation of goals and objectives help guide the design and development process. Also called outcomes, objectives "serve as a road map—an instructional mission statement of where you're headed and what you are trying to achieve" (Cennamo & Kalk, 2005, p. 51). When researching common factors impacting the viability of communities of practice in 57 separate organizations, Probst and Borzillo (2008) found that the formation of strategic goals, divided into subtopics for clarification for all stakeholders, is critical for communities of practice to grow and thrive. Since objectives provide clear and measurable goals, community of practice participants are more likely to actively participate in the process of best practice development and sharing because potential benefits and outcomes are clearly defined (Probst & Borzillo, 2008). Additionally, organizational leaders are more likely to provide support for a community of practice when goals and outcomes are clearly delineated (Probst & Borzillo, 2008, Wenger et al., 2002). Objectives that define the areas of focus, describe expected outcomes, and outline participant responsibilities can provide the "road map" for moving a community of practice forward.

Objectives or outcomes for a virtual community of practice for online teaching faculty should address institutional and participant needs, encourage improved instructional practices, and define how the community will move to reification. Objectives will vary depending on the specific goals and needs of a particular institution or group of faculty. Table A.5 offers examples of possible objectives.

Table A.5

Sample Objectives by Fundamental Element

Fundamental Element	Examples
Domain	The virtual community of practice for online teaching faculty will define how institutional support is in alignment with university or departmental strategic plan.
	The virtual community of practice for online teaching faculty will support institutional goals.
Community	Members of the virtual community of practice for online teaching faculty will demonstrate online teaching and learning best practices.
	Members of the virtual community of practice for online teaching faculty will participate in knowledge sharing.
	Members of the virtual community of practice for online teaching faculty will assist one another to improve instructional practices across the institution or department.
Practice	Members of the virtual community of practice for online teaching faculty will add to the field of online teaching and learning by researching instructional practices in their courses.
	Members of the virtual community of practice for online teaching faculty will add to the field of online teaching and learning by disseminating research findings at conferences or through publications.

Knowledge sharing rule and expectation design. Knowledge sharing is a key element of a community of practice. Expectations about how to participate in a respective manner in when sharing knowledge are important for promoting trust and a healthy community of practice. They are not meant to serve as punitive measures. Though groups may form sporadically around a topic about which participants are passionate, passion is not enough to effectively form and coalesce a community of practice. Potential participants in a community of practice must be willing to engage in collaboration with a negotiated activity, must see the community as a joint enterprise that demands ownership and accountability, and must view meaning making in the community as a shared repertoire (Wenger, 1998). Communities of practice must consist of both

participation (conversations, activities, reflections) and reification (artifacts, documents, processes, methods) for meaning making to occur (Wenger, 2010). When conducting a study of virtual communities of practice in several different organizations, Ardichvili et al. (2002) found that without clearly communicated standards about what constitutes knowledge sharing and what specific information violates security policy or other rules, participants were less likely to engage in knowledge sharing.

Participants in a faculty community of practice may have anxieties about the nature and security of any knowledge that is shared with the community. Faculty may be concerned about how sharing instructional practices is effected by institutional policies or federal or state regulations such as FERPA. Additionally, faculty may have reservations about preserving their intellectual property (Meyer & Evans, 2003). When constructing rules and expectations for knowledge sharing and reification within the community of practice, the core leadership team must address the institutional policies, FERPA regulations, and how to protect faculty intellectual property.

Evaluation plan creation. Evaluation is a key element of the design process. There are many possible avenues for evaluating the effectiveness of a community of practice. Communities of practice can be evaluated to determine the effectiveness of the community of practice in context of the larger organization (Verburg & Adriessen, 2006; Wenger et al., 2002), by the quality and quantity of member interactions and level of trust (Alem & Kravis, 2005; Wenger et al., 2011), from participant perceptions of learning and performance improvement (Wenger et al., 2011), by quality and quantity of knowledge sharing (Derry & DuRussel, 1999; Wenger et al., 2011), and the overall performance of the knowledge sharing media (Teo et al., 2003). The areas of focus for evaluation will be discussed at length in the evaluation phase section. In this section alignment of evaluations will be focus. Evaluation can occur at any time during the design phase (Richey et al., 2011). To ensure that an evaluation is an effective measure, the evaluation plan should be formed when goals and objectives are created (Ni & Branch, 2010; Smith & Ragan, 2004). Evaluation should align with established goals or objectives as defined by the core membership and measure whether desired outcomes are met (Wenger et al., 2011). Creating an evaluation plan at this stage with overarching questions can help determine later whether outcomes are being met by the community of practice (Smith & Ragan, 2004; Wenger et al., 2002). Additionally, creating an evaluation plan can help right the course of the community

of practice if it seems to be stalling, veering away from established objectives, or is being disrupted. In previous sections, objectives were discussed and example objectives for a faculty community of practice were defined. Using those objectives as an example, Table A.6 offers examples of how evaluation planning can ensure alignment.

Table A.6

Evaluation Questions Alignment with Sample Objectives

Sample Objectives	Evaluation Question
The virtual community of practice for online teaching faculty will define how institutional support is in alignment with university or departmental strategic plan. The virtual community of practice for online teaching faculty will support institutional goals.	Does the virtual community of practice define its role within the larger university or departmental strategic plan? Does the virtual community of practice support institutional goals?
Members of the virtual community of practice for online teaching faculty will demonstrate online teaching and learning best practices. Members of the virtual community of practice for online teaching faculty will participate in knowledge sharing. Members of the virtual community of practice for online teaching faculty will assist one another to improve instructional practices across the institution or department.	Do members of the virtual community of practice demonstrate best practices in their online courses? Do members of the community participate in knowledge sharing? Do members assist one another across departments or the institution to improve instructional practices?
Members of the virtual community of practice for online teaching faculty will add to the field of online teaching and learning by researching instructional practices in their courses. Members of the virtual community of practice for online teaching faculty will add to the field of online teaching and learning by disseminating research findings at conferences or through publications.	Are members contributing to the field of online teaching and learning by researching their instructional practices? Are members disseminating findings at conferences or through publications?

Table A.7

Operationalization of Domain Related Tasks During the Design Phase

Task	Faculty Development Operationalized Example
Create clear and strategic objectives and divide them into subtopics to promote clarity (Probst & Borzillo, 2008).	Objectives for a virtual community of practice for faculty professional development should describe and encourage knowledge sharing, improved practices, and reification.
Design clear rules and expectations for knowledge sharing (Ardichvili et al., 2002; Wenger et al., 2002).	Rules and expectations created by the core membership should address faculty concerns including state and federal regulations, institutional policies or norms, and intellectual property.
Design evaluation plan based on established objectives and phases of community development (Alem & Kravis, 2005; Derry & DuRussel, 1999; Schwier et al., 2007; Wenger et al., 2011).	Create plan using broad questions to guide later evaluations. Align evaluation questions with established objectives to determine whether the community of practice is meeting established objectives and desired outcomes.

Fundamental Element: Community

Formation of core group. The most important factor impacting the viability of a community of practice is the core group membership (Gray, 2004; Probst & Borzillo, 2008; Wenger et al., 2002). In the analysis phase, potential community leaders are identified and recruited. In this phase, community leaders are asked to coalesce and form a governance body. Core members will help write objectives and form the knowledge sharing expectations for the community of practice. As faculty have limited time to dedicate to extraneous activities, it is important to provide expectations of time to potential leaders. Spreading responsibilities for leadership among several key community members can help with time commitments. If possible, dedicating a faculty support position or portion of a support position to organizing community events can help further spread the community's organizational duties (Heath & McDonald, 2012). Having faculty and support personnel serve as members of the core group may help with

the viability of the larger community of practice. Several informal events should be planned to allow the core to define the community's goals, expectations, and rules. Informal meetings and discussions can allow the group to form relationships, and build trust (Wenger et al., 2002).

Table A.8

Operationalization of Community Related Tasks During the Design Phase

Task	Faculty Development Operationalized Example
Form governance committee or facilitator group (Gray, 2004; Heath & McDonald, 2012; Palloff & Pratt, 1999; Probst & Borzillo, 2008; Wenger et al. 2002).	Promote core group coalescence through informal meetings and discussions. Core group members will define goals, objectives, expectations, and rules for the community of practice.

Fundamental Element: Practice

 Media selection. Finding a platform for hosting a virtual community of practice is critical to building and maintaining a community of practice (Hemp, 2009). Any virtual platform for a community of practice will likely serve as a repository for co-constructed knowledge and a forum that allows all participants access to the community knowledge and storytelling (Probst & Borzillo, 2008). Scadamalia and Bereiter (1994) found that technology must provide the infrastructure for collaboration instead of being the catalyst. Opportunities for interaction must be designed to support knowledge-building communities by: (1) providing a community database at the center of discourse, (2) emphasizing writing and intentionality as mechanisms for discourse, (3) leveraging a distributed model of computing, (4) encouraging multiple modes of communication (Scardamalia & Bereiter, 1994). Though a potential virtual medium may have clear channels for communication and a repository, if the information systems are not easy to use or not perceived as useful by participants the platform will hinder the community (Sharrat & Usoro, 2003).

 When considering tools or platforms for hosting a virtual community of practice for faculty teaching online it is important to consider technical competencies of potential members and find tools that match faculty competencies. If possible, using the same Learning

Management System (LMS) that faculty work within each day may be an effective to address any issues that may arise when using a tool or medium that faculty find unfamiliar. If the LMS does not meet knowledge sharing and discussion needs of the virtual community of practice, tools selected or created should reflect ease of use while providing a space that is secure, that allows for rich discussion, and that ensures a knowledge-sharing repository (Probst & Borzillo, 2008; Scardamalia & Bereiter, 1994; Sharrat & Usoro, 2003). Other tools, such as synchronous web conferencing, chat, and social media should be undertaken with great caution as the virtual community may be disrupted when there is lack of familiarity with tools or lines of professional and personal participation are blurred (Cox et al., 2004; Durkee et al., 2005; Kear, 2011). Table A.9 provides examples of possible tools for virtual community of practice needs. Though a potential virtual medium may have clear channels for communication and a repository, if the information systems are not easy to use or not perceived as useful by participants the platform will hinder the community (Sharrat & Usoro, 2003).

Table A.9

Possible Tools by Virtual Community of Practice Technology Need

Need	Possible Tool
Online Interaction/Discussion	• Institution Supported Learning Management System (Blackboard, Sakai, Desire2Learn, etc.) • LISTSERV • Forums (Piazza, LMS Discussion Board, etc.) • Blogs (Blogger, Word Press, etc.) • Web Conferencing (Centra, WebX, GoToMeeting, Adobe Connect, Collaborate, etc.) • Social Media (Facebook, Twitter, etc.)
Knowledge Creation/Sharing	• Wikis (LMS wiki, Wikispaces, etc.) • Blogs (Blogger, Word Press, etc.) • Web Conferencing • Document Collaboration Tools (Google Drive, Dropbox, etc.)
Document Repositories	• Institution Supported Learning Management System (Blackboard, Sakai, Desire2Learn, etc.) • Wikis (LMS wiki, Wikispaces, etc.) • Document Collaboration Tools (Google Drive, Dropbox, etc.)

Table A.10

Operationalization of Practice Related Tasks During the Design Phase

Task	Faculty Development Operationalized Example
Select or design virtual media that is easy to use, provides communication channels, and knowledge sharing capabilities (Probst & Borzillo, 2008; Scardamalia & Bereiter, 1994; Sharrat & Usoro, 2003).	Faculty knowledge sharing needs and technical competencies must be considered when selecting virtual tools. Use institution supported LMS if possible. If not, select tools that provide a safe environment for discussion and a knowledge repository. Use synchronous tools and social media with caution, understanding possible distractions or disruptions from blurring professional and personal identities.

Fundamental Element: Domain

Create plan to mitigate potential disruptions. Communities of practice are not without problems. There is a constant threat of groupthink for any community of practice. Incorrect behaviors, ideals, and dogmas are often perpetuated through group participation due to the positive reinforcements that consensus provides (Rogers & Skinner, 1956; Skinner, 1967). Just because a group comes to a consensus does not mean that constructed meaning is the correct meaning or the appropriate path forward (Janis, 1972; Lindkvist, 2005). It is important to safeguard the integrity of the knowledge building process while minimizing the persistence of groupthink. Possible interventions for a community of practice for faculty teaching online might include exposure to external perspectives and approaches, course reviews, and submission of research to peer reviewed conferences or publications.

The desire to provide a formal structure can inadvertently create a culture built around deadlines, milestones, and rigid structures that hinders meaning making for the community (Lindkvist, 2005; Wenger et al. 2002). For instance, Gongla and Rizzuto (2004) assert that communities of practice can disappear or fade in nonexistence, especially when there is formal inquiry within the larger organization that houses the community of practice. Wenger et. al. (2002) identifies thirteen internal disorders that may affect the development and continuation of communities of practice: (1) narcissism-the community may become self-absorbed, pursuing their own agenda without any regard to outside interests, (2) marginality- communities outside the mainstream have no decision-making power within an organization and often are made up of participants who share discontent, (3) factionalism- communities can be torn apart internally by members fighting for their own personal interests or ideas, (4) cliques- communities focus on relationships among a core membership while minimizing efforts to recruit new members, causing stagnation, (5) egalitarianism- similar to groupthink, a community can constrain creativity, new ideas are viewed as treasonous, rather than explored, (6) dependence- community is reliant on the charisma or leadership of one person or small group of people, (7) stratification-power or decision making for the community concentrated in a small core group of experts, leading to lack of diversity or distinct classes of participants, (8) disconnectedness- participants in a community participate superficially, there is no personal connection to the group or its central ideals, (9) localism- a community defined by its geographical, departmental, or other

boundaries, (10) documentism- the focus of the community becomes documentation rather than knowledge sharing and construction, (11) amnesia- there is no documentation or knowledge management, instead members focus on social discussions, (12) dogmatism-members refuse to deviate from established canons and methods, (13) mediocrity- communities fall into a routine that accepts the status quo rather than forge new ideas or innovations.

Threats to a thriving community must be considered when designing and maintaining any community of practice. A community of practice for faculty teaching online may face unique challenges not yet identified. Each community of practice must rely on the core members or facilitators to identify potential threats and implement appropriate interventions (Wenger et al., 2002). Table A.14 provides possible interventions to mitigate disruptions to community.

Form rewards/incentives plan. For many teaching faculty the possibility of enhanced reputation or the altruism of helping others is incentive enough to share knowledge and best practices. The expectation of knowledge sharing can cause less participation in a virtual community. For some experts, sharing knowledge can mean giving up a sense of power that comes from holding onto that same knowledge (Gray, 2001; Carroll et al., 2003). In this case, there must be a comparable incentive or reward for sharing knowledge. Regardless of the motivating factors affecting knowledge sharing, there must be an incentive or reward plan for encouraging continued participation. As institutions and departments face budget cuts, there is little money to spare for funding monetary rewards or incentives. For that reason the discussion here will focus on the creation of a rewards/incentives plan that does not involve monetary commitments. Finding ways to reward participation in a community of practice can be a daunting task. There are ways to reward participation, however. Sharrat and Usoro (2003) found that when there is opportunity for recognition, such as career advancement or reputation building, members are more likely to participate in community of practice dialogue and knowledge sharing. Likewise, Wasko and Faraj (2005) found that enhanced reputation may provide reward enough for some community of practice participants. As mentioned in the analysis section, faculty are motivated by social status and prestige from research publications (Kiziltepe, 2008), peer recognition, opportunity to advance in their field, study leave, and access to resources (Meyer & Evans, 2003). If there is limited funding a plan for rewarding or incentivizing faculty who participate in the virtual community of practice must include ways to recognize and acknowledge the contributions of members. Faculty looking for career

advancement may be reluctant to participate in a community of practice if the community does not have institutional support. Using institutional support to provide recognition such as a certificate of appreciation from senior level management can be an incentive those wishing to enhance their reputation or advance in their field. Since faculty are motivated by peer recognition, one reward strategy might be to publish names and contributions on departmental, institution, and community of practice websites, newsfeeds, or other dissemination methods available across the university. Additionally, the resources and peer mentoring available through a community of practice can also serve as an incentive. Faculty participation may be motivated through a variety of ways. Providing multiple avenues for rewarding and incentivizing participation is key for knowledge sharing and participation in a community of practice (Wang & Lai, 2006; Wasko & Faraj 2005). Rather than inventing new structures, it may be possible to work within established reward and incentive structures at the institution. Table A.11 offers possible incentives for encouraging faculty participation.

Table A.11

Possible Incentives/Rewards by Motivation

Incentives/Rewards	Examples
Administrative Recognition	• Certificate of Appreciation • Course Load Release • Educational Leave • Research Leave
Peer Recognition	• Leadership Opportunities within the Community • News Releases/Promotions • Publications, Grants, etc.
Monetary	• Leadership Stipend • Conference Travel • Outreach Opportunities • Technology or Other Resources

Market the community to potential members. In order for potential community of practice members to join a community of practice, they must first know that it exists. It is often the community coordinators or facilitators who drive the information and recruitment efforts of a

community of practice (Probst & Borzillo, 2008; Wenger et. al., 2002). Recruiting potential members of a virtual community of practice for faculty teaching online requires unique marketing strategies. As mentioned in separate areas of the guidelines, faculty are motivated by a variety of factors and marketing efforts should center on the motivational factors as described in the analysis phase and in the previous section. Wenger et. al., suggest that marketing efforts follow a two-pronged approach that highlights the benefits of contributing and the value of learning from other's experiences. Using university dissemination methods including LISTSERV services, websites, publications, or events it is possible to describe the potential benefits of participation in a community of practice for faculty teaching online at little or no cost. It also places the community of practice within the scope of the larger institution.

Table A.12

Operationalization of Domain Related Tasks During the Development Phase

Task	Faculty Development Operationalized Example
Create plan to mitigate disorders that may affect the development and continuation of the community of practice (Gongla & Rizutto, 2004; Lindvist, 2005; McLouglin, 2001; Probst & Borzillo, 2008; Wenger et al., 2002).	Use internal and external peer review process to minimize persistence of groupthink. Core group members should identify potential threats and create plan to address potential disruptions to the community of practice. (See Table A.10)
Develop plan for incentives or rewards for member participation (Sharatt & Usoro, 2003; Wasko & Faraj, 2005).	Utilize institutional support to create awards. Employ institutional dissemination methods to publish names, pictures, and contributions of faculty participants. Promote community of practice mentorships and access to resources.
Market community of practice to potential members (Probst & Borzillo, 2008; Wenger et al., 2002).	Employ institutional dissemination methods to build a case for membership. Recruit members using the benefits of contributing and the value of learning from other's experience.

Fundamental Element: Community

Core membership training. As described in other areas of the guidelines, the core membership is often described as the most important factor for the success of a community of practice. Gray (2004) identified technical competence, an understanding of community or relationship building, an orientation for learning, and sufficient knowledge of the practice as key characteristics of a member of the core team or a facilitator of a community of practice. Wenger et al. (2002) identified seven key functions that community coordinators perform: (1) identify important issues in the domain, (2) plan and facilitate community events, (3) link community members with assets, organizational units, and institutional leaders, (4) foster development of community members, (5) manage the boundary between the community and other organizational units, (6) help build the practice, and (7) assess the health of the community of practice and evaluate its contributions. Given the important role that core leaders play in the development of a thriving community, training and professional development of potential facilitators should be taken seriously. Training should encompass facilitation techniques, relationship building, technologies used for the community of practice, how to balance authority and power, how to promote trust, and how to encourage participation (Ardichvili et al., 2002; Fallah, 2011). As every community of practice is different, it will be imperative to identify and leverage the different skill sets that a given group of leaders possess. Specific professional development will depend on the particular needs of a community of practice and the skills that a group of coordinators may have.

Build mechanisms for onboarding new members. As mentioned earlier when discussing threats to a thriving community, communities of practice that do not actively recruit and engage new members face stagnation or decline (Probst & Borzillo, 2008; Wenger et al., 2002). In order to encourage growth, a plan can be devised to allow new members to assimilate into the community of practice for online teaching faculty. It is important to remember that not all new members will actively participate in the community of practice even though they will benefit from participating on the periphery. Potential members should have access to participation in an open and peripheral manner. Communities of practice can ease the onboarding process for new members by providing a clear set of directions for joining the community. Gaining access to a community of practice LISTSERV or the institution supported LMS should be an open process. If potential members perceive a community of practice as closed or not welcoming, they will not

attempt to join the community of practice (Borzillo et al., 2011). Core group members or facilitators of the community of practice for faculty teaching at a distance should design clear directions for joining the community of practice and post them prominently on institution, departmental, or community practice websites with contact information for those responsible for technical issues or further information.

Table A.13

Operationalization of Community Related Tasks During the Development Phase

Task	Faculty Development Operationalized Example
Train core membership/leadership/ facilitation group (Ardichvili et al., 2002; Gray, 2004; Probst & Borzillo, 2008; Wenger, McDermott, Snyder, 2002).	Provide professional development that encompasses facilitation techniques, relationship building, technologies used for the community of practice, how to balance authority and power, how to promote trust, and how to encourage participation and reification.
Provide mechanisms for new members to enter community (Borzillo et al., 2011; Probst & Borzillo, 2008; Wenger et al, 2002)	Display directions for joining the virtual community with contact information for core group members responsible for the technical support or further information.

Fundamental Element: Practice

    Plan interactions. While virtual community of practice participants may meet informally to discuss topics of interest or to work on reification projects at any time, regular meetings with the larger community are required. Wenger et al. (2002) suggest that regularly scheduled events help establish a sense of familiarity and create a rhythm for the community of practice. Whether meetings are held face to face, solely online, or a mix of both delivery methods, continuous participation provides a community of practice the ability to create the relationships that help develop the sense of trust and identity that defines the community (Hildreth et al., 2000). When building a virtual community of practice for faculty teaching online, it is important to be respectful of the enormous time drains that faculty face every day. Synchronous meetings should be limited to just the amount of time needed to accomplish the goal of the meeting. Additionally,

providing faculty a schedule of upcoming events, discussions, etc., will ensure timely participation and allow faculty to plan their own schedules in advance. If meeting in a virtual space faculty may need instructions for participating via the medium.

Table A.14

Operationalization of Practice Related Tasks During the Development Phase

Task	Faculty Development Operationalized Example
Plan face-to-face and electronic meetings/ interactions (Ardichvili et al., 2002; Hildreth et al., 2000; Probst & Borzillo, 2008; Wenger et al., 2002).	Schedule a series of regularly occurring events to create a rhythm and a sense of familiarity. Provide schedule of upcoming events and limit meeting time to just what is needed to accomplish goals.

Implement

Fundamental Element: Domain

Launch community of practice. When ready to implement a community of practice it can be important to hold an event to introduce the community of practice to the larger organization and potential members. Wenger et al. (2002) suggests that a visible launch with endorsement from management allows people to become more aware of the community, its focus, and potential benefits. When launching a virtual community of practice for faculty teaching at a distance, a face-to-face event may provide a way for relationships and trust to form for members. Hildreth et. al. (2000) conducted a study of two internationally distributed communities of practice and found that the community of practice that engaged in a face-to-face meeting formed more quickly and developed more meaningful interactions that led to richer knowledge sharing. Whether virtual or face-to-face or a combination of both, launching the community of practice with an event of some kind will likely attract broader support and participation (Wenger et al, 2002).

Include outside expertise. As discussed in earlier sections, providing opportunities for community of practice members to interact with outside expertise can mitigate problems arising from isolated communities of practice (Wenger et al, 2002). Probst and Borzillo, 2008 found that

organizations wishing to form and sustain communities of practice must design regular interactions with outside expertise. When implementing a virtual community of practice for faculty teaching at a distance, it is possible to design opportunities for faculty to interact with experts from other universities or from distance learning associations. With travel costs prohibiting many potential experts from traveling, using synchronous online tools to introduce the community to other perspectives is a possibility.

Table A.15

Operationalization of Domain Related Tasks During the Implementation Phase

Task	Faculty Development Operationalized Example
Launch the community of practice (Wenger et al., 2002).	Launch community with a kick off event to showcase institutional support. Face-to-face event may need to stronger relationships, richer interactions, and more knowledge sharing in the virtual community of practice.
Design opportunities interaction with outside expertise (Probst & Borzillo, 2008; Wenger et al., 2002).	Use synchronous communication tools to allow for guest speakers, colleagues from other universities, or other experts in the field to interact with community members.

Fundamental Element: Community

Build trust. Building trust is a critically important step in the development of a community of practice. No matter what the context of the community of practice there must be significant effort to build trust among all participants (Wenger et al., 2002). If participants do not feel comfortable participating, they will not participate. During the earliest stages, the community of practice relies heavily on the core leadership to promote trust with and among participants. Wang and Chen (2009) discovered that higher order collaborative problem solving was only possible when trust was fostered through social interactions and conversation. By studying the interactions of email, bulletin boards, and threaded discussions of online courses, Chih-Hsiung and McIsacc (2002) determined that incorporating concepts such as building trust online, providing "hand-holding" techniques, support, and promoting informal relationships can

help make online learning environments more interactive and improve sense of community (Chih-Hsiung & McIsaac, 2002). Core group members must be available to foster trust.

Virtual communities of practice must work harder to create a base of trust among members by intentionally connecting people, and finding multiple opportunities for members to interact and build relationships (Wenger, McDemott, and Snyder, 2002). Much of the promotion of trust must be facilitated by the core membership or by the community facilitators (Gray, 2004; Palloff & Pratt, 1999). Jarvenpaa and Leidner (1998), when researching trust in virtual teams found that trust is developed in stages. In early stages, trust is fostered when members are given opportunities for social exchanges or interactions, are allowed to suggest topics for discussion, and communication is enthusiastic and supportive (Jarvenpaa & Leidner, 1998). In later stages trust can be facilitated through regular intervals of interactions, substantive and prompt feedback, and rotating leadership roles (Jarvenpaa & Leidner, 1998). When promoting trust in a virtual community of practice for faculty teaching online courses, core members or facilitators can deliberately plan and hold social events where members can interact with colleagues, interact regularly with members, be responsive to member's needs, and establish rules for knowledge sharing. Core members or facilitators must be aware of the institutional culture and encourage an environment of reciprocity.

Mentor new members. Participants in a typical community of practice serve in different roles and are found on a spectrum of trajectories. There are opportunities for all participants to find identity and to learn from a community of practice, even when participation is on the periphery (Brown et al., 1989). Wenger (1998) identified five trajectories or paths for participants to find identity in a community of practice: (1) peripheral trajectories- the outside edge of a community that provides participants access to a community, but never leads to full participation, (2) inbound trajectories- participants are invested in becoming active members of the community even though they may still be on the periphery of the community, (3) insider trajectories- full membership, but a commitment to continued improvement through new demands, (4) boundary trajectories- participants sustain an identity that spans and connects different communities of practice, and (5) outbound trajectories- participants no matter the cause are in the process of leaving the community and developing new identities.

Once a community of practice is established and relationships have formed, new members will need to learn how to navigate the established norms and expectations of the

community while overcoming social nuances. Mentoring new members is a key function of the community of practice core group. When researching how members of a community of practice move from periphery to active membership, Borzillo et al. (2011) found that in the early stages of membership, community of practice leaders played a significant role in the movement. A formal mentorship program for new members can enhance the community by stabilizing membership, steering reification efforts, and sharpening the saw for core membership (Wenger et al, 2002).

University faculty are already accustomed to the benefits that mentoring programs provide. In a study of a group of women scholars navigating the academic tenure process through peer mentorship, Driscoll et al. (2009) reported that through collaboration and mentoring, individuals found independence and clear sense of direction for scholarship. Wildman et al. (2000) explored a faculty collaboration group at Virginia Tech and reported greater problem solving through a learning community. A formal mentoring program for new members of a community of practice for faculty teaching at a distance should provide guidance for navigating the community of practice and help faculty improve instructional practices while providing an avenue for scholarly research in the field.

Facilitation. Facilitation of any online learning community requires a strong presence by a group leader, facilitator, or instructor (Garrison et al., 2000). In order to maintain or sustain an active community of practice there must a concerted effort by facilitators to keep participants engaged through collaboration, problem solving, knowledge building and sharing, feedback, and the opportunity to contribute to the larger organization by adding newly created knowledge to an existing knowledge base (Gongla & Rizzuto, 2001; Wenger, McDermott, and Snyder, 2002). Members of the core leadership group often serve in a facilitative role to guide discussions, find consensus for goals, and help navigate the group through growth (Wenger, 1998; Fischer, 1998; Palloff & Pratt, 1999). Facilitators lead meetings or events, form dialogue opportunities for community participants to engage in peer interactions, encourage knowledge construction, and mediate community coalescence (Wenger, 1998; Bielaczyc & Collins, 1999). There are many roles and tasks associated with facilitating discussion, meetings, and knowledge sharing in online environments. Clawson and Bostrom (1996) identified sixteen different facilitator role dimensions that are essential for effective facilitation of interactions in computer-mediated environments (see Appendix B).

Using the facilitator role dimensions and associated tasks as defined by Clawson and Bostrom (1996), it is possible to create clear expectations for community facilitators. At minimum, community facilitators should be aware of the many role dimensions and associated tasks. The role of group facilitators in a virtual community of practice for online teaching faculty will vary, but the focus of the facilitation should be to guide community members to share instructional best practices, mediate conflicts as they arise, promote rich discussion, answer questions for community members, encourage networking, and provide technical support as needed.

Recruit new core group members. As mentioned in earlier sections, building and maintaining a community of practice requires a strong group of core members and leaders. Over time community of practice members cycle through the community and core members or leaders move on from the community or step into different roles within the community (Wenger, 1998). Planning for succession and finding new core members and leaders are important tasks for community leaders. It is possible to mitigate problems that may arise from a leadership vacuum caused when core members leave without defined successors. Leaders should plan for succession. Wenger et al. (2002) suggests rotating leadership roles through the core membership. A rotating membership can prepare members to take on new leadership roles as needed. Succession planning must address how to recruit new core member and leaders. Potential core members or leaders should be experts, thought leaders, practitioners, or midcareer professionals who might like to take a more active role in the community of practice (Wenger et al., 2002). For more information about recruiting new members for a virtual community of practice refer to *Identify and Recruit Core Group* in the Analysis section.

Table A.16

Operationalization of Community Related Tasks During the Implementation Phase

Task	Faculty Development Operationalized Example
Promote trust within the community membership (Hildreth et al., 2000; Probst & Borzillo, 2008; Wenger et al.).	Core facilitators must engage in trust building activities including "hand holding" support and encourage participation with no judgment.
Mentor new members (Borzillo et al., Palloff & Pratt, 1999; Wenger et al., 2002).	Mentoring program should help new members navigate community of practice norms and expectations, improve instructional practices, and engage in scholarly work.
Facilitate discussions (Clawson & Bostrom, 1996; Fischer, 1998; Gray, 2004; Palloff & Pratt, 1999; Wenger et al., 2002).	Facilitation should encourage instructional best practice knowledge sharing, thoughtful discussions, mediate discussion, provide answers to member questions, and provide technical support. Facilitators should be aware of facilitator role dimensions and associated tasks (see Table A.15).
Recruit new core leadership/ facilitation group members (Gongla & Rizzuto, 2001; Wenger et al., 2002).	Plan for succession. Recruit new core members and leaders to replace outgoing leaders and to promote fresh ideas.

Fundamental Element: Practice

Provide medium/tool training. In order for members to participate in knowledge sharing in the virtual environment they must first know how to navigate the medium and use tools. Participants must feel comfortable with any tool used in the virtual environment or they will not participate (Sharrat & Usoro, 2003). Facilitators are responsible for technical support, technical knowledge, and for providing training for use in knowledge sharing tools (Chih-Hsiung & McIsaac, 2002, Gray 2004). It is not necessary to hold a formal training on use of the tool or tools that house the community of practice. Many online technologies have prepared tutorials or training materials that can provide necessary information for participants. If no tutorials or training materials are available, the creation of tutorials will provide participants with the help

they need to successfully participate in community activities. As the community grows, making such materials available and accessible for members can minimize technical support issues and promote knowledge sharing (Wenger, 2002).

Build and organize a knowledge repository. One of the main goals for a virtual community of practice is the development of a knowledge-sharing repository. Zhao and Bishop (2011) found that there must not only be a knowledge building component for an online community of practice, but also opportunities for interaction, and meaning making, as well. How a repository is organized will depend on the tools selected during the design phase. An institution supported learning management system (LMS) may have tools such as wikis or chats, but most have threaded discussion forums. Knowledge can be shared through discussion and other forms of interaction. As topics are discussed, how the content is organized will be an important consideration. Virtual community environments must be mindful of the knowledge overload that may happen when communicating or building knowledge in electronic environments. (Hemp, 2009). As knowledge is shared or created in a virtual community of practice through threaded discussions, information can easily become overwhelming and disorganized. Hiltz and Turoff (1985) found that the design and structure of online discussion systems must include facilities for users to control and structure online discussions to ensure interactions did not lead to knowledge overload. Organizing the repository is critical to successful knowledge sharing.

As repositories shave multiple modes for members to engage and interact with one another there must be a deliberate design for how knowledge is shared in electronic environments (Scardamalia & Bereiter, 1994). Effective facilitation and planning can overcome problems associated with organizing a repository. Since knowledge repositories are meant to meet the needs of both knowledge sharers and knowledge seekers, community of practice facilitators should organize discussion threads by topic and moderate posts (Wenger et al., 2002). To minimize confusion the repository should also delineate personal and public spaces. Predetermined criteria should describe where in the repository to hold informal discussion or chats, while reserving special spaces for more formal discussion and reification (Wenger et al., 2002)

Expand to research agenda. Reification is an important outcome for communities of practice. Without engaged knowledge creation a community of practice is relegated to a social group (Wenger, 1998; Wenger et al., 2002). In order to maintain membership and drive

participation communities of practice must also develop a plan for innovation or knowledge creation. West (2008) insists that communities of practice must do more than just provide members competence or meaning-making. Instead, communities of practice should become communities of innovation by shifting focus from just maintaining the status quo to creating and fostering an innovation (West, 2008). When researching a university wide community of practice, Waddock and Walsh (1999) found that engaging faculty and administrators in a variety of collaborative reification efforts including research, publications, grants, community outreach, and internal professional development efforts grew and sustained the community of practice. A community of practice for faculty interested in improving their online teaching practices can easily emulate the model as described by Waddock and Walsh (1999).

Table A.17

Operationalization of Practice Related Tasks During the Implementation Phase

Task	Faculty Development Operationalized Example
Provide training for interaction and knowledge sharing through the virtual medium (Chih-McIsaac, 2002; Wenger et al., 2002).	Provide access to tutorials or other training materials for how to use the medium or tools to share knowledge and interact with other faculty participants.
Build and organize a knowledge repository (Scardamalia & Bereiter, 1994; Wenger et al., 2002; Zhao & Bishop, 2011).	Avoid information overload by providing an organized repository. Provide facilitation to ensure knowledge is organized appropriately for knowledge sharing and knowledge seeking members.
Expand knowledge sharing to knowledge creation with well-defined research agenda (Waddock & Walsh, 1999; Wenger et al.).	Engage faculty in reification efforts that add to the literature in the field of distance learning teaching and learning best practices. Encourage conference attendance and publication of research.

<center>**Evaluation**</center>

Fundamental Element: Domain

       Effectiveness of the community in context. Evaluating a community of practice requires a systematic plan for assessment that is specific to the community being evaluated. Evaluation must occur through all phases of community design from conception through implementation and continuously through maintenance (Schwier et al., 2007). Since communities of practice are sometimes viewed as social gatherings or groups, rather than valuable resources within organizations, designed communities often fail because they are not viewed as contributing educational or workplace knowledge of the organization (Wenger, 2010). Organizational leaders are often concerned with the bottom line and want to know that there is a return on investment (Wenger et al., 2002). Evaluating whether the community of practice is providing value to the organization and is in alignment with the organizational goals is key to sustaining a community of practice. If a community of practice loses institutional support or is perceived to lack value, it will lose validity and participation (Wenger et. al, 2002). A virtual community of practice for faculty teaching at a distance can prove its worth to the institution through systematic evaluation. Institutional goals are generally wrapped around the improvement of instructional practices, student engagement, and other student centered areas. Ways to implement evaluative processes that show alignment will vary from institution but might include: student end of course surveys, faculty climate surveys, or volume of distance learning related research. Other evaluations as described in later fundamental element sections can also be used to show alignment with institutional goals.

       A comprehensive evaluation can determine whether the community of practice is meeting institutional and faculty needs. When conducting the gap analysis it is possible to create a plan for evaluation that measures whether the gap has been mitigated and if the community of practice is creating value for the institution and faculty (Wenger, Trayner, & de Laat, 2011). Core members or community facilitators should work together to determine a regular schedule for evaluation and administer evaluations accordingly. It is possible to use Kirkpatrick's Four-Level Evaluation Model to evaluate the virtual community of practice for faculty teaching online (Wenger et al., 2011). Table 24 details the evaluation focus for each level and corresponding questions for a virtual community of practice for faculty teaching at a distance. Table A.18

<center>172</center>

provides examples of virtual community of practice evaluation questions based on Kirkpatrick's Four-Level Evaluation Model.

Table A.18

Virtual Community of Practice Evaluation Based on Kirkpatrick's Four-Level Model

Level and Technique (Kirkpatrick, 1998)	Possible Questions/Areas for Evaluation
Level 1-Reaction (Faculty perceptions of the community of practice) Surveys for participant perceptions.	• Are you satisfied with the community of practice? • Is it easy to use? • What do you like/dislike about the community? • Are the facilitators friendly?
Level 2-Learning (The extent to which faculty participants change attitudes, improve knowledge, and/or increase skill as a result of participating in the community of practice) Survey for perceptions, evaluate for learning through discourse analysis.	• What skills, knowledge, attitude has changed as a result of your participation? • Can you describe how you will incorporate what you have learned in your courses? • Is there quality knowledge being shared by members?
Level 3-Behavior (Extent that faculty are using the newly acquired skill, knowledge, or attitude in their online teaching) End of Course Evaluations, Peer Evaluations	• Comparison of end of course evaluations • Faculty peer review for online course development and teaching.
Level 4-Results (The extent of the return on investment or value to the institution that the community provides) Institutional measures	• Increase in online courses being developed or taught? • Decreased attrition in online courses? • Increased enrollments in online courses?

Table A.19

Operationalization of Domain Related Tasks During the Evaluation Phase

Task	Faculty Development Operationalized Example
Evaluate the effectiveness of the community in context within the larger organization (Probst & Borzillo, 2008; Wenger et al., 2002).	Use evaluations that show value to the larger institution and alignment with institutional goals.
	Incorporate Kirkpatrick's Evaluation Model for a comprehensive approach.
	Evaluate sparingly.

Fundamental Element: Community

Level of trust and quality/quantity of interactions. Evaluation of a community of practice can be conducted by analyzing the level of trust displayed in the online interactions. If trust is not built in a community of practice it will show through the quality and quantity of interactions in the online forum (Palloff & Pratt, 1999). Wenger et al., (2011) identified five ways to measure quantity of interactions: (1) attendance at meetings, (2) number and characteristics of active participants, (3) subscribers, (4) logs and website statistics, (5) participant lists from synchronous meetings. Alem and Kravis (2005) evaluated the success of a virtual community of practice based on active membership, lurkers, number of messages per participant, on topic discussions, level of trust and satisfaction, and average length of membership. This information can be easily gathered by conducting an analysis of the artifacts, discussion threads, and other documentation developed by the community of practice. Community of practice leaders can learn a great deal about the health of a community of practice by evaluating the quality and quantity of interactions (Ke & Hoadley, 2009; Wenger et al., 2002)

Perceptions of learning and improved performance. Member perceptions of a community of practice can be used as an evaluative tool. Verburg and Adriessen (2008) used community of practice member perceptions to evaluate the effectiveness of seven communities of practice. Wenger et al, (2011) argued that value of a community of practice can be measured by collecting participant perceptions of learning or improved performance. Though participant perceptions of learning or improvement does not always translate into real learning or improvement, it can help give a view into how participants perceive the value of the community

of practice. Wenger et al. (2011) constructed an evaluative tool with a variety of questions covering 5 major value domains (see Appendix C). The instrument is designed to capture community of practice member perceptions of the value created from participation in a community of practice

While the table in Appendix C of potential evaluation questions above is extensive, it is not necessary to use all of the questions to conduct an evaluation of members. Several questions from each value domain can provide a picture of member perceptions of the value created from a community of practice. When evaluating a virtual community of practice for faculty teaching involved in distance education, this evaluative tool may serve as a guide.

Table A.20

Operationalization of Community Related Tasks During the Evaluation Phase

Task	Faculty Development Operationalized Example
Evaluate active membership through quality and quantity of member interactions and level of trust (Alem & Kravis, 2005; Wenger et al., 2011).	Use existing artifacts to measure trust and participation by analyzing the quality and quality of member interactions.
Evaluate participant perceptions of learning and performance improvement (Verburg & Adriessen, 2006; Wenger et al., 2011).	Use predetermined criteria to gather member perceptions of value, learning, or performance improvement (see Table A.19).

Fundamental Element: Practice

Effectiveness of medium. In order to ensure that all components of a community of practice are examined for effectiveness, evaluations should also focus on the technology employed to host a virtual community of practice. Teo et. al. (2003) suggested evaluating the usefulness and usability of the medium housing the community of practice. Additionally, researchers in the same study examined perceived usefulness, sense of belonging, perceived ease

of use, intentions for use, and adaptivity to evaluate the effectiveness of the medium for a virtual community of practice (Teo et al, 2003). Getting feedback on the medium from community of practice members can help community leaders make decisions about adjustments to the medium or whether to change the medium altogether.

Quality/quantity of knowledge sharing. A community of practice can be evaluated by analyzing the quality and quantity of knowledge that is created (Derry & DuRussel, 1999). Wenger et al. (2002) suggests that the knowledge repository that is created at the center of the community of is itself a tool for evaluation. A thriving community should have a robust knowledge repository of shared knowledge and co-constructed new knowledge to analyze. One that is fading or stuck in a rut will have little or no knowledge repository. When analyzing a knowledge repository evaluators should look for intensity of discussions, challenges of assumptions, length of threads, the bringing of experiences of practice into the space, debates on important issues, feedback on quality of responses to queries, new knowledge construction, and any reification efforts (Wenger et al., 2011). Evaluation of the quality and quantity of knowledge sharing in a virtual community of practice for faculty teaching at a distance should include an analysis of existing artifacts, discussions, and any research projects associated with improving online teaching and learning practices.

Table 21

Operationalization of Practice Related Tasks During the Evaluation Phase

Task	Faculty Development Operationalized Example
Evaluate the effectiveness of the knowledge sharing medium (Teo et al., 2003).	Evaluate for perceived usability, perceived usefulness, sense of belonging, and adaptivity.
Evaluate quality and quantity of knowledge sharing (Derry & DuRussel, 1999; Wenger et al., 2011).	Use existing artifacts in the knowledge repository to analyze quality and quantity of knowledge sharing. Include any past or ongoing research projects

APPENDIX A
ANALYSIS PHASE SAMPLE COMMUNITY DESIGN PLANNING DOCUMENT

Use this document to perform relevant tasks for building a community of practice for faculty teaching at a distance.

Intent of the community of practice for faculty teaching at a distance:

_____

Topics/Main ideas connecting potential faculty community members:

_____

_____

How does the community of practice for faculty teaching at a distance align with the larger university, department, or college?

_____

_____

Is there organizational support? Explain

_____

_____

If not, how will organizational support be secured?

_____

_____

Who are potential thought leaders, facilitators, or core members?

_____

_____

How will potential core members be recruited? Remember to incorporate factors that motivate faculty to participate.

_____

_____

Who are the potential community of practice faculty members?

_____

_____

Will a community of practice meet the needs of potential faculty members? Explain how.

_____

_____

How will potential faculty members be recruited?

_____

_____

What are common knowledge sharing needs of the potential faculty members?

_____

_____

FACILITATOR ROLE DIMENSIONS AND ASSOCIATED TASKS

Facilitator Role Dimensions and Associated Tasks

Facilitator Role Dimension	Associated Tasks
Plan and designs the meeting	- Plan the meeting ahead of time. - Include meeting leaders/initiators in planning - Develop clear meeting outcomes - Design agenda and activities based on outcome, time frame, and group characteristics.
Listen to, clarify, and integrate information	- Really listen to what the group is saying and make an effort to make sense out of it. - Clarify goals, agenda, terms and definitions with group.
Demonstrate flexibility	- Adapt agenda or meeting activities on the spot as needed. - Can do more than one thing as a time.
Keep group outcome-focused	- Clearly communicate outcomes to the group upfront. - Make outcome visible to the group. - Keep group focused on and moving toward its outcome.
Create and reinforce an open, positive, and participative environment	- Draw out individuals by asking questions. - Use activities and technology to get people involved early on. - Handles dominant people to ensure equal participation.
Select and prepare appropriate technology	- Match computer- based tools to the task(s) and outcome(s) the group wants to accomplish. - Select tools that fit group makeup.
Direct and manage the meetings	- Use the agenda to guide the group. - Use technology effectively to manage the group. - Set the stage for meeting and each activity. - Set time limits, enforces roles and ground rules.

(table continued)

Facilitator Role Dimensions and Associated Tasks (continued)

Develops and asks the "fight" questions	• Consider how to word and ask the "best" questions that encourage thought and participation.
Promote ownership and encourage group responsibility	• Help group take responsibility for and ownership of meeting outcomes and results. • Turns the floor over to others.
Actively build rapport and relationships	• Demonstrate responsiveness and respect for people, is sensitive to emotions. • Develop constructive relationships with and among members. • Greet and mingles with group.
Demonstrate self-awareness and self-expression	• Recognize and deal with own behavior and feelings. • Comfortable being self. • Keep personal ego out of the way of the group.
Manage conflict and negative emotions constructively	• Provides techniques to help group deal with conflict. • Gather and check group opinions and agreement level in disputes.
Encourage/support multiple perspectives	• Encourage looking at issues from different points of view. • Use techniques, metaphors, stories, and examples to get the group to consider different frames of reference.
Understand technology and its capabilities	• Knows how to operate the system. • Clearly understand tools and their functions and capabilities. • Figure out and solves common technical difficulties.
Create comfort with and promote understanding of the technology and technology outputs.	• Introduces and explain technology to group. • Address negative comments and inconveniences caused by technology.
Present information to group	• Give clear and explicit instructions. • Use clear and concise language in presenting ideas. • Gives group written information.

APPENDIX C

QUESTIONS FOR EVALUATING OF COMMUNITY OF PRACTICE MEMBER PERCEPTIONS

Questions for Evaluating of Community of Practice Member Perceptions

Perceived Values (Wenger et al., 2011)	Questions
Immediate value: What was my experience of it?	- How much participation was there? - What was the quality of the mutual engagement? - Was it fun, inspiring, convivial? - How relevant to me was the activity/interaction? - With whom did I interact or make connections? - Which connections are most influential on my own development?
Potential value: What has all this activity produced?	- How has my participation changed me? - Have I acquired new skills or knowledge? - Has my understanding of the domain or my perspective changed? - Do I feel more inspired by the work I do? - Have I gained confidence in my ability to engage in practice? - How has my participation changed my social relationships? - What access to new people have I gained? - Do I know them well enough to know what they can contribute to my learning? - Do I trust them enough to turn to them for help? - Do I feel less isolated? - Am I gaining a reputation from my participation? - What access to resources has my participation given me? - Do I have new tools, methods, or processes? - Do I have access to documents or sources of information I would not have otherwise? - What position has the community acquired? - Has the community changed the recognition of our expertise? - Have we acquired a new voice through our collective learning? - How has my participation transformed my view of learning? - Do I see opportunities for learning that I did not see before? - Do I now see opportunities for convening a community of practice or network in the service of learning that I did not see before?

<div align="right">(table continued)</div>

Questions for Evaluating of Community of Practice Member Perceptions (continued)

Perceived Values (Wenger et al., 2011)	Questions
Applied value: What difference has it made to my practice/life/context?	• Where have I used the products of the community/network? • Where did I apply a skill I acquired? • When did I leverage a community/network connection in the accomplishment of a task? • Was I able to enlist others in pursuing a cause I care about? • When and how did I use a document or tool that the community produced or made accessible? • How was an idea or suggestion implemented? At what level -- individual, team/unit, organization
Realized value: What difference has it made to my ability to achieve what matters to me or other stakeholders?	• What aspects of my performance has my participation in community/network affected? • Did I save time or achieve something new? • Am I more successful generally? How? • What effect did the implementation of an idea have? • Did any of this affect some metrics that are used to evaluate performance? • What has my organization been able to achieve because of my participation in community/network?
Reframing value: Has it changed my or other stakeholders' understanding and definition of what matters?	• Has the process of social learning led to a reflection on what matters? • Has this changed someone's understanding of what matters? • Does this suggest new criteria and new metrics to include in evaluation? • How has this new understanding affected those who have the power to define criteria of success? • Has this new understanding translated into institutional changes? • Has a new framework or system evolved or been created as a result of this new understanding?

APPENDIX G

PERMISSION TO USE TABLE

-------- Original Message --------
Subject:RE: Permission to Use Table in Dissertation
   Date: Sat, 16 Feb 2013 16:18:08 +0000
  From: Robert P Bostrom <bostrom@uga.edu>
    To:M. Aaron Bond <mabond@vt.edu>

Good luck with the defense! I would like a copy of dissertation. Thanks. Bob

Bob Bostrom
Professor Emeritus
MIS Department
Terry College of Business   Cell: 706-296-5747
Brooks Hall 312   Fax: 706-583-0037
University of Georgia   Home: 706-548-9185
Athens, GA 30602

Academic Web Site: http://www.terry.uga.edu/~bostrom/
MIS Dept: http://www.terry.uga.edu/mis/

From: M. Aaron Bond [mailto:mabond@vt.edu]
Sent: Thursday, February 14, 2013 11:26 AM
To: Robert P Bostrom
Subject: Re: Permission to Use Table in Dissertation

Hello Dr. Bostrom and Dr, Clawson

Sorry for the delay in getting back to you. Thank you so much for allowing me to adapt your table for my dissertation. My dissertation is a developmental study that explores the construction of a virtual community of practice for faculty teaching at a distance. Using the ADDIE model to compartmentalize tasks related to designing a community of practice, guidelines were developed and reviewed. Facilitation is a key function for building and maintaining a community of practice in electronic environments. While facilitation is identified as a key component in community of practice literature, there was little literature about how to best facilitate virtual community of practice events. Your work proved crucial to fill that gap. I am almost finished with my dissertation. I defend on March 21. If you would like, I can send you a copy once it has been approved by my committee.
Thank you again for your help. Let me know if you need anything.

Sincerely yours,
Aaron

On 1/28/13 6:20 PM, Robert P Bostrom wrote:

Vikki and I both give our permission to use the table. Thanks for the kind words on our work. Can you send me an overview of your dissertation, thanks. Good luck finishing the dissertation. Bob

Bob Bostrom
Professor Emeritus
MIS Department
Terry College of Business   Cell: 706-296-5747
Brooks Hall 312   Fax: 706-583-0037
University of Georgia   Home: 706-548-9185
Athens, GA 30602

Academic Web Site: http://www.terry.uga.edu/~bostrom/
MIS Dept: http://www.terry.uga.edu/mis/

From: M. Aaron Bond [mailto:mabond@vt.edu]
Sent: Monday, January 28, 2013 4:57 PM
To: Robert P Bostrom
Subject: Permission to Use Table in Disseration

Hello Dr. Bostrom,

I am currently completing my dissertation at Virginia Tech, and would like to request permission to use the following table: Table 2. Critical facilitator role dimensions, from Clawson, V., & Bostrom, R. (1996). Research-driven facilitation training for computer-supported environments. *Group Decision and Negotiation*, *5*(1), 7–29. doi:10.1007/BF02404174

I was unable to find contact information for the first author, and I hope you can grant permission. I greatly respect your work and look forward to using the chart in my study.
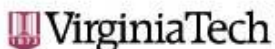
Thanks so much for your help.

Aaron
M. Aaron Bond

```
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APPENDIX H

IRB APPROVAL MEMO

VirginiaTech

MEMORANDUM

DATE: February 7, 2013

TO: Barbara B Lockee, Aaron Bond

FROM: Virginia Tech Institutional Review Board (FWA00000572, expires May 31, 2014)

PROTOCOL TITLE: Constructing Guidelines for Building Communities of Practice for Supporting Faculty Professional Development in Electronic Environments

IRB NUMBER: 13-107

Effective February 6, 2013, the Virginia Tech Institution Review Board (IRB) Chair, David M Moore, approved the New Application request for the above-mentioned research protocol.

This approval provides permission to begin the human subject activities outlined in the IRB-approved protocol and supporting documents.

Plans to deviate from the approved protocol and/or supporting documents must be submitted to the IRB as an amendment request and approved by the IRB prior to the implementation of any changes, regardless of how minor, except where necessary to eliminate apparent immediate hazards to the subjects. Report within 5 business days to the IRB any injuries or other unanticipated or adverse events involving risks or harms to human research subjects or others.

All investigators (listed above) are required to comply with the researcher requirements outlined at:

http://www.irb.vt.edu/pages/responsibilities.htm

(Please review responsibilities before the commencement of your research.)

PROTOCOL INFORMATION:

Approved As:	**Expedited, under 45 CFR 46.110 category(ies) 6,7**
Protocol Approval Date:	**February 6, 2013**
Protocol Expiration Date:	**February 5, 2014**
Continuing Review Due Date*:	**January 22, 2014**

*Date a Continuing Review application is due to the IRB office if human subject activities covered under this protocol, including data analysis, are to continue beyond the Protocol Expiration Date.

FEDERALLY FUNDED RESEARCH REQUIREMENTS:

Per federal regulations, 45 CFR 46.103(f), the IRB is required to compare all federally funded grant proposals/work statements to the IRB protocol(s) which cover the human research activities included in the proposal / work statement before funds are released. Note that this requirement does not apply to Exempt and Interim IRB protocols, or grants for which VT is not the primary awardee.

The table on the following page indicates whether grant proposals are related to this IRB protocol, and which of the listed proposals, if any, have been compared to this IRB protocol, if required.

Date*	OSP Number	Sponsor	Grant Comparison Conducted?

* Date this proposal number was compared, assessed as not requiring comparison, or comparison information was revised.

If this IRB protocol is to cover any other grant proposals, please contact the IRB office (irbadmin@vt.edu) immediately.