## ABSTRACT

STOPA, MELISSA MOELLER. Pedagogical Practices to Develop Community in Undergraduate Online Learning: The Affordances of Technology, a Mixed Method Study. (Under the direction of Dr. Ellen Vasu.)

Enrollment in higher education online courses by degree-seeking students is at an all-time high. Within an explanatory sequential mixed methods design, using Likert scale survey data, open ended survey questions, instructor interviews, and analysis of course artifacts, I studied the development of community in three social science undergraduate courses at a large research intensive university in the southeast United States. Three courses had their students surveyed to determine if professional intentional course design promotes the development a community of inquiry in a course (Diversity) when compared to each of two more traditional online courses (Introduction to Leadership and Policy). Course artifacts were examined to expand on and elaborate upon the experiences of the students in the online course that were reported in the survey. The researcher examined how the instructors developed teaching, cognitive, and social presences in their online courses. Specifically, the pedagogical practices, learning design principles, and technology tools that support the development of a community were identified and explored. The results indicate that students in the professionally designed course perceived stronger social and teaching presence. However students in Policy also reported strong perceptions of social presence.



*Keywords:* online learning, Community of Inquiry Framework, social presence, student perceptions, course artifacts, instructional design

# Pedagogical Practices to Develop Community in Undergraduate Online Learning: The Affordances of Technology, a Mixed Method Study

By

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# BIOGRAPHY

Melissa Moeller Stopa earned her Bachelor of Arts degree from Smith College in Education and Child Study. After graduation, she moved to Wildflecken, (West) Germany with her husband, who was an Army officer. She worked for the Department of Defense as a Director of Child Development Services, for three years. When they returned to the U.S. she received her Master of Education degree from the University of Louisville in Curriculum and Instruction with a focus on Early Childhood Education. In 1992, they moved to North Carolina and Melissa began her public teaching career in Alamance County, North Carolina. Melissa has been an elementary classroom teacher, a reading specialist, a proficiency specialist, and an instructional technology facilitator. Melissa entered the doctoral program in Curriculum and Instruction at North Carolina State University in 2013. Her research interests include digital teaching and learning, online teaching and learning, instructional design, and transformative technology integration.

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First and foremost I'd like to thank my husband, Craig. His love and support allowed me to pursue this degree. In addition, to my parents, Madelyn and Homer Moeller, I thank you for your unconditional love and support. You helped me make this dream come true. My advisor, Dr. Ellen Vasu provided her time, expertise and guidance. Thank you for always having time and energy for me. Lastly, I dedicate this work to my children, Tyler, Graham, and Mia. Thank you for understanding the demands of the doctoral program and supporting my work. This document is proof that it is never too late to pursue your dreams.

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# CHAPTER 1 - INTRODUCTION

Enrollment in online higher education courses is at an all-time high. According to Allen and Seaman (2015), the rate of growth in online enrollments has increased at a faster rate than those of higher education, in general, every year for the past decade. In 2013, there were approximately 21 million students enrolled in higher education. The number of degree-seeking students enrolled in at least one online course was over 5 million (Allen & Seaman, 2015). Although the demand is significant, it is unclear if this demand translates into a high-quality online learning experience for students.

## Background of the Study

"Faculty is encouraged to teach online, but most of us have not been trained to do so" (J. T. DeCuir-Gunby, personal communication, October 17, 2015). This anecdotal quote illustrates an important fact about online learning: the implementation is not necessarily strategic. In their 2015 report on online learning in the United States, Allen and Seaman find that online learning is considered critical to the long-term strategy of most higher education institutions. In 2002, 48.8% of chief academic officers reported that online learning was critical to the strategic vision of their institution. By 2014, the percentage grew to 70.8% (Allen & Seaman, 2015). These numbers illustrate that demand is high for online learning. There is a desire to increase online offerings. The desire is strategic and driven by student demand (Allen & Seaman, 2012). Interestingly, in 2012, about one-third of faculty surveyed reported that their institution pushed online instruction too much (Allen & Seaman, 2012).

A recent Gallup and Inside Higher Ed report on faculty attitudes about technology found that one-third of faculty has taught at least one online course. However, instructors

report a significant concern about the quality of online learning experiences (Straumsheim, Jaschik, & Lederman, 2015). Fifty-three percent of faculty members disagree with the statement that "an online course can achieve the same learning outcomes as a face-to-face course." Further, academic leaders recognize that it takes more time and energy to teach an online course compared to teaching the corresponding face-to-face course (Allen & Seaman, 2015). Faculty realize that teaching online is challenging, and course quality can vary between modalities. Not surprisingly, technology administrators report the opposite. Sixty-two percent believe that online learning environments can achieve the same or better learning outcomes while only 10% disagree (Straumsheim, Jaschik, & Lederman, 2015).

There are challenges many instructors face when converting face-to-face courses to an online learning environment. One of the main differences is that the instructor cannot rely solely on assigning readings, providing lectures, and class discussion (Boling, Hough, Krinsky, Saleem, & Stevens, 2012; Dunlap, Sobel, & Sands, 2007). In the online learning environment opportunities for interaction between student, instructor, and peers must be intentionally designed into the course. Beyond the necessary intentional design, the instructor must actively facilitate these opportunities.

Online learning environments vary greatly in instructional and learning theory design. To engage in the type of higher-level discourse that is critical to deep and meaningful learning, students must do more in an online class than complete assigned readings and post to discussion boards. Faculty develop the majority of online courses without any training in online teaching or instructional design (Moller, Foshay, & Huett, 2008). This lack of preparation or training leads many instructors to develop the course using the craft approach; creating the course based on what worked for them in the traditional classroom environment.

This method does not necessarily take into account the differences in the modes of delivery and communication between face-to-face and online instruction. It is simply not enough to make the content accessible.

Dunlap, Sobel, and Sands (2007) studied deep and meaningful interactions online. The authors caution that online instructors frequently engage in the distribution of knowledge, not in teaching. Online instructors are faced with new pedagogical issues that include course design and delivery, facilitating communication between instructor and student and among all course members, as well as defining new assignment and assessment types (Moller et al., 2008).

Academic leaders recognize that it requires more time and energy to deliver an online course. Seventy-eight percent of academic leaders believe this additional effort represents a barrier for online instruction (Allen & Seaman, 2015). Additionally, over the past decade, Allen and Seaman (2105) have seen little change in faculty acceptance of the value and legitimacy of online education. In their first survey, in the fall of 2002, they reported a 27.6% acceptance rate and their most recent survey in the fall of 2014 reports a 28% acceptance of the value of online education. Straumsheim et al., (2015) found that faculty believe that online courses are inferior to face-to-face courses in several areas, including the ability to answer student questions and to present course content to meet the learning objectives. They also report that less than half the faculty agree that their institution is supportive of faculty members in online learning. This presents an interesting paradox: institutions believe that online learning is critical to their strategic plan, and they want instructors to teach online, yet a majority of faculty believe that their institution is not supportive of faculty teaching online

**Purpose Statement and Research Questions**

The purpose of this study is to identify pedagogical practices, learning design principles, and technology affordances of the learning environments of three different online courses. Instructor One teaches Introduction to Leadership and Diversity. Introduction to Leadership is a course designed and taught by Instructor One. The university's department of distance education worked with Instructor One to design Diversity. Instructor Two designed and teaches Policy. He teaches in the same college at the University as Instructor One. Specifically, the research considers if the professional course design helps the instructor develop strong teaching, cognitive, and social presence in an online classroom.

The purpose of this study provides guidance and direction for the research questions. Does an online course, designed by professional distance education designers, promote a Community of Inquiry and provide learning experiences that develop stronger positive student perceptions of teaching, cognitive, and social presence than a course designed by an instructor without the support of instructional design experts? There are three sub-questions for this study. What pedagogical practices, learning design principles, and technology affordances are reported by the students and are evident in the course artifacts to:

- facilitate discourse between and among learners and instructor?
- provide opportunities that engage learners in authentic activities?
- provide opportunities for students and instructors to develop a sense of each other as individuals and develop community?

**Methods Overview**

A sequential explanatory mixed method design was used, quan →QUAL. Creswell and Plano Clark (2007) provide a definition of mixed methods that emphasizes a key benefit of mixed methods research: combining the quantitative and qualitative approaches "provides a better understanding of research problems than either approach alone" (as cited in Creswell & Plano Clark, 2011, p. 5). Johnson and Onwuegbuzie (2004) provide additional support for the mixing of methods, "The goal of mixed methods research is not to replace either of these approaches but rather to draw from the strengths and minimize the weaknesses of both in single research studies and across studies" (p. 14).

In the first stage, quantitative (survey) data were collected from undergraduate students enrolled in the three online courses to determine the student's perceptions about the development of community in each course. In the second phase, qualitative data were collected from course artifacts and instructor interviews to provide a comprehensive picture of the online learning experience for each course. Specific pedagogical choices are identified to explore *how* the instructor creates a community of inquiry their online courses (or not).

**Theoretical Framework**

Guba and Lincoln (1994) write, "Questions of method are secondary to questions of paradigm, which we define as the basic belief system or worldview that guides the investigator" (p. 105). A researcher's beliefs guide and shape their work, even if the choice is not purposeful or a conscientious decision (Lincoln & Guba, 2000). Decuir-Gunby and Schultz (in press) identify three parts to the theoretical framework: inquiry worldview, substantive content theories, and subjectivity statement.

Theories and experiences provided the lens through which the online course experience is detailed, explained and understood. The following theories and life experiences are instrumental in developing my perspective and guided my work.

**Inquiry worldview**. Pragmatism is the interpretative framework for this study. Pragmatism is an interpretivist perspective (Creswell, 2013). An interpretivist believes that the participants create meaning from their interactions with their world (Lapan, Quartaroli & Riemer, 2015). A pragmatist focuses on the outcomes of a study, finding solutions to problems and providing information about what works (Creswell & Plano Clark, 2011; Patton, 2014). Johnson and Onwuegbuzie (2004) share general characteristics of pragmatism. These include a belief that knowledge is constructed, and it is based on the reality of our experiences and the world where we live. A pragmatist balances the physical world with the constructed world of experience that includes language and culture. The pragmatic researcher accepts that there is a reality independent of the participants experience (the physical world) and world that is constructed by the participant (constructed world). This recognizes that each participant may have a different constructed world and experience because of language, culture and experience. Pragmatic researchers test hypotheses and share multiple perspectives (Creswell & Plano Clark, 2011). Pragmatism values both objective and subjective knowledge. Lastly, pragmatism affirms the idea that "theory informs effective practice" (Johnson & Onwuegbuzie, 2004).

A pragmatist decides which methods to employ based on their knowledge of the situation and the research question. Creswell (2013) describes the pragmatist as having "freedom of choice" in the research methodology (p. 28). The methods decisions may be fluid and determined by circumstances as they emerge, not based on a rigid adherence to a

paradigm (Patton, 2014). Methods should be selected to elicit diverse perspectives on the research question. The pragmatist will recognize that all methods have strengths and weaknesses (Creswell, 2013; Morgan, 2007). A pragmatist will select the methods needed to answer the research question. Creswell and Plano-Clark (2011) suggest that it is appropriate for the pragmatist to collect both quantitative and qualitative data, as needed, to address their research questions. A pragmatist will choose the methods and procedures that fit their needs (Creswell, 2013; Patton 2014). I believe that people experience the constructed world, through the lens of their experience and culture. As a pragmatic researcher, I use my research questions to guide my methodology. This implies the important part of the research is the problem under study (Creswell, 2013). The pragmatist focuses on the outcomes of their work instead of the antecedent conditions. I used pragmatism as a lens to guide the research, with a focus on identifying "what works" in the online classroom (Creswell & Plano-Clark, 2011, p. 43).

**Subjectivity statement.** I work as an instructional technology facilitator for a nationally known and highly competitive school district in the southeast. This year is my thirteenth in this role, and I have 22 years experience as a public school educator. As a doctoral student, I am older than most of my peers; this affords me a different perspective and perhaps a vaster life experience. I completed eight online classes as part of the requirements for the doctoral program in instructional technology. My experience in these courses is varied. Some of the classes were positive, and the instructors were present and helpful, and I got to know my peers. Other courses were isolating, and the instructors were primarily absent, not responsive, nor supportive. Because of my age, life experiences, and education history, I believe I bring a unique perspective to this research.

**Substantive content theories.** In order to examine and understand the online course experience, it is necessary to understand the online learner population. The majority of online learners is female, age 25 or older, married and work full time (Stavredes, 2014). Kolb (1984) grounded in the works of Dewey, Lewin, and Piaget developed a learning model, experiential learning theory (ELT). ELT is a process that uses experience as the foundation for the learner to construct knowledge in a social and cultural context. ELT is described as "the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience"(Kolb, 1984, p. 41). There are four stages to ELT: concrete experience, reflective observation, abstract conceptualization, and active experimentation. These stages may be used as a foundation to develop meaningful learning in an online course (Alley & Jansek, 2001; Dunlap, Dobrovolny, & Young, 2008). Because the majority of online learners are adults, Kolb's learning theory is especially powerful since it leverages and builds upon their past experiences.

In addition to developing a course environment that meets the learning needs of adult learners, it is important for the instructor to develop a sense of community (Garrison, Anderson, & Archer, 2000). Garrison et al. (2000) developed a framework to provide a tool to understand the development of community in the online course environment. The Community of Inquiry (CoI) framework is one model used to examine and understand critical discourse in online learning environments. Critical discourse includes the "sustained and authentic communication between and among teachers and students" (Garrison, Anderson & Archer, 2001, p.3). Cognitive, social, and teaching presences are the components of the CoI framework.

Studies show that engaging in authentic learning tasks develops cognitive presence (Akyol & Garrison, 2008; Garrison & Cleveland-Innes, 2005; Shea & Bidjerano, 2009). Authentic learning activities may be constructed around Kolb's ELT. Social presence is developed through synchronous and asynchronous opportunities for the instructor and course members to interact. Teaching presence is paramount in the online learning environment. The interactions between teacher and student provide the context for teaching presence. The CoI framework will provide a theoretical grounding for the study.

**Summary**

Online learning is an area of rapid growth in higher education. Current data shows that there is strong demand for online courses. Faculties feel pressured to teach online but not necessarily supported when they teach online. This chapter introduced the CoI framework and the relevance of Kolb's learning theory and how they may provide the foundation for understanding an online learning community. This research is important because it illuminates effective methods that may provide instructors with insight into pedagogical practices, learning design principles, and technology tools to adopt (or refrain from) to improve the learning experience of their students.

# CHAPTER 2 - REVIEW OF THE LITERATURE

Much of the literature about online learning focuses on instructor challenges, student success, student persistence, and building community. Given the continued growth, the importance of online learning, and the unique characteristics of the online learner, it is important to understand how instructors create their online learning environments. Furthermore, the application of adult learning theory to the online environment will provide an understanding of best practices in the online learning environment. The social nature of learning may be addressed in the virtual learning environment by incorporating principles of social constructivist learning theory. Learner interaction and engagement are an essential element in developing a successful learning environment. By nature of their virtual learning locations, online learners are at risk of being isolated and disengaged. Technology mediates online instruction. Technology tools may be employed to enrich the online learning experience, or they may be viewed as a barrier to successful learning experiences. The literature shows that to prevent alienation and to foster higher order thinking it is important to develop online learning environments that:

- adhere to principles of good practice for higher education,
- recognize the differences between face-to-face and online instruction,
- incorporate the tenets of adult learning theory,
- and develop a community of inquiry.

Technology may enhance the online learning experience or constrain the development of a community.

**Principles of Good Practice for Higher Education**

Chickering and Gamson's (1987) principles for best practice in undergraduate education apply to online learning as well (Brew, 2008; Palloff & Pratt, 2005). Their seven principles are: encourage contact between and among students and instructor (including outside of class), group work enhances learning, active learning in structured classes and this includes discussions, group projects, and peer feedback, timely and appropriate feedback is needed to improve performances, students must learn to use their time well, high expectations are communicated, and lastly, vary the delivery methods of the course. These principles are relatively easy to structure into a face-to-face class. Often, the instructor develops a syllabus that includes Chickering and Gamson's principles. To ensure compliance, the instructor facilitates class discussions and provides assignments that require active learning and engagement. There may be a real difference when this approach is translated into the online class. The instructor cannot rely on students to connect and have informal conversations and learning experiences with their peers. The facilitation of the learning experience in the online classroom requires constant monitoring and feedback. Because this often takes the form of written communication, it may be seen as more time consuming and formal than feedback provided in a face-to-face classroom (Arinto, 2013; Dunlap & Lowenthal, 2009).

The online instructor is expected to fulfill many different roles. Bangert (2004) stressed the importance of the instructor's presence in the online environment and identified principles of good practice for the online instructor. He shares that instructors need to be friendly, enthusiastic, and accessible, have good communication skills, and demonstrate an interest in student learning. All of these qualities contribute to the instructor's presence in the

virtual classroom. Numerous studies identify the different roles of the online instructor and their need to be present (Bailey & Card, 2009; Carr, 2014; Guasch, Alvarez, & Espasa, 2010; Horvitz, Beach, Anderson, & Xia, 2015; Munoz Carril, Gonzalez Sanmamed, & Hernandez Selles, 2013). The responsibilities include: facilitating discourse, encouraging engagement, being responsive and providing timely feedback, creating an accessible and organized course, and providing technology support and assistance.

**Instructor Challenges**

Online instructors face many challenges. One of the most significant is the lack of social cues during communication exchanges (Boling et al., 2012; Carr, 2014). It is difficult to understand the intent of a comment without being able to see the commentator's face and gestures. A major responsibility of the online instructor is to maintain constant and frequent communication with their students (Young, Johnson, Chow, & Rosenberger, 2015). Communication in the online environment "must be more than undirected, unreflective, random exchanges and dumps of opinions" (Garrison, et al., 2001, p.21). Communication needs to be constantly facilitated and at times directed by the instructor.

In a qualitative study that interviewed nine online course instructors, Arinto (2013) outlines some of the challenges instructors face when they begin teaching online. One of the initial challenges is the time it takes to select resources that are appropriate to use in the online learning environment. Another challenge is the difference between being a lecturer and a facilitator. The popular phrase for this transition is moving from "sage on the stage to guide on the side" (King, 1993). It is important to note, that this change is appropriate for face-to-face as well as online learning environments. Additionally, in the online environment, there may not be the opportunities for incidental communication and learning that can

happen in a face-to-face course (Arinto, 2013). Other challenges are a perceived lack of control over learner behavior, difficulties fostering learner engagement and participation, as well as challenges in assessment.

Boling et al. (2012) share that it is easy for the online environment to become overly reliant on text. In their study, students felt that instructors relied too much on text and at times they felt overwhelmed by the reading assignments. Many students reported isolation and lack of opportunity to interact with their peers. Students shared a concern about recorded lectures. There is little opportunity for students to interact, to ask questions, and for instructors to provide feedback and clarification (Carr, 2014). The challenges indicate that the role of the online instructor may be significantly different than that of the professor in the face-to-face classroom.

**Learning Theory**

One way to address many of the challenges that online learning presents is to develop the online learning environment so that it is consistent with social constructivist learning principles. Holly, Legg, Mueller, and Adelman (2008) advocate for the instructor to let go of control and the knowledge transfer concept of learning, and to adopt social-constructivist approaches to learning. This may be seen as a move from teaching paradigm to a learning paradigm (Boling et al., 2012). Social constructivism supports the idea that there are many ways of knowing and understanding the world. It may be seen as the diametric opposite of the traditional knowledge transfer approach to learning. Anderson and Dron (2012) write, "social-constructivist pedagogy acknowledges the social nature of knowledge- its creation in the minds of individual learners but its instantiation in the practice and culture of groups" (p. 5). With social-constructivism, the learner is actively engaged in knowledge construction;

this includes critical thinking and collaboration with peers. There are numerous instructional practices and design principles that are consistent with and support social-constructivist learning. These include: new knowledge is grounded in previous knowledge, learning is not passive but active, language and other social tools are used in knowledge construction, learners engage in metacognition to assess their learning, the learning environment is learner-centered and allows for multiple perspectives, knowledge is subject to discussion, validation, and should be applied to real world situations (Anderson & Dron, 2012). The technology-mediated environment of an online classroom can support the social construction of knowledge or constrain it.

**Kolb's experiential learning theory.** Kolb's experiential learning theory (ELT) is consistent with the concepts of social-constructivist learning as they both have roots in the works of Dewey and Piaget. One of the basic tenets of ELT is that learning is a process and not a product (Kolb, 1984). Fundamental to Kolb's model is the implicit idea that all knowledge is grounded in experience and it is a continuous process. Svinicki and Dixon (1987) modified Kolb's model for classroom activities at the postsecondary level. For each of the stages of the cycle, they provide examples of appropriate activities. Figure 2.1 shares their activities:

| **Concrete Experience** | **Reflective Observation** | **Abstract Conceptualization** | **Active Experimentation** |
|---|---|---|---|
| Laboratories | Logs | Lecture | Simulations |
| Observation | Journals | Papers | Case studies |
| Primary text reading | Discussion | Model building | Laboratory |
| Simulations/games | Brainstorming | Projects | Field work |
| Field work | Thought questions | Analogies | Projects |
| Trigger films | Rhetorical questions | | Homework |
| readings | | | |
| Problem sets | | | |
| examples | | | |

*Figure 2.1:* Kolb's ELT Modified for Post-Secondary Instruction (Svinicki and Dixon, 1987)

The authors also share a way to modify the cycle by substituting action verbs for each category or activity type: concrete experience becomes experiencing, reflective observation becomes examining, abstract conceptualization becomes explaining, and active experimentation becomes applying. The action verbs are provided as a means to help the instructor apply the model (Svinicki & Dixon, 1987).

Dunlap et al. (2008) apply the principles of Kolb's model to the online learning environment. They provide an example of how they structure a course in online instructional design and how it incorporates all four stages of the ELT, in numerous iterations. The end product of one assignment is to develop a project proposal. The first assignment is a front-end analysis. This one assignment asks the learner to engage in all four stages of the ELT. Initially, the learner engages in fieldwork to collect information, this is an example of concrete experience (or experiencing). The next activity is to organize and review the data; this is the reflective observation (or examining) phase. Next the students shared their observations in a threaded discussion. They were expected to consider the implications of their findings and how it will impact their design. This is abstract conceptualization (or explaining). The final step for the initial product is for the student to create a formal project proposal. In this step the student engages in active experimentation (or applying). In this example the instructors ask the students to engage with a current real life challenge. This affords the learner the opportunity to situate their learning in the context of their current experience.

**Social constructivist learning theory.** Grounded in the work of Vygotsky (1978), the social constructivist theory of learning views knowledge as socially constructed. It is

essential for the learner to have a social context where knowledge is constructed instead of acquired. Lipman (1991) describes a community of inquiry that affords learners opportunities to connect, reason, question, challenge, and develop problem-solving skills. Additionally, a learning community allows the member's opportunities to leverage the social nature of learning (Garrison et al., 2000). In the online classroom, the opportunities to develop community must be designed into the course (Garrison, 2007). The instructor must be an active facilitator of learning.

**Community of Inquiry**

Garrison, Anderson, and Archer (2000) developed the Community of Inquiry framework to provide a tool to understand the development of a community in the online course environment. The CoI framework is based on the theory that a community is the foundation for critical inquiry and ultimately learning (Garrison et al., 2000). Knowledge arises from reconstructing experiences and challenging assumptions. The instructor facilitates the discourse (Anderson, Rourke, Garrison, and Archer, 2001). The CoI is a framework to understand online learning environments and experiences. Additionally, the framework provides a model to examine and understand critical discourse in online learning environments. Cognitive, social, and teaching presences are the components of the CoI framework. Figure 2.2 illustrates the overlapping and integrated nature of the CoI and the elements of the educational experience.

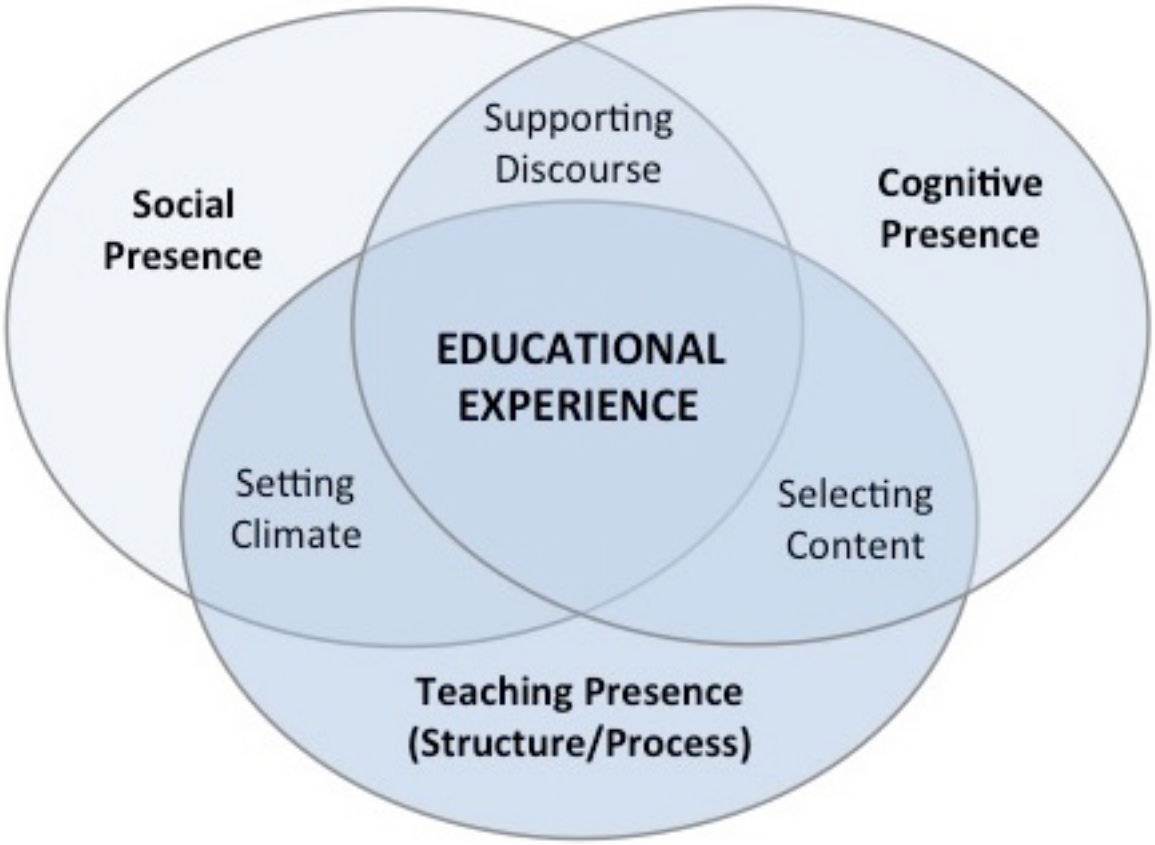



*Figure 2.2:* Elements of an Educational Experience (adapted from Garrison et al., 2000)

The diagram illustrates the concept that the three presences are overlapping and interrelated. It is the intersection of all three presences where authentic learning occurs. Additionally, the diagram illustrates how each of the presences relies upon the others for the educational experience. The original intent of the CoI framework, developed by Garrison, Anderson, and Archer (2000) was to provide a means to understand the nature and quality of discourse in online learning environments. There is research that suggests it is appropriate to apply the CoI model to all aspects of the online course, not just in discourse analysis (Archer, 2010; Shea, Hayes, & Vickers, 2010). For computer-mediated instruction to be effective, it must promote critical thinking skills. This includes opportunities to develop higher-order

thinking skills and requiring learning activities that require the application of learning, the same as a traditional post-secondary education class.

**Teaching presence.** Teaching presence includes the design and organization of the learning environment and activities, facilitating discourse, and direct instruction. Basic concepts to develop teaching presence are collaboration and interaction. Stavredes (2014) pushes these concepts when she identifies intentional strategies to develop teaching presence. The instructor as a facilitator for the course establishes instructor or teaching presence. The instructor should engage in interactions that encourage: participation, knowledge construction, and self-directedness. Additionally, the instructor's interactions should monitor progress and communicate feedback. All of these are formal interactions designed into the course structure.

Teaching presence is critical to the success of the online learning environment. The transactional distance between learners and the instructor is difficult to overcome in a distance learning experience (Moore, 1993). Typically this is because of the reliance on text-based tools to communicate (Dunlap & Lowenthal, 2009). The physical isolation supports incorporating some synchronous video, chat sessions, or asynchronous video conversations to develop community. It is especially important for the instructor to develop teaching presence. The instructor needs to come across as a real, live, human being. Learners want to see their emotion, humor, sympathy, and empathy.

Online "social exchanges" with the instructor are integral to a student's sense of belonging and presence as well as to their overall satisfaction with an online course (Boling et al., 2012; Liaw, 2008). Beyond synchronous sessions, digital storytelling may be used to develop social and teaching presence. It provides an authentic look at the instructor, which

supports social presence and the instructor to student relationship (Dunlap & Lowenthal, 2010). Additionally, instructor presence is correlated to perceived student satisfaction and learning in an online course (Bangert, 2008; Picciano, 2002; Shea, Fredericksen, Pickett, & Pelz, 2003).

Shea, Hayes, and Vickers (2010) studied two sections of one online course taught by two different instructors. They sought to identify teaching presence beyond the threaded discussion board. Shea et al. (2010) used content analysis on data collected from various technology tools: discussion areas (from whole group and small group forums), emails, announcements, the question and answer area, and from course artifacts. They coded the data according to the CoI indicators for teaching presence (see Appendix A). The researchers added an assessment code to the course design and organization. The unit of analysis for their study is the message. For discourse and transcript analysis determining the unit of analysis may be problematic (Garrison, Cleveland-Innes, Koole, & Kappelman, 2006; Saldaña, 2012). The unit may be a word, phrase, sentence, paragraph, multiple paragraphs or message. As one of the first studies to review and code artifacts beyond the threaded discussions, they reported a surprising finding. Both instructors had over 86% of their teaching presence activity happen outside of the discussion forums. Additionally, their findings indicate that teaching presence increases during modules when there are assessments. The authors note the importance of evaluating all course materials because instructor feedback is not often found in the public forum of a discussion thread.

Dringus, Snyder, and Terrell (2010) studied the effects of mini audio presentations (MAPS) integrated into the LMS as attachments in the discussion forums to enhance teaching presence. In a pilot study, the researchers implemented MAPs that included

facilitation markers: reinforcement, recognition, and reward (Snyder, 2009) at different points of the course. Three instructors participated in two different courses (two sections of one course, and one of the other). Data were collected via a survey, with students responding to ten yes or no questions. With a small number of respondents (n=16) the researchers provided descriptive statistics of the answers. Additionally, open-ended questions were coded using qualitative analysis seeking the emergence of themes and categories. The study found that students felt the audio provided clarification and added a personal touch. Also, students felt the audio helped them feel more connected to the instructor.

In a recent, descriptive multiple-case study, Richardson, Koehler, Besser, Caskurlu, Lim, and Mueller (2015) sought to understand how instructor presence is conceptualized and how it is incorporated into an online course. They collected data from twelve different instructors in an online master's program in learning design and technology. The individual instructors were the unit of analysis. All were experienced, online instructors. They included full-time faculty members (*n*=3) and limited term instructors (*n*=9). The data collected came from archived course observations: instructor communications, interactions, and actions. Any interaction that occurred outside the LMS was not included. The data were coded at the sentence level.

The researchers based their codes on previously identified indicators for social and teaching presence (Rourke, Anderson, Garrison, & Archer 1999; Shea et al., 2010; Swan, 2002). The researchers used both deductive and inductive methods and met multiple times to develop the coding scheme. To address reliability and validity, independent researchers coded postings for each researcher to allow for triangulation. They identified different technology affordances that leverage the instructor's ability to enhance their teaching

presence. These include the instructor using highlighting, capitalization, and colored fonts to make course activities stand out. Also, they found emoticons and unusual punctuation help express non-verbal emotions. As expected, instructor comments and actions to keep students on track, clarify misunderstandings, and using prompts to keep students moving forward are actions that supported the teaching presence in the online classroom. The authors give extensive examples of the different ways to leverage the included features of the LMS. Instructors sharing personal images and the use of rich media to share the instructor's voice and/or face are technology tools that support the development of teaching presence and overlap into social presence.

**Cognitive presence.** The studies cited indicate that social and teaching presence are integrated and support one another and form the environment where critical inquiry may occur. Garrison et al. (2001) define cognitive presence as "the extent to which learners can construct and confirm meaning through sustained reflection and discourse in a critical community of inquiry" (p. 11). To understand cognitive presence Garrison et al. (2000) developed the practical inquiry model. The practical inquiry model (PIM) is based on Dewey's (1910) concept of practical inquiry and it operationalizes cognitive presence. Garrison et al. (2000) adapted Dewey's concepts into four stages: triggering event, exploration, integration, and resolution. Cognitive presence develops through active learning strategies: critical thinking, problem solving, reflection, and debate (Dunlap et al., 2007; Stavredes, 2014). Research shows that the majority of discourse in online discussion boards does not move beyond the exploration stage (Garrison & Arbaugh, 2007; Shea et al., 2010). The later stages of the PIM are most often found in other course artifacts: documents, papers, and projects**.** Figure 2.3 represents the PIM and the integrated nature of the learning

experiences.

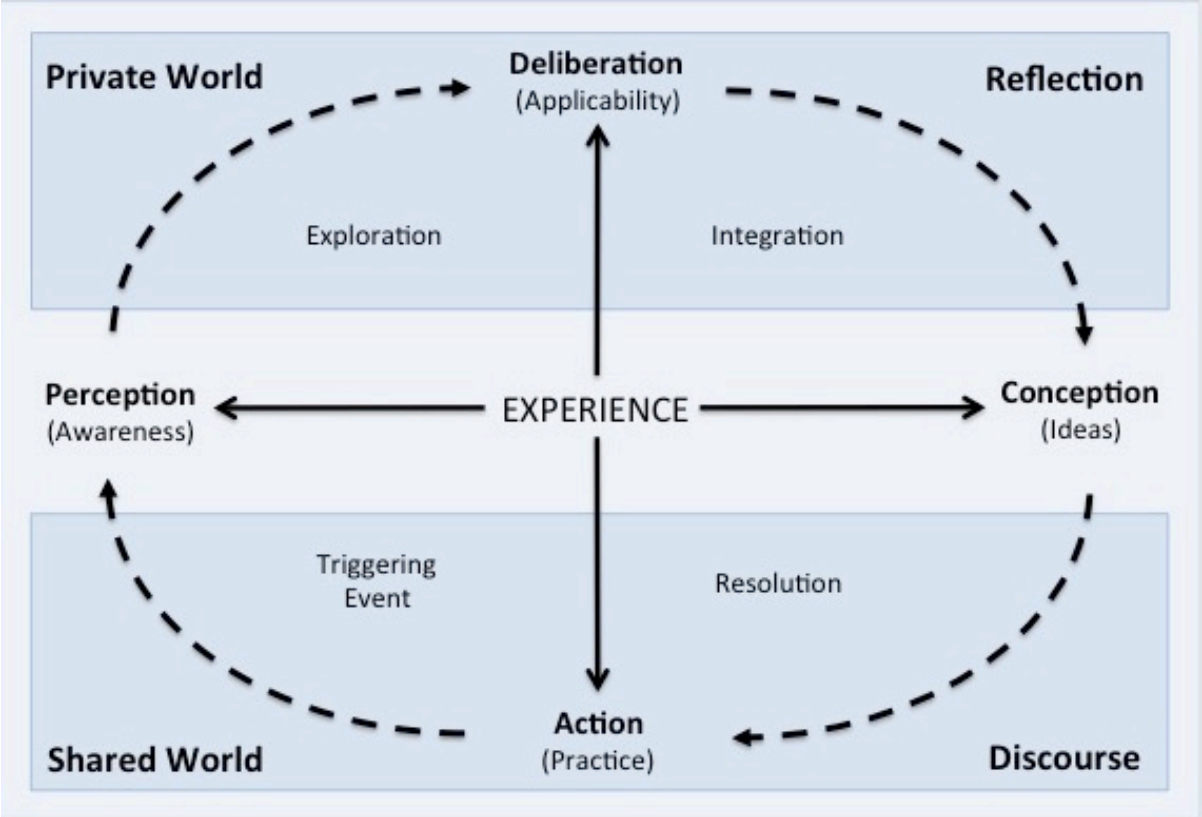



*Figure 2.3.* Practical Inquiry Model (adapted from Garrison et al., 2000)

In a mixed methods study, Archibald (2010) found that teaching and social presence make significant contributions towards cognitive presence. One hundred and eighty-nine students participated in the study. Quantitative data were collected from students in an online research methods courses. The data were collected via surveys. The surveys included demographic data, the Learner Preference Assessment, and the CoI scale (see Appendix B). After the quantitative data had been collected, qualitative data were gathered from course artifacts to support the quantitative findings.

Archibald (2010) developed a model to teach undergraduates, graduate students, and health professionals to learn research design. The model has students listen to videos (in 5-minute segments) of exemplary researchers sharing their work and the design of their research. Then the students responded to a thought-provoking question in a facilitated online discussion board. Each exemplary researcher had several video segments that covered the following topics: research questions, conceptual framework, methodology, validity, and lessons learned. The researcher used regression analysis to determine if social and teaching presence predicts cognitive presence. The study found that teaching and social presence significantly contribute to the prediction of cognitive presence. The videos and resources helped support the students as they developed research proposals.

Akyol and Garrison (2011) dug deeper into the CoI model to assess learning processes and outcomes to understand cognitive presence in online and blended learning environments. In a concurrent mixed methods study, the researchers used transcript analysis, learning outcomes, interviews, and the CoI survey instrument (see Appendix B). The goal of the study was to understand the learning process and learner outcomes to determine if online and blended courses provide students with the opportunity to engage in higher order learning processes and learning outcomes.

Qualitative analysis included the coding of discussion transcripts with the PIM and coding indicators for cognitive presence (see Appendix A). For interview transcripts, the authors used qualitative content analysis (Maxwell, 1996) to identify emergent themes. Two researchers coded the transcripts and used negotiated to coding to reach consensus on final codes. The CoI survey (see Appendix B) provided quantitative results. Cronbach's alpha yielded validation numbers over 0.91 for the three factors of the CoI framework.

For the final project, students were asked to redesign a course they previously completed. This is an authentic application of their learning in a master's of education program. The instructor modeled discussion facilitation to create and sustain cognitive presence. The technology employed to support cognitive presence were the tools found within the LMS: announcements, discussions, peer reviews and the opportunity to redesign a course in the LMS. The authors found high levels of cognitive presence in the asynchronous discussions; integration (the third phase of the cycle) was the most prevalent in both online and blended environments while resolution was the least active. The authors suggest this is because resolution lies in the final course redesign project. Interviews confirmed this analysis.

Kovanović, Gašević, Joksimović, Hatala, & Adesope (2014) studied an online graduate course in software engineering. They collected student's click stream data and coded assignment postings to understand the relationship between the student's technology use and their level of cognitive engagement in the course. The course included numerous assignments designed to develop a community of inquiry. These included a video review and critique of a scholarly article. In addition to the video, each student initiated and facilitated a discussion thread about their article and peers were expected to respond to one another's videos. This assignment focused on current challenges in the field; providing the participants an authentic, real-world application. A literature review assignment was graded by peers (double-blind) for 70% of the grade, with the instructor's grade counting only 30%. The distribution of evaluation responsibilities supports the development of higher order thinking. Additionally, each student received a grade from the instructor on his or her peer feedback. The capstone project was multifaceted. Students worked in small groups to research an engineering topic, present a paper and produce a software artifact.

The researchers identified six different technology use profiles: task-focused users, content-focused no-users, no-users, highly intensive users, content-focused intensive users, and socially-focused intensive users. The profiles of content-focused no-users and no-users had lower levels of LMS use and lower levels of cognitive presence. No-users are the largest group, and highly intensive users were the smallest group. No-users had significantly fewer integration messages than task-focused, highly intensive and socially-focused users. The researchers found that to have the tools available in the LMS was not enough to support their successful use. However, more use does not necessarily mean higher levels of cognitive engagement. Students in the first group, content-focused users, had significantly fewer interactions, but they were of a high quality. This study suggests that a course designed to engage students in all stages of the practical inquiry model is not enough to ensure high levels of cognitive presence. Students must choose to engage with the content, peers, and instructor in meaningful interactions to create cognitive presence.

**Social presence.** Social presence is more than an "emotional sense of belonging" (Garrison, Anderson, & Archer, 2010, p.7). Social presence develops through learner-to-instructor and learner-to-learner interactions. These include discussion board postings, video commenting, chat, peer reviews, and collaborative projects. The model identifies three types of social presence, affective or emotional expression, open communication, and group cohesion. These qualities of social presence are critical to the collaborative nature of a CoI. Opportunities for interaction are elemental to the success of an online learning environment. These experiences must be required of the student, but not necessarily quantified by the instructor. Students report an artificial social experience if their only opportunity to interact with their peers is through a mandatory minimum number of posts to discussion boards

(Dunlap & Lowenthal, 2009).

Borup, West, and Graham (2012) explore using asynchronous video to improve social presence. The researchers employed a cross-case design and studied three different instructors of a required educational technology class for undergraduate education students. They collected their data via semi-structured interviews. The questions were based on the CoI social presence indicators (see Appendix A). The researchers used inductive analysis to code the transcripts with constant comparison coding methods. In the second round of coding, one of the researchers coded the transcripts by the three categories of the CoI framework. Lastly, the categories were analyzed within each case, then across cases.

Two of the instructors used VoiceThread and one used YouTube as their asynchronous video tool. The instructors used the video to convey weekly information, provide clarification and feedback, for the students to share work, and to provide peer feedback. The study provides evidence that asynchronous video can support the development of social presence. The students reported that they felt connected to their instructor similar to the relationship in a face-to-face course. In fact, students reported they could often sense the instructor's emotional state. One limitation, reported by the participants, of the asynchronous video, is that, at times, the students felt their peers did not listen to their comments (however, this limitation exists with text comments, as well). Overall the study found the asynchronous video to have a positive impact on the development of social presence.

One of the most challenging constructs to measure in the CoI framework is the affective expression aspect of social presence (Shea et al., 2010). Inter-rater reliability is low when identifying and coding affective expression experiences. The indicators of affective expression are expressing emotions, use of humor, self-disclosure, and the use of

unconventional expressions to show emotion and expressing value (Garrison et al., 2006; Shea et al., 2010). It might be necessary to move beyond the formal communication structures of a learning management system for affective expression to be easily and consistently developed and identified.

Dunlap and Lowenthal (2009) explored using Twitter to develop social presence. Social presence is essential to student satisfaction (and ultimately persistence) in the online learning environment. The article is not a report on original research but shares their experiences using Twitter in their online teaching. The authors argue that traditional learning management systems (LMS) have formal communication structures, but lack the incidental communication that is essential to the social nature of learning. They advocate that the use of a social media platform, such as Twitter, affords the learner opportunities to participate in casual, at times anecdotal, conversation. This type of banter supports the development of affective, social presence; the learner does not feel isolated but connected to a larger community and has opportunities to engage in authentic conversation and interactions. The authors suggest that a social media platform provides instructors and students a way to engage in just-in-time communication, supports synthesis and writing concisely, allows for students to have an audience and a purpose for their work, develops a larger community of practice for students, and provides an on-going relationship for the students and instructors after the semester ends.

A recent research study investigated the power of social network sites, like Twitter or Facebook, to develop social presence for online learners. Lim and Richardson (2015) investigated students' use of social networking sites (SNS) and their beliefs about using them to develop social presence in their online courses. The quantitative study surveyed students

enrolled in master's level courses for a degree in learning design and technology. The survey included the social presence items from the CoI scale (see Appendix B) as well as items designed to elicit information about students use patterns of SNS sites. Additionally, the survey sought the student's perceptions about using SNS for educational purposes. The survey included items from four previously validated scales, including the social presence items from the CoI scale (see Appendix B). The data were analyzed using descriptive statistics (frequency, percent, mean, and standard deviation). The author's calculated Spearman's rho to determine the correlation between the use of SNS and each of the social presence subscales.

The respondents felt that SNS sites could support collaboration, connectedness, and community development. More intense SNS users were more likely to agree their use is appropriate in educational settings. In addition, the results indicate that the intensity of a user's use of SNSs does not have a significant correlation to the student's perceived sense of social presence.

Additionally, Munoz, Pellegrini-Lafont, and Cramer (2014) found that Twitter could support the development of social presence for online learners, but with mixed results when compared to students in a face-to-face course using the social media site. In a mixed methods study, with three different groups of students taking the same course, they collected data about the effect of Twitter on social presence. All the students were enrolled in a pre-service education course that required ten hours of field experience. Students were required to reflect on their field experience. One group of online learners used the traditional response forum, an online discussion board. The second group of students enrolled in the same online class used Twitter for their reflections on their field experience. The final group of students was

enrolled in a face-to-face class where students used Twitter for the same reflections. Data came from a qualitative examination of the reflections and quantitative survey results. The qualitative data were coded using categories and the identification of themes. The survey consisted of ten yes or no questions.

Results of this mixed methods study are varied. They find support for using Twitter to enhance social presence, yet the most satisfied group of students was in the face-to-face class. One of the most striking findings is that the Twitter online group shared emotions in 30% of their tweets while none of the traditional discussion board-posting group shared this type of thought. It is the affective expression that is often missing in asynchronous discussion board postings (Dunlap and Lowenthal, 2009; Stodel, Thompson, and MacDonald, 2006).

The literature shows that incorporating powerful technology tools, such as Twitter, YouTube or VoiceThread supports the development of social presence in an online course. The studies vary in the degree of support for these tools, but all do show that their incorporation can support the development of social presence. It is significant to note, these tools reside outside the traditional resources in an LMS. It takes knowledge of and intentional design to incorporate technology resources like these in the online course. Also, the instructor must actively model, support, and monitor the use of these tools. The instructor sets the tone and expectation in any classroom, and their presence is critical to the success of the online learning environment (Stavredes, 2014).

**Summary**

The affordances of technology to support the development of a community of inquiry are many. Asynchronous video communication with tools like VoiceThread and YouTube

supports both teaching and social presence. Social networking sites also support the development of social and teaching presence. Similarly, there are tools located within most learning management systems that allow for a community of inquiry to develop. The discussion board can engage learners in high levels of discourse. Learners require facilitation and clear expectations. Image, video, and audio files may be incorporated into the thread, which allows the participants and instructor to come across as authentic.

The constraints of technology in an online learning environment are many as well. Students must learn to navigate the course, and there are often technical support issues. If an instructor requires students to use resources outside of the LMS, it places an additional barrier for some students. It may require other steps and additional time to create an account as well as time to learn a new tool. It is possible for students in the same course to have significantly different experiences. Successful development of a community of inquiry requires engaged learners and skilled instructors. The instructor must be a facilitator of learning, not someone who transfers knowledge.

# CHAPTER 3 - METHODS

The demand for online learning is high (Allen & Seaman, 2015). There are concerns about the quality of online courses and the majority of faculties do not agree that online courses provide learning experiences equal to or better than those in a face-to-face course (Straumsheim et al., 2015). Academic leaders want to meet the student demands for online learning and understand that it takes more time and energy to teach an online course (Allen & Seaman, 2015). Developing and facilitating an online course is a complex and challenging process. The literature supports developing online learning environments that are grounded in social-constructivist and experiential learning principles. Many online courses rely heavily on reading and discussion board postings to replicate the face-to-face classroom experience.

At present, there is little research that looks at student perceptions of online learning community development that identify specific practices by instructors and instructional designers that might help or hinder the development of community. Technology mediates online instruction. As such, to explore the ability of technology tools to help or hinder the development of community is important. In an effort to better understand what works in the online classroom to develop presence and create community, this study identifies the pedagogical practices of online instructors, technology affordances and constraints in the online classroom, and determines how the instructors develop community in their online courses. This study is designed to address this current gap in the research.

**Research Design**

This research study employed a sequential explanatory mixed method design (quan → QUAL). Initially, quantitative survey data were collected and analyzed. The quantitative data provided background and a framework for understanding the students' perception of the online course environment and community development. Qualitative data were collected in the second phase, to inform, expand upon and illuminate the quantitative findings. The qualitative phase is emphasized because it is a detailed analysis of multiple cases to explain the quantitative findings. Johnson, Onwuegbuzie, and Turner (2007), in their definition of mixed methods, include the ideas that breadth and depth in mixed methods research provide understanding and corroboration.

This research study addressed the overall research question:

> Does an online course, designed by professional distance learning designers promote a Community of Inquiry and provide learning experiences that develop stronger positive student perceptions of teaching, cognitive, and social presence than a course designed by an instructor without the support of instructional design experts?

After the collection and analysis of the quantitative data, the three sub-questions for this study were refined. What pedagogical practices, learning design principles, and technology affordances are reported by the students and are evident in the course artifacts to:

- facilitate discourse between and among learners and instructor?
- engage learners in authentic activities?
- provide opportunities for students and instructors to develop a sense of each other as individuals and develop community?

Mixing the methods provides a detailed narrative of the online course experience and environment that explains the survey data. It is important to develop a comprehensive picture of the online learning experience and to understand if intentional course design creates an improved development of community for the students. Additionally, I examined whether the designing of a course with the support of instructional design experts leads to the incorporation of a variety of technology tools and how that impacts the student perceptions of community. Also, the courses are compared to determine themes. When practices are not indicative of a community of inquiry, the practices are identified to provide new insight. The theoretical framework of pragmatism supports this line of inquiry. The essential question for this study is: what works in online learning environments to support student perceptions of the development a community and social presence, affective expression? Lastly, instructor interviews were conducted to provide confirmation and further explanation of the findings. Pragmatism framed and guided my research to determine what works in the online learning environment. A full research design diagram is in Appendix C.

**Context**

I studied three courses that are part of a fully online, undergraduate degree program for public service leaders at a large, tier-one, research university in the Southeast. In the spring of 2016 the program had 62 students. The program accepts individuals who have completed an Associate's degree at a community college and has a prescribed set of courses to be completed in a specified order. The program is taken entirely online and includes adults who are currently employed, many in the military, or who are unable to attend class on campus. The majority of the student population is female, work full time, and take 8 hours or less per semester. The range of credit hours for the spring of 2016 was between 1 and 17. The

three courses studied were: Introduction to Leadership, Diversity and Policy. Introduction to Leadership is a mandatory course, at the beginning of the sequence. Diversity is a course that meets a mandatory core course requirement for all undergraduate students at the university, therefore has students that are not part of the fully online degree program and students from several different colleges from the university. Policy is a mid-level course, which is an elective for the fully online degree program, but is also required for other majors in the college. To enroll in the selected courses students do not have to be enrolled in the online degree program.

**Sample/Participants**

Sampling for this study was purposeful and non-probabilistic. Creswell and Plano-Clark (2011) support this method when a researcher needs to use an available sample or when certain characteristics in the purposeful sample have qualities they want to study, understanding that this population may not be representative of the larger population. In December of 2015, I interviewed the program external relations manager for the fully online degree program (she is also Instructor One) to learn about the degree program. She shared that Diversity was designed by the university's distance education support staff and felt that it was an exemplary course. I studied a second course by Instructor One to determine if the intentional design created a course with better student perceptions of community development. In the spring of 2016, Instructor One taught three courses, the third is a required internship for the program and had only three participants. Therefore, her other traditional online course was chosen, Introduction to Leadership. She has taught online courses for the program for five years and holds an additional leadership position within the program. The selection of Policy and Instructor Two was also purposeful. Instructor One

shared that Instructor Two is consistently rated highly by his students and teaches a course that is offered every semester like Introduction to Leadership and Diversity. The addition of the second instructor whose course has not been designed by distance education instructional design experts will provided a different representative case from the program and an alternate experience. Instructor Two teaches the Policy face to face and believes he provides the same experience in both classes. This provided an additional data source to enrich the findings. Instructor Two has taught the course online since 2005. Each course has a unique enrollment. None of the students were enrolled in more than one of the courses considered in this study. This ensures the independences of samples for this study.

**Quantitative Data Procedures**

In the first phase of the study, quantitative data were collected. Students in the participating courses were invited to complete a web survey. The survey included ten demographic questions and 34 Likert scale questions from the previously validated Community of Inquiry Survey (Arbaugh et al., 2008; Kozan & Richardson, 2014; Swan et al., 2008). Participants used the response scale of the validated instrument. At the end of the survey, there were three open-ended questions. These questions will be analyzed during the qualitative phase of the study. Data from the survey was collected via the Internet using the university's Qualtrics program (http://www.qualtrics.com). Appendix B is the original Community of Inquiry Survey. Appendix D is the survey that was administered to the course participants. Appendix D includes the demographic questions, open-ended survey questions, and the matrix of the Community of Inquiry survey questions. Students in the selected courses were sent an email, inviting their participation in mid-June of 2016 (Appendix F). Table 3.1 below shares basic enrollment and response rate for each course.

Table 3.1.

*Survey Respondents by Course*

| Course | Instructor | Number Enrolled Spring 2016 | Number of responses | Response Rate |
|---|---|---|---|---|
| Introduction to Leadership | One | 20 | 6 | 30% |
| Diversity | One | 19 | 10 | 53% |
| Policy | Two | 19 | 12 | 63% |

The respondents for Introduction to Leadership and Diversity were all juniors or seniors and for Policy all levels were relatively equally represented with of the inclusion of one freshman, which completed the survey. The age of the majority of the respondents was under 23 (75%). Additionally, Diversity had one of their respondents over the age of 36. The majority of the respondents work, at least part-time (71%). Lastly, females were more likely to respond to the survey. Overall there were 25 females in the selected courses and 15 of them responded (a 60% response rate), compared to 33 males enrolled in the courses and 13 male respondents (a 40% response rate). Seven different colleges from the university were represented. The majority of the students were enrolled in the college of humanities and social science (54%), the college of management had four students respond (14%) and the college of engineering is represented in 11% of the responses. In addition, the majority of the respondents have taken 5 or more online classes. See Table 3.2 for descriptive statistics of

survey respondents. Appendix E provides complete descriptive statistics of the survey respondents.

Table 3.2.

*Descriptive Statistics of Survey Participants*

| | | Introduction to Leadership | Diversity | Policy |
|---|---|---|---|---|
| **Gender** | Female | 3 | 5 | 8 |
| | Male | 3 | 5 | 4 |
| **Level** | Senior | 3 | 5 | 4 |
| | Junior | 3 | 5 | 4 |
| | Sophomore | 0 | 0 | 3 |
| | Freshman | 0 | 0 | 1 |
| **College** | Engineering | 0 | 4 | 1 |
| | Humanities & Social Sciences | 3 | 4 | 8 |
| | Management | 2 | 0 | 2 |
| | Natural Resources | 1 | 1 | 0 |
| | University College | 0 | 0 | 1 |
| | Sciences | 0 | 1 | 0 |
| **Age** | 18-22 | 4 | 6 | 11 |
| | 23-25 | 1 | 1 | 1 |
| | 26-35 | 0 | 0 | 0 |
| | 36-45 | 1 | 2 | 0 |
| | 46-55 | 0 | 1 | 0 |
| **Number of Online Courses Taken** | 5+ | 4 | 8 | 4 |
| | 4 | 1 | 1 | 3 |
| | 3 | 0 | 1 | 3 |
| | 2 | 1 | 0 | 1 |
| | 1 | 0 | 0 | 1 |

Table 3.2. (Continued)

| | | Introduction to Leadership | Diversity | Policy |
|---|---|---|---|---|
| **Average hours of paid work per week** | 40 or more | 1 | 3 | 0 |
| | 30 -39 | 0 | 2 | 0 |
| | 29 or less | 4 | 1 | 8 |
| | Zero | 1 | 3 | 1 |

Data analyses were conducted for each course. The data were processed and analysis completed to provide descriptive and nonparametric statistics. The data are reported by course, since each course is distinct in its design and implementation. For the analysis the course is the independent variable. The dependent variables are each of the 34 scale items on the community of inquiry survey. Additionally, reliability and credibility analysis were completed.

**Instrument.** To understand the student perceptions of teaching presence, cognitive presence, and social presence, student participants completed the Community of Inquiry (CoI) Survey (Arbaugh et al., 2008). The survey has 34 items and students respond with a Likert scale. The scale ranges from strongly disagree to strongly agree. Each of the three presences has a separate subscale. There are 13 items for teaching presence ($\alpha$=0.95), 12 items for cognitive presence ($\alpha$=0.95) and nine items for social presence ($\alpha$=0.92). See Appendix D for a copy of the Community of Inquiry survey with demographic and researcher generated open-ended questions.

**Procedures.** I contacted the students in the participating courses three times. Since all the courses were offered online, the survey needed to be administered as a web survey. The university does not include any mandatory face-to-face meetings for distance education

courses. Although response rates may have been higher if the instructor administered the survey at the end of the semester, it was not feasible. Given that all participants had Internet access as part of their coursework, it is a fair assumption that if inclined they would be able to complete the web survey. In addition, because the survey was administered via the Internet, issues of social desirability affecting responses are less (Tourangeau, Conrad, & Couper, 2013). Social desirability influences responses when the respondents believe some answers are more acceptable than others. Lastly, data collection did not begin until student final grades were posted, which also lessened the potential effect of social desirability.

The first email requesting participation was sent in June of 2016. The subject of the message indicated all respondents would receive a $10 Amazon gift card. An email containing a unique link directed respondents to an Internet survey hosted in the sponsoring university's Qualtrics account. Students were sent a reminder a week later and a final reminder in August, once the fall 2016 term began. The first screen of the survey was an informed consent form. Participants were asked to indicate that yes, they were willing to participate in the survey and affirmed that they understood they were able to leave the study at any time without negative consequences. Once the informed consent was obtained, the respondent was directed to the survey. If the respondent did not provide consent the survey ended. See Appendix D for informed consent wording.

Once data were collected, I reviewed the data set. Data were checked for inconsistencies and coded as necessary. Data were exported from Qualtrics and combined into one data set in Microsoft Excel. This was necessary because I wanted the respondents to choose their major from a prescribed list and the list would have been unwieldy if the majors of all three courses are condensed into one form. In retrospect, it would have been better to

create a branching form, so when the participant chose the course they took; they went to a page based on their answer. Once data were combined, all analysis was conducted using Stata13. Incomplete data were screened, and all data were cleaned. An example of the cleaning and recoding the data occurred when a respondent reported that they didn't work at a paying job. Their answer on the survey export was no; I recoded the no to a zero. All study data are stored in my university affiliated Google Drive account. I have two-step verification enabled on my account to ensure security.

**Data analysis.** Descriptive analysis was performed with Stata 13. Descriptive statistics are conducted to provide a summary and description of the data. Likert scale responses are considered ordinal. Ordinal data provides a rank order of responses. In the case of the CoI survey, respondents choose strongly disagree, disagree, neutral, agree, strongly agree. The difference between the response categories, e.g. strongly agree and strongly disagree cannot be quantified. Therefore, it is inappropriate to find a mean (Allen & Seaman, 2007; Jamieson, 2004). However, mode and median were determined for each variable. Additionally, to provide a complete picture of the quantitative data, frequencies, and percentages of responses were explored.

The Kruskal-Wallis test was run to determine if there were statistically significant differences between the courses. The test was performed on each of the 34 Likert scale questions. The Kruskal-Wallis test is a nonparametric test used to identify statistically significant differences between two or more groups with rank or ordinal data (Salkind, 2011). Nonparametric tests are used when the data are ordinal or when the sample size is small (>30). The data from this study meet both criteria.

Kruskal-Wallis test identifies a statistically significant difference among groups, but

it does not make pairwise comparisons to identify the differences. For all questions that produced a statistically significant difference among the courses, the Dunn test was run with the Bonferroni adjustment. Dunn's test is a nonparametric pairwise comparison test. The pairwise comparisons redefine the value α, therefore it is necessary to include the Bonferroni adjustment. It requires a smaller p-value to reject any test (Dinno, 2015).

**Validity and reliability.** Swan et al., (2008) found that the CoI instrument has construct validity with principal component analysis. Arbaugh et al., (2008) conducted factor analysis and found that the instrument has construct validity. Additionally in a large study (*n*=1129), Bangert (2009) conducted exploratory factor analysis on half the survey respondents and confirmatory factor analysis on the other half of respondents. The exploratory results indicate a three factor model (teaching, cognitive and social presences) which when tested in confirmatory factor analysis were an acceptable fit. Kozan and Richardson (2014) report additional data that support the instruments construct validity.

Cronbach's Alpha is a test to determine reliability when items are not scored as right or wrong (Cronbach, 1971). Cronbach's alpha was run to check internal consistency. The initial study by Arbaugh et al. (2008) reported high numbers of internal consistency >0.90. Values between 0.70 - 0.80 are considered acceptable for comparison of groups although some authors believe it should be above .80 (Bland & Altman, 1997). Test-Retest over time is another way to check for internal consistency. In an additional research study with the CoI survey, similar internal consistency numbers are reported (Diaz, Swan, Ice, & Kupczynski, 2010). Cronbach's alpha was computed for this study to provide additional data about the internal consistency of the instrument as well as data for specific to this study.

**Qualitative Data Procedures**

In the second phase of the study, qualitative data were collected to explore the findings of the quantitative data. The qualitative information informed the overall research question, as well. Course artifacts were studied to determine how or if they contribute to the development of a CoI. Specifically, I sought to identify technology tools that supported or inhibited the student's opportunity to experience the different types of presence. In addition, open-ended survey questions were collected. Lastly, course instructors were interviewed to provide clarification, confirmation, and depth to study findings.

**Data Collection.** To examine the course interface and artifacts, I developed a process to document all student to student and instructor to student interactions in the course. All observed course elements were documented in a text file or by screen capture. An interview protocol was used to collect data from semi-structured interviews with course instructors (Appendix H). I recorded student responses to opened questions in a text file. Quantitative data indicated that the students perceived differences in teaching presence, cognitive presence, and social presence among the courses. These differences provided a lens to guide the qualitative data collection phase.

I began the examination of course artifacts in the fall of 2016. Screen captures were used to document different elements observed in the course. All discussion board postings were copied into a text file. One file was created for each discussion board assignment. Also, I collected all instructor materials; this includes the syllabus, rubrics, and assignment documents. Essentially, I collected all documents and public postings to the course interface. I did not capture or code the course lectures. Three lectures from each course were viewed, to provide context to the study. I employed a naming convention for all artifacts, a three-digit

code for the course and an indicator of the type of data (for example, DB for discussion board or AS for assignment), and a brief descriptor. All data viewed and collected was available on or linked off of the course website/Moodle interface.

The majority of research on online courses focuses on discourse analysis of discussion board postings and quantitative analysis of student data housed in the learning management system. I reviewed all discussion board assignments and postings in the three courses. The postings with the most activity were analyzed deeper. For these, I noted the pattern of the discussions to include: who initiated the post, level of PIM of the question and/or statement of the initiated post, and PIM level of replies to each post. Postings often included multiple different CoI elements. Although discussion postings are an important aspect of the online environment, many activities that happen outside the discussion board indicate higher levels of the PIM. In a face-to-face classroom, discussions often focus on questions posed by instructors or peers (triggering event) and an exploration of the topic ensues by the participants. The higher levels of learning (integration and resolution) typically happen when students are completing coursework, beyond the initial discussion. For this reason, I believe the analysis of other course artifacts was important to this study. All of the instructor artifacts for the course were collected. This included instructional videos, assignment directions, rubrics, course guidelines, and course expectations. Also, any student work publicly posted or linked to the course learning management system was documented.

I interviewed both course instructors in February 2017, after the collection and analysis of course artifacts. The interviews were conducted using a structured interview protocol (Appendix H). The interviews were captured using the Notability app on my iPad. Notability captures audio along with the text. I used a template of the interview protocol

inside a Notability file and recorded responses on the template. Notability syncs audio recording with written notes. The syncing of audio with the recording of words provided me with a comprehensive annotated record, that separate field notes and audio recording might not capture. The interviewee's tone, reflective quality, and timing are synced to the written field notes. The audio of the interview was transcribed to provide additional detail to the field notes.

**Data Analysis.** As with the quantitative data, all qualitative was stored in my university affiliated Google Drive account, which had two-step verification enabled. I uploaded all data into Atlas.ti for analysis. This included all screen captures made of the course artifacts, text files, interviews, and open-ended responses to survey questions. All qualitative data were analyzed using content analysis (Saldaña, 2012). This method provided a "systematic qualitative and quantitative analysis of the contents of a data corpus (documents, texts, videos, etc.)" (Saldaña, 2012, p.269). Prior to any coding or analysis, all data were reviewed. It is important to have a thorough understanding of the content of the data before any analysis.

The first round of coding was open coding. This allowed me to become familiar with the data, and not be confined by the CoI framework elements. For discourse and transcript analysis determining the unit of analysis may be problematic (Saldaña, 2012; Garrison et al., 2006). For this study, the unit of analysis was the message. The unit may be a word, phrase, sentence, paragraph, multiple paragraphs or message. In a paper that reviews transcript analysis for the CoI framework, Garrison et al. (2006) detail coding practices for the CoI framework. They focus on transcript analysis and suggest the unit of analysis be the message. In a previous study, I determined that what defines a message is often the interaction around

one triggering event. It may also be an instructional design decision or an incidental social communication. To clarify how I determined and selected a message, the following are examples of a message unit of analysis: direct clarification of expectations by the teacher, a current event posted on the class news feed, a question posted (or posed) by the instructor, the written instructions for an assignment, an instructor sharing an anecdote, group work documentation, course communication guidelines, and video posted to the course.

The data set includes images and video, where a code is applied. The unit of analysis will remain the message. However, the message is now visual data, which is different from discourse. This requires elemental analysis, which is a part of content analysis (Saldaña, 2012). Each image may receive numerous codes. Saldaña (2012) cautions the researcher not to rely on frequency counts for the visual images:

> Repeated viewings and analytic memo writing about visual data documented in field notes or maintained in a repository are more appropriate approaches to qualitative inquiry because they permit detailed yet selective attention to the elements, nuances, and complexities of visual imagery, and a broader interpretation (p. 52).

The frequency of an element (or artifact) is not equal to its importance or relevance.

For the second round of coding, I used protocol coding. Protocol coding, "is the collection and, in particular, the coding of qualitative data according to a pre-established, recommended, standardized, or prescribed system" (Saldaña, 2012, p. 151). The CoI framework includes a set of established elements, categories, and indicators (Garrison, et al., 2006; Shea et al., 2010). The three elements align to the three types of presence, the categories relate to the different aspects of each presence, and the indicators are signals for

the researcher to support the coding process. See Appendix A for the codebook with examples from this study.

For the protocol-coding round, I reviewed all the artifacts from the course interfaces and open-end survey responses and looked for one of the three elements of the CoI framework. I compared the protocol code to the open code to reach consensus whether the unit may be coded according to the CoI elements. The best code, the code that most closely matches the message, was adopted. This process entailed applying a descriptive code to a unit of analysis. A descriptive code summarizes (Saldaña, 2012). This afforded me the opportunity to have a big picture view of the data. Saldaña (2012) reminds the researcher that qualitative research may supply numbers and frequencies, but not to equate frequency with importance. The researcher must take in the information, including the frequency and ponder, speculate and emphasize. "Counting is easy; thinking is hard work" (Saldaña, 2012, p.39). Figure 3.1 provides operational definitions presences, showing their subcategories and example indicators.

| Elements | Categories | Indicators *(examples only)* |
|---|---|---|
| **Social Presence** | Open Communication<br>Group Cohesion<br>Personal/Affective | Learning Climate/ Risk-Free Expression<br>Group Identity/ Collaboration<br>Self Projection/ Expressing Emotions |
| **Cognitive Presence** | Triggering Event<br>Exploration<br>Integration<br>Resolution | Sense of Puzzlement<br>Information Exchange<br>Connecting Ideas<br>Applying New Ideas |
| **Teaching Presence** | Design & Organization<br>Facilitating Discourse<br>Direct Instruction | Setting Curriculum & Methods<br>Shaping Constructive Exchange<br>Focusing and Resolving Issues |

*Figure 4.1:* Operational Definitions of the Presences (adapted from Garrison et al., 2006)

After protocol coding, I coded the data a third time, with the subcategories of each element, for units that were coded by the CoI criteria. This provided a detailed picture of the course and how students experienced the course. Next, I collapsed into themes. Course artifacts and participant quotes were identified to tell the story of the online course experience and provide thick, rich descriptions of the themes (Lincoln & Guba, 1985). I used in vivo coding, when appropriate, to keep the nature of the participant's words authentic. Qualitative content analysis can provide an understanding of students' perceptions of the online course experience through the interpretation of written and verbal communication as well as the interpretation of still and video images (Schreier, 2012).

Pragmatism served as the lens of analysis. Johnson and Onwuegbuzie (2004) advocate for the use of mixed methods and pragmatism, because it affords the researcher the opportunity to gather empirical data and determine practical applications. This informed practice and ultimately helped me to share and provide a comprehensive narrative of the online course experience. Pragmatism "offers a practical and outcome-oriented method of inquiry that is based on action and leads, iteratively"(Johnson & Onwuegbuzie, 2004, p.16).

**Credibility and trustworthiness.** Two of Lincoln and Guba's (1985) criteria to evaluate the trustworthiness of qualitative research are credibility and confirmability. Creswell (2013) prefers to view the evaluation of credibility and trustworthiness in the qualitative research process as validation. This study addressed credibility, confirmability, and validation by several measures. Course artifacts and interviews were coded three times by me to ensure accuracy in the coding process. The codebook was updated and used to ensure that the coding process is systematic.

Triangulation is used to provide confirmability and validation. Triangulation allows

for validity when the researcher pulls data from different sources (Creswell & Plano Clark, 2011). For this study triangulation is found in the multiple sources of data: survey, opened questions, interview questions, and artifact collection. Lastly, member checks were conducted with the course instructors to ensure the accuracy of the findings and interpretations for confirmability and validation. Data triangulation portrays a holistic picture of the online course experience.

**Ethical Considerations**

All student participants were informed about their rights and signed an informed consent form. Student participants gave consent at the beginning of the survey. Both instructors provided informed consent via a Google Form before data collection began. The university's Institutional Review Board (IRB) approved the study in May of 2016. IRB protocol was implemented to protect the privacy and rights of the study participants. Direct identifiers to study participants are removed and pseudonyms are employed. Individuals familiar with the online degree program may recognize the courses in this study.

# CHAPTER 4 - QUANTITATIVE RESULTS

The first phase of the study collected survey data from participants in the selected courses. To understand the students' perceptions of the development of teaching, cognitive, and social presence in the selected courses I administered the Community of Inquiry Survey. The goal for this phase was to understand how the students perceived the different presences in the courses. The survey had an overall response rate of 48% with 28 students out of the population of 58 responding. The response rate is high although the total number of responses falls below the minimum of 30, the accepted number to represent a population (Salkind, 2011). This dictates that nonparametric statistical tests be used. This section will provide descriptive statistics and results from nonparametric test data about each of the presences.

## Teaching Presence

Teaching presence is the design of the course and the instructor facilitation throughout the semester. The survey has thirteen items for this construct. The items are grouped into three subscales: course design and organization (four questions), course facilitation (six questions), and direct instruction (three questions). The overall the mode for each of the three subscales of teaching presence for each course was agree, with the exception of Policy on the direct instruction subscale the mode was strongly agree. Table 4.1 reports the median and percent agree or strongly agree for "Teaching Presence: Course Facilitation" by course.

Table 4.1.

*Descriptive Statistics Teaching Presence: Course Facilitation*

| | | Introduction to Leadership | | Diversity | | Policy | |
|---|---|---|---|---|---|---|---|
| Question | | Median | % Agree Strongly Agree | Median | % Agree Strongly Agree | Median | % Agree Strongly Agree |
| 5 | The instructor was helpful in identifying areas of agreement and disagreement on course topics that helped me to learn | Agree | 33% | Agree | 60% | Agree | 75% |
| 6 | The instructor was helpful in guiding the class towards understanding course topics in a way that helped me clarify my thinking. | Neutral | 50% | Agree | 60% | Agree | 83% |
| 7 | The instructor helped to keep course participants engaged and participating in productive dialogue. | Neutral/ Agree | 50% | Agree | 70% | Agree | 92% |
| 8 | The instructor helped keep the course participants on task in a way that helped me to learn. | Neutral/ Agree | 33% | Agree | 70% | Neutral/ Agree | 50% |
| 9 | The instructor encouraged course participants to explore new concepts in this course | Agree | 67% | Agree | 80% | Agree | 83% |
| 10 | Instructor actions reinforced the development of a sense of community among course participants. | Disagree/ Neutral | 33% | Agree | 90% | Neutral | 42% |

Students reported the largest differences between the courses in their perceptions of course facilitation. On question 10, “Instructor actions reinforced the development of a sense of community among course participants” students’ responses reflect differences among the courses. Question 10 is at the core of the relationship between teaching presence and the development of a community. For a table of complete descriptive statistics see Appendix G.

One teaching presence item returned significant differences on the Kruskal-Wallis test. Question 10 asks, “Instructor actions reinforced the development of a sense of community among course participants.” The test returned $\chi 2 = 6.080$, $p = 0.0478$ (see 4.3 for

test results). Post hoc Dunn test revealed statistically significant differences between Introduction to Leadership and Diversity (p = 0.0374) and Diversity and Policy (p = 0.0489). See Table 4.2 for Kruskal-Wallis test results This suggests that the instructor in Diversity facilitated the course differently than she did in Introduction to Leadership and differently than Instructor Two did in Policy. Table 4.3 shows Dunn test results for question 10.

Table 4.2.

*Kruskal-Wallis equality-of-populations rank test question 10*

| Course | Observations | Rank Sum |
|---|---|---|
| Leadership | 6 | 62.50 |
| Diversity | 10 | 195.50 |
| Policy | 12 | 148.00 |

Table 4.3.

*Dunn's Pairwise Comparison with Bonferroni Adjustment Question 10*

| | Leadership | Diversity |
|---|---|---|
| Diversity | -2.243523 | |
| | 0.0374 | |
| | | |
| Policy | -0.486036 | 2.137016 |
| | 0.9404 | 0.0489 |

**Cognitive Presence**

Cognitive presence is the student's ability to build an understanding of the course content through assignments, interaction and reflection. The survey has twelve times for this construct. The items are grouped into four subscales: triggering event, exploration, integration, and resolution. There are three questions for each subscale construct. The overall the mode for each of the four subscales of cognitive presence for each course was agree, with

the exception of Policy on the resolution subscale the mode was strongly agree. None of the cognitive presence items returned a significant difference ($p < 0.05$) on the Kruskal-Wallis equality of populations rank test. See Appendix G for complete descriptive statistics by question.

**Social Presence**

The social presence subscale has items grouped into three categories: affective expression, open communication, and group cohesion. Each subscale has three questions. Student responses to affective expression items returned differences in median and mode. In addition, Policy respondents reported stronger perceptions of group cohesion than those in Introduction to Leadership or Diversity. Affective expression items relate to the individual's perception of others as human beings in the course. Students in Diversity and Policy reported that they were able to form distinct impressions of some course members. Diversity members also reported a sense of belonging. Table 4.4 reports descriptive statistics of the "Social Presence: Affective Expression" survey items.

Table 4.4.

*Descriptive Statistics Social Presence: Affective Expression*

| | | Introduction to Leadership | | Diversity | | Policy | |
|---|---|---|---|---|---|---|---|
| Question | | Median | % Agree Strongly Agree | Median | % Agree Strongly Agree | Median | % Agree Strongly Agree |
| 14 | Getting to know other course participants gave me a sense of belonging in the course. | Disagree/ Neutral | 17% | Agree | 80% | Neutral | 17% |
| 15 | I was able to form distinct impressions of some course participants | Disagree/ Neutral | 17% | Agree | 90% | Agree | 67% |

Table 4.4. (Continued)

| | | Introduction to Leadership | | Diversity | | Policy | |
|---|---|---|---|---|---|---|---|
| Question | | Median | % Agree Strongly Agree | Median | % Agree Strongly Agree | Median | % Agree Strongly Agree |
| 16 | Online or web-based communication is an excellent medium for social interaction | Neutral/ Agree | 50% | Neutral/ Agree | 50% | Agree | 58% |

Two "Social Presence: Affective Expression" items questions 14 and 15 returned significant differences on the Kruskal-Wallis test. Question 14 asks "Getting to know other course participants gave me a sense of belonging in the course." The test returned $\chi^2 = 7.185$, $p = 0.0275$ (see Table 4.5). Post hoc Dunn test revealed statistically significant differences between Introduction to Leadership and Diversity ($p = 0.0194$) and Diversity and Policy ($p = 0.0350$).This suggests that the design of Diversity offered the students different experiences and opportunities to engage with their peers to develop a sense of belonging. Table 4.6 reports the Dunn test results.

Table 4.5.

*Kruskal-Wallis Equality-of-Populations Rank Test Question 14*

| Course | Observations | Rank Sum |
|---|---|---|
| Leadership | 6 | 59.00 |
| Diversity | 10 | 199.50 |
| Policy | 12 | 147.50 |

Table 4.6.

*Dunn's Pairwise Comparison with Bonferroni Adjustment Question 14*

| | Leadership | Diversity |
|---|---|---|
| Leadership | -2.484702 | |
| | 0.0194 | |
| | | |
| policy | -0.323580 | -2.268479 |
| | 0.7994 | 0.0350 |

Question 15 asks if participants are able to form distinct impressions of some course participants. The Kruskal-Wallis test returned $\chi^2 = 8.649$, $p = 0.0132$ (see Table 4.7). Post hoc Dunn test revealed statistically significant differences between Introduction to Leadership and Diversity ($p = 0.0035$) and Introduction to Leadership and Policy ($p = 0.0237$). This suggests that the design of Diversity and Policy offered the students' different experiences and opportunities to engage with their peers to develop a sense of one another. Table 4.8 reports the Dunn test results for question 15.

Table 4.7.

*Kruskal-Wallis Equality-of-Populations Rank Test Question 15*

| Course | Observations | Rank Sum |
|---|---|---|
| Leadership | 6 | 36.50 |
| Diversity | 10 | 183.50 |
| Policy | 12 | 186.50 |

Table 4.8.

*Dunn's Pairwise Comparison with Bonferroni Adjustment Question 15*

| | Leadership | Diversity |
|---|---|---|
| Diversity | -3.044200 | |
| | 0.0035 | |
| | | |
| Policy | -2.413560 | 0.853012 |
| | 0.0237 | 0.5905 |

In addition, on the social presence subscale of group cohesion, question #20, "I felt comfortable disagreeing with other course participants while still maintaining a sense of trust." showed significant differences. Students in Policy strongly agreed that they felt comfortable disagreeing with their peers (See Table 4.9 for descriptive statistics of the group cohesion subscale items). The Kruskal-Wallis test returned $\chi^2 = 5.673$, $p = 0.0586$ (see Table 4.10). Post hoc Dunn test revealed statistically significant differences between Diversity and Policy ($p = 0.0284$). Table 4.11 reports the Dunn test results for question 20.

Table 4.9.

*Descriptive Statistics Social Presence: Group Cohesion*

| | | Introduction to Leadership | | Diversity | | Policy | |
|---|---|---|---|---|---|---|---|
| Question | | Median | % Agree Strongly Agree | Median | % Agree Strongly Agree | Median | % Agree Strongly Agree |
| 20 | I felt comfortable disagreeing with other course participants while still maintaining a sense of trust | Neutral/ Agree | 50% | Neutral | 40% | Strongly Agree | 92% |
| 21 | I felt that my point of view was acknowledged by other course participants | Agree | 67% | Agree | 80% | Strongly Agree | 83% |

Table 4.9. (Continued)

| Question | | Introduction to Leadership Median | Introduction to Leadership % Agree Strongly Agree | Diversity Median | Diversity % Agree Strongly Agree | Policy Median | Policy % Agree Strongly Agree |
|---|---|---|---|---|---|---|---|
| 22 | Online discussions help me to develop a sense of collaboration | Neutral | 33% | Agree | 80% | Agree | 58% |

Table 4.10.

*Kruskal-Wallis Equality-of-Populations Rank Test Question 20*

| Course | Observations | Rank Sum |
|---|---|---|
| Leadership | 6 | 72.00 |
| Diversity | 10 | 109.00 |
| Policy | 12 | 225.00 |

Table 4.11.

*Dunn's Pairwise Comparison with Bonferroni Adjustment Question 20*

| | Leadership | Diversity |
|---|---|---|
| Diversity | 0.272727 | |
| | 1.0000 | |
| | | |
| Policy | -1.728498 | 0.853012 |
| | 0.1258 | 0.0284 |

**Reliability**

In the original study for the CoI instrument, Arbaugh et al. (2008), reported high numbers of internal consistency: cognitive presence = 0.95, teaching presence = 0.94 and social presence = 0.91. Diaz, Swan, Ice and Kupczynski (2010) report similar numbers for internal consistency: cognitive presence = 0.95, teaching presence = 0.96 and social presence

= 0.92. The current study found similar numbers for internal consistency: cognitive presence = 0.97, teaching presence = 0.96 and social presence = 0.90. See table 4.15 for a comparison.

Table 4.12.

*Cronbach's Alpha*

| | | Study | | |
|---|---|---|---|---|
| Presence | | Arbaugh et al. (2008) | Diaz et al. (2010) | Current Study |
| | Cognitive | 0.95 | 0.95 | 0.97 |
| | Teaching | 0.94 | 0.96 | 0.96 |
| | Social | 0.91 | 0.92 | 0.90 |

**Summary**

Summary statistics show some differences among the courses. Student perceptions of community reflected statistically significant differences among the three courses on the nonparametric Kruskal-Wallis test. Diversity participants indicated they felt the instructor helped develop a sense of community among the participants and that they felt like they were able to develop a sense of belonging in the course. Participants in Diversity and Policy reported that they were able to form distinct impressions of some of their peers. Lastly, participants in Policy reported that they felt comfortable disagreeing with their peers, while maintaining a sense of trust. Researchers report one of the causes for higher attrition rates in online classes is because of feelings of alienation and disconnectedness (Bolinger & Inan, 2012; Rovai & Wighting, 2005; Trello, 2007). Therefore, it is important to identify where the

opportunities for social presence and community building were found in the courses and if a particular technology tool, instructional design decision, or pedagogical practice, supported the opportunity. The four questions with significant differences will provide a guide for qualitative data collection.

# CHAPTER 5 - QUALITATIVE RESULTS

This study employed a sequential explanatory mixed methods design. In this, the second phase of the study, qualitative data were collected from course artifacts, instructor interviews, and open-ended survey questions. The review of course artifacts focused on finding data to explain the quantitative findings as well to understand the student experience in each course. There are three research sub-questions for this study that guided the qualitative data collection. What pedagogical practices, learning design principles, and technology affordances are reported by the students and are evident in the course artifacts to:

- facilitate discourse between and among learners and the instructor?
- provide opportunities that engage learners in authentic activities?
- provide opportunities for students and instructors to develop a sense of each other as individuals and develop community?

Student perceptions of "Teaching Presence: Facilitating Discourse" with respect to community development indicated that students in Diversity felt the instructor's actions helped develop community. In addition, for "Social Presence: Affective Expression" student perceptions of getting to know others in the course provided a sense of belonging and being able to form a distinct impression of some peers were strong in Diversity. Policy students also reported some strong perceptions of social presence items. Like Diversity, Policy students felt they were able to form distinct impressions of some of their peers. Policy students also reported that they felt comfortable disagreeing with their peers on course content. The overall differences reported by course participants for "Teaching Presence:

Facilitating Discourse", and "Social Presence: Affective Expression" and "Social Presence: Group Cohesion", between the courses, framed the data collection. Specific to the quantitative results, I kept the following questions up on my computer screen to bind the qualitative inquiry to the quantitative data. Where are expressions of affective expression evident in the courses? Do the instructor's actions model any of the social presence indicators or encourage the development of community? Are there opportunities or encouragement for students to explore course content related questions? Garrison et al., (2006) developed a list of indicators and examples for each of the subscales of the CoI framework. I used their indicators as a guide for qualitative data analysis. In this section I will examine and describe the online course experience by course and report by presence.

The three courses studied are all part of a fully online undergraduate program that focuses on public sector leadership. There are students in each course that are not enrolled in the fully online degree program. Introduction to Leadership is designed for students who are interested in exploring public sector leadership. It includes concepts, skills and approaches for good public and non-profit sector leadership. Diversity is designed to provide students with information regarding diversity and leadership. This course covers the intersection of diversity and leadership, how diversity can improve organizational effectiveness, and cultural competence. Policy is designed to cover basic policies and controversies in current American public policy. The course explores how policy actors interact to create policy, major areas of policy debate and current policy debates. See Figure 5.1 for a summary description of each course.

| Course | Indicators | Major Assignments |
|---|---|---|
| **Introduction to Leadership** | Efficient design<br>Minimal instructor facilitation | 3 discussion boards + Introduction board<br>Mid-term case study<br>Leadership self-evaluation assignment<br>Multiple choice final exam |
| **Diversity** | Complex design<br>Variety of web 2.0 tools<br>Active instructor facilitation<br>Student choice | 1 traditional discussion board, 2 group work discussion boards + introduction board<br>2 group work assignments<br>3 papers<br>Final case study analysis |
| **Policy** | Two course interfaces<br>Atypical discussion board<br>Instructor facilitation fades at week 6 | 15 current event boards + introduction board<br>Policy reform paer<br>Open ended exam questions, |

*Figure 5.1:* Courses Studied with Indicators and Major Assignments

**Teaching Presence**

According to Garrison et al., (2006) the three subscales of teaching presence are course design and organization, facilitating discourse, and direct instruction. The teaching presence item related to reinforcing a sense of community is on in the subscale for course facilitation. Garrison et al. (2006) identify the indicators for course facilitation, they include instances of the instructor identifying areas of consensus/conflict, seeking to reach consensus, encouraging or reinforcing contributions, and setting the climate/assessing efficacy. My analysis of course artifacts was intended to identify instances of all three types of teaching presence. However, since the quantitative data revealed differences in the sub-category of "Teaching Presence: Facilitating Discourse," specifically the element of "developing community," this was a focus of the analysis.

**Cognitive Presence**

Garrison et al. (2001) developed the practical inquiry model to operationalize cognitive presence. There are four stages to the model: triggering event, exploration, integration, and resolution. All publicly posted assignments were analyzed. However, since this study only reviewed course artifacts that were evident in the publically facing course

interfaces, there are limitations to the study of cognitive presence. Individual student papers or exam submissions are not part of the current study. Triggering events are initiating events by the instructor or course participants. Exploration is seen when students exchange information among themselves or with the instructor. Previous research shows that discussion board postings often do not progress beyond the exploration phase of inquiry (Garrison & Arbaugh, 2007; Shea et al., 2010). Student works in this study show many instances of student's integration of the new concepts and connecting ideas on their forum postings. The final stage of the practical inquiry model is resolution; this is seen when students apply new ideas to situations or experiences.

**Social Presence**

In general, social presence is the degree to which course participants feel socially and emotionally connected (Garrison et al., 2000). The construct of social presence has three subscales: (1) Open communication is indicated by a learning climate that is risk-free where students feel free to express themselves (2) Group cohesion is seen in instances of collaboration and group identity, and (3) Affective expression is evident when students have opportunities for self-projection and expression of emotion. The indicators of affective expression are expressing emotions, use of humor, self-disclosure, and the use of unconventional expressions to show emotion and expressing value. Each course was examined for instances of social presence, especially affective expression. This included discussion board postings, group planning videos, and student assignments.

**Introduction to Leadership.**

Introduction to Leadership is taken at the beginning of the fully online degree program sequence and is mandatory for the program. The topic for the course is public sector

leadership. This course was fully implemented in Moodle. The course interface was lean and easy to follow. It did not include any unique instructional design elements. All course documents were available on the site, all assignments were submitted through Moodle, course resources and lectures were posted to the site. Figure 5.2 provides a summary of the course.

| Elements | Categories | Examples from Leadership Course |
|---|---|---|
| **Social Presence** | Open Communication | "I think your Lincoln/Hitler comparison is great. It is very natural to default to an image of a effective leader as a virtuous individual." |
| | Group Cohesion | "I felt a similar struggle in choosing a primary skill for which Ms. Latta exemplified." |
| | Personal/Affective | "See ya on the discussion boards (smile)" |
| **Cognitive Presence** | Triggering Event | Short video trigger clip & Disckussion prompts |
| | Exploration | Discussion board questions/peer responses |
| | Integration | Case studies |
| | Resolution | Leadership self-evaluation assignment |
| **Teaching Presence** | Design & Organization | LMS format by topic outlines all requirements by week, easy to navigate, lean design |
| | Facilitating Discourse | "Please review the readings and lectures so you have a clear understanding of the traits." |
| | Direct Instruction | Video lectures, readings |

*Figure 5.2:* Introduction to Leadership Course Characteristics

**Teaching Presence.** Evidence of instructor facilitation was minimal. For example, on the first discussion board assignment that referred to course readings, Instructor One responded to two different students. One response was "Very interesting comparison of Hitler and Abe Lincoln." The second response was a direct instruction point. She clarified that the student selected a quality that was not identified in the text. Instructor facilitation was not evident on either of the subsequent discussion board assignments.

Evidence of direct instruction is seen in a variety of course artifacts. The instructor posted a videotaped lecture that students were to watch each week. The video is of a slide lecture with the instructor inset in a small box on the screen. She is standing in front of a white board delivering content. This meets the criteria for the underlying construct for

"Teaching Presence: Direct Instruction". In addition, there were multiple weeks where students were to watch different types of informative and instructional videos of leaders. These included interviews, speeches, and documentary films.

The open-ended responses provided additional insight into teaching presence. Student responses to the open ended questions seemed to indicate they wished more interaction. To the question, "Describe your overall impression of this course", one student wrote, "not very interactive, but clear and helpful." To the second open-ended question "What would you change about this course?" a different student wrote, "more interaction from teacher and students."

An overview of the course interface for Introduction to Leadership reveals a course that appears sparse on design features yet well organized and easy to follow. There were 15 topics outlined that corresponded to the each week of the course. If the user clicks on the course title on the left navigation, a page loads with a sequential view of the course. The work is organized by topic that corresponds to weeks. Some assignments are written in all capital letters to emphasize importance.

The category of "Teaching Presence: Design and Organization" was represented in the course Moodle interface. The sequence is logical and easy to follow. There is little evidence of facilitating discourse beyond the two instructor comments on the discussion boards. Most indicators for this subscale were not observed. "Teaching Presence: Direct Instruction" is reflected in the course lectures, videos, and readings. One aspect of direct instruction, resolving issues, was visible once when the instructor corrected a student's misconception on the discussion boards. The instructor did communicate with the course

participants through assignment feedback. That data were not observed, collected, nor analyzed.

**Cognitive Presence.** This course had the fewest assignments. There were three discussion boards. On discussion boards students were required to have an initiating post. The initiating post was a response to the instructor's prompt. In addition, the student was expected to respond to a peer. The midterm exam was a case study analysis. The final exam consisted of 25 multiple-choice questions. Lastly, students had to complete a leadership self-evaluation assignment. The leaderships self-evaluation assignment was weighted the heaviest and contributed 30% to the student's final grade.

The discussion board postings showed evidence of student "exploration" of concepts. All students responded to the prompts and investigated the topic under consideration. They shared information, frequently in multiple posts. Some students pushed this to the "integration" phase when they connected the new leadership concepts to themselves and their current work or life experiences. For example, one of the students wrote in response to a peer's posting about a case study (not the midterm):

> Your submission made me think harder about my posting. I assumed that the NUMMI Commandos were the only out-group in the case study. But on reflection I think I agree that a case can be made for other segments of GM's workforce as out-groups.

This example illustrates the student's reflection on their previous post and demonstrates integration and connecting of ideas.

The case study midterm required students to answer six questions about a case. The students were expected to synthesize the information from the course (integration). In

addition, the assignment asked the students to apply to the case what they learned about leadership. Specifically, they were asked to apply to the case their knowledge of the different constructs of leadership. This assignment asked the students to engage in the final two stages of the practical inquiry model ("integration" and "resolution"). Similarly, the leadership self-evaluation assignment followed the same format, but asked the student to apply what they learned about themselves as leaders from the course content.

Student responses to the open ended questions were surprising for undergraduates. Two of the student responses to the open-ended questions indicated that they felt there needed to be more assignments; one specified "More assignments to stay involved in lectures." In addition, a third student noted on the final open-ended question, "There was hardly anything done in this course." In contrast, several students commented that they would not change anything or that the course was great. This suggests that despite some well-designed assignments, some students felt the course needed more rigor. The instructor shared during her interview that she did rework the course to include more discussions; a paper and she removed the final exam.

**Social Presence.** The only opportunity to view social presence indicators in Introduction to Leadership was through an analysis of the discussion boards. An analysis of the four required discussion board postings (three traditional question-based boards and the introduction board) revealed the only posting where there were more than two affective expression codes was the introduction discussion board. On the introduction board students were to share their name, major, why they were in the course, and one interesting fact about themselves. There was no requirement to respond to peers or identify similarities or differences. There were only nine replies on six different introductions on this board. The

instructor did not post an introduction on this board nor did she respond to any of the student's introductions. However, she did introduce herself on her introduction/welcome video posted in the same week of the course. In the video introduction, she shared her experience and roles at the university, her love of travel, and information about her children. This introduction included a personal image of her on vacation.

As a point of clarification, all the discussion board assignment questions/instructions included the requirement to respond to at least one classmate, with the exception of the introduction. The grading rubric did not include points for responding to classmates, although the instructor does state, "Responds to question asked with appropriate reference to course material" and "Well written, organized and communicates points effectively" on the rubric. A student might infer that each question includes the requirement for one peer response so part of the points for responses to questions might include the peer response. Additionally, *the communicates points effectively* may be illustrated in response to the peer as well as the initial posting.

Examples of affective expression in this course were only found on the discussion board postings because there were no other avenues for students to share or publically express themselves. They were evident when the participants replied to peer's post. The majority of these instances occurred in the introduction posts and on responses to the second discussion board question. On the introduction board, some students responded to their peers and made connections. One student shared why he took nine gym classes "So I choose to use them to relieve stress, which, for me, takes the form of physical activity." Another student responds to a post about a new baby on the way, by making a connection, "Congratulations on the baby on the way. I have a 19, 17 and eight year old." In these examples, the course

participants were projecting themselves, as individuals and sharing information that helps others understand them. Opportunities to develop social presence help the students to develop an online identity and form community.

The second discussion board question spiked more instances of affective, social expression. The instructor prompt:

> After reading the chapter, viewing the lectures, and Sandra Latta's interview, discuss which of the primary leadership skills you believe Ms. Latta exemplifies in her position. The primary leadership skills are administrative, interpersonal, and conceptual. Choose one and explain your answer, remembering to respond to a classmate to receive full-credit.

Several students engaged in self-projection in their peer responses. After their initial response to the instructor's prompt, one student responded to a peer, "You brought up some new and interesting points that I didn't think about. Thanks for that." Another student wrote, "First I want to thank you for taking the time in reading my post. I'm glad that we can agree that…" Another student took a risk and admitted her fears, "At first I was put in leadership projects that I got really nervous about because I did not know how to lead."

Student responses to the open-ended questions indicated a wish for more interaction. Two of the six respondents mentioned they would like more interaction. In Introduction to Leadership there are relatively few observed instances of "Teaching Presence: Facilitating Discourse" and instructor reinforcement of community. This appears to be because the instructor only responded on the discussion board postings twice and there were only three content related boards and the introduction forum. Also, the course did not have any other public opportunities to share, connect with participants, or engage in group-work. The other

assignments beyond the three discussion boards were a case study, a final exam, and a leadership self-evaluation assignment. None of these were posted publicly or required peer review or interaction. In addition, there was not a forum where students were encouraged to post questions or a general socializing board (some instructions call this space a "water cooler"). Indicators of "Teaching Presence: Facilitating Discourse" were only observed once, in the first discussion board.

**Diversity**

Diversity is an upper level undergraduate course that meets a core requirement for all undergraduate students in the program. The course topic is diversity. The course was designed by the university's distance learning department with input from the two instructors in the department that offer and teach the course. The course is fully implemented in Moodle. Figure 5.3 provides a summary description of the course.

| Elements | Categories | Examples Diversity Course |
|---|---|---|
| **Social Presence** | Open Communication | "Bob, you are right. I did use Caitlyn's old name. Good point." |
| | Group Cohesion | "Last call if anyone needs to add anything to the presentation. I've run through it a couple times and everything seems to be covered" |
| | Personal/Affective | "I am gay. I am active in the Raleigh LGBT Center and also have a daughter who is gender none specific/gender fluid." |
| **Cognitive Presence** | Triggering Event | Short video trigger clips |
| | Exploration | Discussion boards for group projects, Collaborative video commenting discussion |
| | Integration | Multimedia group presentations ethnic leader |
| | Resolution | Final case study assignment |
| **Teaching Presence** | Design & Organization | LMS book for each week, rubrics, design complex and integrated |
| | Facilitating Discourse | "Thank you for taking the risk to share with your classmates". |
| | Direct Instruction | Video lectures, readings |

*Figure 5.3:* Diversity Course Characteristics

**Teaching Presence.** In contrast to the other two courses, Diversity is not outlined as weeks in the interface, but as "modules" and each module covers two weeks. Inside each module, there is a book for each week that walks the student through the activities and expectations for the week. The first page of each book outlines the learning tasks for the

week with deadlines for activities. The book for week one includes detailed instructions for communicating digitally in the course. These include examples of facilitating discourse such as, “use the active voice,” “strive to encourage instruction,” “remember you are allowed to change your mind,” and ”keep it short.” These are concepts that are covered in the university’s distance education orientation, but not easily located.

The first assignment was the group diversity presentation, completed in the first two weeks. Evidence “Teaching Presence: Design and Organization” included extensive directions given to complete the assignment. These directions are located in the book for the week and condensed but repeated on the discussion board where students planned their project.

During weeks 3-7, the students did not have any group work. Assignments included two individual papers. The paper topics were “female leadership” and “race and leadership.” Both assignments had a discussion board in which students were to post the name of the leader they chose to study (no duplicates were allowed). The “female leader” paper also had the students participate in a Google “female leader” timeline. Detailed instructions for the papers were posted in the book for the week, and abbreviated instructions are found at the top of the Moodle page where the assignment was submitted. The instructor also posted a rubric for each paper.

In weeks eight and nine the students had another group project. Again they were to self-select groups of four or less to complete the project. The assignment instructions include multiple “Teaching Presence: Facilitating Discourse” examples that promote group cohesion and interaction. These include instructions for group meetings and group member expectations. The instructor requests documented proof that all team members are

collaborating and contributing to the project. Each group was to select a different "ethnic leader" to research. The instructor gave direction that the leader should be an American politician that is of Chinese, Mexican, Native American, or Japanese ancestry. The final project was a VoiceThread presentation to share their information (http://www.VoiceThread.com). The instructions for group participation were clear, she wrote, "Every group member is expected to create and/or narrate a number of slides." In addition, the instructor facilitated the group discourse on their individual discussion forums for their project as well as participated in some of their virtual meetings. Her comments included, "I need to be included in group communication to accurately grade group participation. If I am unable to do this, this will negatively impact the grade of the project" and:

> I suggest that you have the group members discuss what their responsibilities of the project will be via of the group discussion format and keep me abreast on the progress of the project before it is due tonight. If this information is omitted it will be reflected in the group's grade.

The topic for week ten was sexual identity and public sector leadership. The timing for this topic was perfectly aligned with North Carolina's House Bill 2, which Governor Pat McCory signed into law on March 23, 2016. The student assignment for week ten was to participate in a discussion board forum by March 30, 2016. Each student was to respond to the prompt, "Discuss if you believe the US society has or has not made changes in the treatment of the LGBT community with regards to public opinion, politics, and laws?" They were also to comment on at least one peer posting. "Teaching Presence: Facilitating Discourse" was observed numerous times. The instructor gave sustaining feedback for

several participants with comments such as, “I am so glad that you began this discussion mentioning the HB2. I started to change the question so the class could discuss the issue but you made that happen!” On another, a student shared that he was gay. The instructor replied:

> Thank you for taking the risk to share with your classmates. I chose to teach this class because I wanted to encourage an open dialogue with regards to diversity issues. I strongly believe that online courses allow students to share the viewpoints more openly than in a classroom setting.

Many students exceeded the requirement of two postings on this discussion board. The instructor’s presence focused the exchange and contributed to constructive dialogue.

During weeks 11 and 12 the students had an individual paper assignment. The only interaction evident during these weeks was the discussion board forum where the students were to post the contemporary leader they would write about (again, each student had to choose a different individual from their classmates). There was no interaction between course participants on this forum. For weeks 13 and 14 there were no assignments or requirements to post to discussion boards. The final for the course was a take-home exam essay.

Student responses to the open-ended questions were generally positive although some indicated they’d like some changes. To the question, “Describe your overall impression of this course,” one student wrote, “Very good class. Well structured” and another wrote, “Very clear and easy for an online class.” A third student shared she’d like more detailed feedback. To the second opened question “What would you change about this course?” a different student shared they’d like more specific feedback. The student who wrote about feedback in question one shared, “I would have actually liked more discussion forums with more interaction between the students. We did 2 group projects, and for my group the interaction

was fantastic. I thought those were excellent learning tools." A third student requested that the instructor change the date for an initial discussion board posting because it is difficult to respond on time to your peers if they wait until the last minute for their initial post. To the final open-ended question, another student replied they enjoyed the group work and one student shared that they appreciated the variety of assignment types.

"Teaching Presence: Design and Organization" is evident in the consistent structure of the course. The weekly book outlines expectations and the modules include all resources in one place. The books use a variety of font sizes and headers to present information. In addition, all assignments include extensive directions and a rubric. Direct instruction is evident in lectures, readings, and videos that support the course content. Course facilitation is evident in the instructor involvement on the discussion boards and group project planning.

**Cognitive Presence.** This course included a variety of assignment types. There were two group projects that the students self organized using discussion forums, plan using virtual meeting tools and present in VoiceThread. (VoiceThread is a multimedia-authoring tool that allows for collaborative discussions that may include most digital media types: audio, video, images, and a variety of other file types). The discussions or comments may be text based, audio, or video. In addition, there are three individual paper assignments and a final individual case study analysis. Lastly, there were only two "traditional" text-based discussion board forums (introduction and sexual identity). There were additional discussion board forums, but these were used for planning and communicating of group projects and choosing leaders for course assignments.

All four stages of the practical inquiry model are evident in most of the assignments in this course. The group projects allowed for exploration and integration during the group-planning phase. Resolution was seen in the final product when the students apply their learning to create the final product. For the individual papers and case study assignments, if the students follow the assignment instructions all four stages were engaged as well. For example, the racial leadership paper asks the students to compare and contrast two black leaders from late 1950's and early 1960's. The discussion needed to be tied to the critical theory they learned and demonstrate an understanding of how race affects Introduction to Leadership. I did not view or analyze individual work that was not publically posted. I did analyze group planning sessions (via discussion board and recorded video) and final group product that was publically posted on VoiceThread.

Student responses to the open ended questions reflected that they enjoyed the group work and the variety of assignment types. One student shared, "Excellent course for exploring issues of diversity and how to deal with/support/create diverse communities." Another student wrote, "The course provided excellent material to help students become more culturally competent."

**Social Presence.** In this course, the variety of assignment types and structures provided many opportunities for the students to develop and experience social presence. Unlike Introduction to Leadership and Policy, Diversity had two group work assignments and required the use of communication and presentation tools not located within the LMS. The structure of the assignments necessitated interaction.

The first discussion board was an introduction forum, called "Cyber Meet & Greet." The students are asked to introduce themselves to include: name, major and background, why

they are interested in taking the course and what they hope to get out of the course. There was no requirement to respond to one another's posts. However, students were told to use the forum to make contacts and sign up into groups of four or 5 participants. Only one student used the introduction board for this purpose; the others used the group diversity activity discussion board to put themselves into groups. There were a few posts where classmates responded to another's introduction, but most were made by two of the course participants. The students did engage in self-disclosure and projection on this board. One student shared:

> I still feel as though I lack the appropriate social skills sometimes in a workforce environment, and I hope to overcome some of these as I go through the curriculum. I also wish to work with as many different people as possible throughout group projects.

Other students did not provide the same candor, but did share. One wrote, "I am a hard working student and am not planning on slacking off on any of the projects or papers for this class." There was no instructor participation on the cyber meet and greet postings. The instructor does provide a brief written intro in the book for week one and at the beginning of the first video lecture.

The first assignment was the group diversity presentation. The students were to identify five similar things among their group members, five different things among their group members, share what diversity means to them, and define diversity. The student groups used a discussion board to share personal information, generate ideas for their similarities and differences, to plan the presentation, and to communicate about the process. The instructor structured this process so the planning and roles would be transparent and not hidden behind group emails. The final product was a VoiceThread presentation by each

group. In the discussion board postings, there were many examples of social presence indicators for affective expression. One student wrote, “I think it'd be good to each put a picture of ourself on our intro slide, that way people can put a name and a face to a voice.” This group implemented her suggestion on their project. This provided the students an opportunity for self-projection. In a different group’s discussion board for the same project, a student shared:

> I think it might be helpful to have a summary of some of the things we’ve already suggested for our 5 similarities and differences along with our thoughts on diversity. So here is an attachment one with a few additions of my own. More suggestions would be awesome!

On the planning discussion boards, many students were candid. An example of one student’s self projection are “ I'm the typical Star Wars/ Lord of the Rings nerd. Dogs>Cats. I'm fairly laid-back and can get along with anyone. If there are any questions about me, feel free to ask.” This student provided a concise yet vivid self-portrait. The type of assignment and the use of a public forum for organizing afforded the student an opportunity for self-projection. In addition, it gave his peers a glimpse into his personality. The information may have helped his peers find a group that was a good fit.

The group presentation VoiceThreads provided a platform for the students for self-projection. Many students included images of themselves on their background slides, all students had the opportunity to narrate slides with an audio recording (no students choose to video comment or narrate) and each group had a slide for their similarities and one for their differences. This activity allowed the course participants to form connections with their peers while respecting their differences.

At the end of week two there was a collaborative VoiceThread activity where all participants were asked to respond with an audio recording to short video clips, without listening to their peer's responses. At the end of the activity the students watched an entire news magazine story that included all the clips. The activity was to help the students identify the privilege that is afforded a rough looking white male and an attractive white female in comparison to a black male. At the end of the activity, the students were able to view their peers thinking and perceptions about privilege. This activity offered opportunity for the course participants develop a deep understanding of their peers thinking without being overly reliant on text.

For the second group project, the planning forums showed instances of affective social presence. Students shared their challenges, "Sorry if my voice sounds terrible, my voice has been in and out for weeks now. But great job everyone!" and their willingness to support the group's work, "Hey guys! Sorry I've been MIA, I've been working a ridiculous amount this week. I will do the remainder of the slides! Great job guys!" When narrating slides, participants of one group choose to add a thumbnail photo of each member, so that when their comments played their image showed (if a participant did not upload an image, a colorful box with their initials shows while they speak).

Similarly, the students' postings and responses on the traditional discussion board forums show candor and multiple instances of affective social presence. One student shared his sexual orientation:

> Most gay men are like me. You would never know I was gay. I act like a male and I am attracted to men who act like males. The reason most people see gay men as feminine is that's what visually sets them apart from the average male.

This prompted multiple peers to comment on his honesty and thank him for sharing. Those responses included, “Thanks for your honesty and candor. I enjoy reading your posts.” This forum was the most active of the course and provided a space for the students to project themselves. Some students posted in favor of HB2, some shared their concerns about individual not using the bathroom of the birth gender, many opposed HB2, and most students provided historical and public policy context for their opinions.

The content and structure of the course provided many opportunities for students to engage in affective expression. Many students used the forums to provide glimpses into their personality. The requirement for group work and virtual planning sessions also support the student’s online identity to become evident to their peers.

Student responses to the open-ended questions supported the group work requirement. One student even noted they’d like more discussion board assignments to increase interaction. The variety of assignment types also received positive feedback.

**Policy**

Policy is an upper level undergraduate course. It is an elective for the fully online degree program and part of the political science department. The topic for the course is American public policy, with a focus on current events**.** The course has two interfaces, a public website with most course resources and a Moodle site. The Moodle site contains the discussion boards, student grades, and the link to submit student papers.  Figure 5.4 provides a descriptive summary of the course.

| Elements | Categories | Examples Policy Course |
|---|---|---|
| **Social Presence** | Open Communication | "I have respect for him, but I feel a number of people would do a better job than him." |
| | Group Cohesion | "I agree with Martin that the "right to die" should be left in the hands of the state." |
| | Personal/Affective | "Honestly, I didn't even realize this was an issue. Where I live, in Puerto Rico, if you are a full time employee you get about 15 sick days and 12 vacation days a year." |
| **Cognitive Presence** | Triggering Event | Current event topics |
| | Exploration | Self selection of discussion board participation mode (initiate or respond) |
| | Integration | Some discussion board responses |
| | Resolution | Open ended exam questions, Policy reform paer |
| **Teaching Presence** | Design & Organization | Atypical discussion board protocol, Choice (paper topic, exam questions, discussion topic), two interfaces |
| | Facilitating Discourse | "Interestingly, you would be classically "cross-pressured" as we say in Political Science." |
| | Direct Instruction | Recorded live lectures, Discussion board replies, Readings |

*Figure 5.4:* Policy Course Characteristics

**Teaching Presence.** The instructional format of Policy is quite different from Introduction to Leadership and Diversity. There is a lot of autonomy for the students and the instructor is observed in a natural teaching environment. The instructor for Policy maintains an external website with most of the course information and links to his lectures. He teaches this course online every semester. Every other year, he teaches the class face-to-face. For his online lectures, he uses a video of his face-to-face lectures from the last time he taught the course face-to-face. The videotaped lectures are limited to the instructor's lectures and do not include class discussions. The course website includes: syllabus, links to lecture outline (presentation slides), a link to the university website that houses the streaming video of lectures, a link to course reserves, additional information about course assignments and tests, a link to Moodle for the discussion boards, an introduction letter, a link to the university orientation about distance education, and links to recommended reading resources for current events. The course Moodle site included all discussion boards for weekly current events assignments, a paper assignment submission link, a link to the external website, the course syllabus, testing information, and student grades. Introduction to Leadership and Diversity include most of the same elements as Policy has on two websites, on the Moodle interface.

Instructor Two's presence was visible in the current event discussion board for the first five weeks. He seemed to facilitate discourse by engaging in the discussions with a variety of feedback. On a response to a student's initiating (current event) he extended the discussion with, "Also a really good article on this in the NYT." When a student's initiating post included rich data to support the discussion, the instructor provided feedback with "Way to bring the data to the debate, Juan!" When a student's initiating post was about the Flint water crisis, his response included his opinion and provided his take of the context of the situation, "Honestly just horrible and depressing that this problem could go on so long without anybody in power/authority doing anything about it. Sadly, not a coincidence that Flint is a poor, largely minority community." Also, the instructor demonstrated a willingness to admit his lack of exposure to a new policy idea. For example, in this response he facilitated discourse as well as included some self-projection:

> Huh. Had not heard about that. From a policy perspective-- great idea. Lots of data that poor parents raise their children in substantially different ways than middle-class parents. Working to close that child-rearing gap would surely help alleviate the cycle of poverty.

These examples illustrated the instructor's approach to promoting discourse and modeling effective discussion board responses. Importantly, it provided the student an opportunity to observe the instructor's thinking.

From week six forward, the instructor did not have a presence in the discussion forum. Assuming the students watched his weekly lectures, they still had an opportunity to witness his teaching practice in his videotaped lessons. Each lesson covered an area of public policy. Topics included government institutions and policymaking, economic policy,

environment and energy policy, education policy, equality which incorporates race and gender, and criminal justice policy. It did provide the opportunity for the instructor to be viewed in his natural teaching environment and may provide insight into why the students perceived his teaching presence positively despite being absent from current events for two-thirds of the course.

Student responses to the open-ended questions were very positive although some indicated they'd like some changes. To the question, "Describe your overall impression of this course," one student wrote, "Disconnected" and another wrote, "Felt very distanced from the instructor and there weren't very many assignments." A third student shared, "(Instructor Two) is knowledgeable enough to make up for what's lost in the impersonal engagement." To the second opened question "What would you change about this course?" the student who wrote disconnected to the first open-ended question, shared "more instructor interaction." Two students suggested that the course materials were difficult to access. One student shared that the course lectures worked well and were more helpful than the lectures in previous online courses. There were many positive responses to the course and instructor. One student shared, "Favorite professor of all time" and another wrote, " I loved how (Instructor Two) used alternative news sources."

An overview of the course websites for Policy reveals a course set-up that is quite different from a traditional online course. There is a public web page with hyperlinks to course resources. This web page is accessible off the university's faculty directory page and does not require a login. From this page, students may download the course syllabus (no login required), access course video lectures (requires a login), download lecture outlines (no login required), access course reserves (requires a login), and view the university's Moodle

orientation. In addition, on the public website, there is a link to the Moodle site for the course (requires login). The Moodle site for the course has links to the main course website (the public page), a link to the syllabus, an introduction forum, and a link to the current event discussion board for each week. The content on each website is in one font (size, color, no emphasis). It is unclear why there are two websites. However, the Moodle discussion forum provides a space for course participants to interact that is accessible only to course members.

The observable extent of interaction between teacher and students was seen only on the discussion boards. In the interview, the instructor revealed that he did email the students a group email, every few weeks. The emails included updates on policy-related events that he wished the students to investigate as well as scheduling exams and assignment details. The instructor shared that he only has a few online students each semester that seek out additional contact. This is communication that focuses on assignments or exams and may take place via email or face to face.

Evidence of "Teaching Presence: Design and Organization" was seen on both interfaces. The sequence for discussion boards was logical and easy to follow. Perhaps the confusion noted by course participants stemmed from the two interfaces and the fact that the flow in Moodle does not follow a typical online course. It is not obvious on either interface when assignments are due. There is extensive evidence of facilitating discourse in instructor comments on the discussion boards for the first five weeks of the course. ""Teaching Presence: Direct Instruction"  Is reflected in the course lectures and discussion board current event responses.

**Cognitive Presence.** The assignments for Policy included weekly-required discussion board postings, a paper, two midterms, and one final exam. The discussion board forum was

set up to discuss policy-related current events. The students were required to have two "quality comments" each week, one of which had to be a response to a peer. . The course syllabus does not define a "quality comment." This does not mean that each week, each student had to post a current event (an initiating post). They simply had to have two "quality comments," so they could be two comments to a peer or a comment and an initial current event topic post. The instructor did require that one of the two be a reply to a peer. There were between 4-11 new thread topics each week. However, most weeks, several of the initial threads had no comments. This provided much discussion and interaction around 2-4 current events each week. There were 15 weeks outlined in the course website with the option of doing bonus postings during the spring vacation week.

The instructor did not limit the topic beyond stating that they must be "policy-related current events." He suggests the students find their current events in The New York Times, Washington Post, Vox, or Wonkblog. The presidential primaries in the spring of 2016 provided much of the content for the discussion boards. Exploration was evident in all posts as students shared or explored a current event and exchanged information. Integration was evident when students connected the ideas shared by another to their own experiences. An example of cognitive presence integration is evident in a student's response to a peer's post about the Republican's refusal to provide a hearing for President Obama's Supreme Court nominee:

> They are obviously trying to postpone the inevitable here, because if Garland is confirmed then it would still shift the balance of power on the Supreme Court, which often has the final say on many divisive issues in US politics.

A few instances of resolution are seen when students applied the ideas from the current event to other situations. An example is when students discussed implications for HB2. Students engaged in all levels of the practical inquiry model in the discussion board forums for this course.

The paper assignment allowed for student selection of topic. The student had to investigate a proposal for policy reform. The investigation included exploring the topic, connecting the topic to implications of implementation and identifying the costs and benefits of the proposed reform. Lastly the students were asked to identify unintended consequences of the proposed reform. This assignment afforded the students the opportunity to engage in all stages of the PIM.

The student exams (two midterms and a final) were taken on campus and proctored. The instructor shared the exam questions with me. In general he asked five or six questions and the students were required to respond to four. The response had to be supported by information from the course lectures, readings, and relevant current events. The following is final exam question:

> What are the basics of how Social Security works? What are the current challenges and successes of Social Security—how serious are the challenges? What future changes do you think make the most sense for social security-- why? How would you assess the success of our social welfare programs in alleviating poverty?

If the student fully answered the question, all stages of PIM are engaged. The triggering event was the initial question. Exploration happened when the student specifies the basics of Social Security. Integration happened if the student examines the challenges and resolution

occurred when the student was asked to assess the success of the county's systems in alleviating poverty.

Student responses to the open-ended questions indicated that they enjoyed the course and the material. One participant shared, "Very informative, critical thinking course." Although two different students felt there needed to be more assignments, one specified "Ironically, coming from a student, more assignments."

**Social Presence.** Similar to Introduction to Leadership, in Policy the only opportunity for students to experience social presence was on the discussion forum. Since Policy had a required discussion board level of activity each week, there are many observed instances of social presence. In addition, there was a required introduction, during week one.

On the introduction board students were to share their name, year in school, major, hometown and anything interesting they wanted to share. There was no requirement to respond to peers or identify similarities or differences. All students (19) answered the prompt and seven expressed emotions and supplied personal information beyond their experience and work at the university. Examples of affective expression coded in the student introductions were "I love art, especially spray painting (you can catch some of my murals in the Free Expression Tunnel!)" and "I enjoy anything outdoors, even on a dreary day like today." In addition, the instructor answered the questions and shared personal information about his children (including images) and his favorite pastimes. Interestingly, the instructor commented on five of the student introductions and attempted to make connections with similarities or relevance to the course topics by asking the students questions about their introduction post. None of the students responded to his comments, even in the cases where he asked them direct questions. These questions included, "Where in Ohio? I've lived in

Columbus and Cleveland suburbs" and "Did you go to high school in Cary? My son is at Cary High." The instructor shared during the interview that he believed this was because the students were not notified that a person responded to their post (in this case, the instructor). The student must log into the course, open the forum and look for responses.

There were numerous examples of affective expression on the weekly discussion board postings. Many of these were found in the comments or responses to a peer's initial posting. These were often expressions of consensus, admissions of ignorance, or personal beliefs about an issue. A female student posted a current event about the "pink tax," and several male peers responded similar to this, "I never knew this was an issue until reading this article! Call me naive as a typical male, but I had no idea that this was even an issue!" On a current event about government collecting personal social media activity, one student wrote:

> I feel that if you do not have anything to hide and are not doing anything wrong or illegal, then you should not have a problem with the government watching your social media activity. However, I do not see the public having the same mindset that I have.

Donald Trump's run to be the Republican nominee spurred many students to express personal beliefs. One student shared, "I can't even sugarcoat the fact that I'm quite appalled at the fact that Donald Trump is really being taken seriously as a presidential candidate by some people." In contrast, another student wrote:

> I was very surprised when Trump announced he was running for President and I am not going to lie or skate around the fact that I like him. I know many of you don't like him at all and think he is a complete joke.

The weekly expectation of interaction with peers on current events provided a platform for the participants to express themselves as individuals through their interests and beliefs. Also, the students' self-selected topics and freedom to respond to posts they were interested in, affords the opportunity for a sense of an individual to emerge. They were expected to engage with the content and one another, providing weekly opportunities for self-projection, an indicator for affective social presence. In addition, the instructor's decision to not require an initiating post by each of the 19 course participants allowed for more interaction and sharing around fewer posts. The instructor provided a space and an implied expectation that the student were to share opinions.

**Summary**

The selected courses were designed and implemented differently. All of the courses used Moodle discussion forums, recorded lectures and assigned a paper. Introduction to Leadership had three required discussion board postings (one initiating post and one reply), a midterm case study, a final exam and a leadership self-evaluation assignment. Instructor One provided little guidance for participation in the discussion boards beyond the grading rubric. Her presence on the boards is evident only in two posts on the first board. The instructor included grading criteria on the assignments but did not always include a point allocation for different requirements. Teaching presence was evident in the facilitating of the course in the design of the assignments, but there was little facilitation of discussion. The course design provided few opportunities for students to interact with their peers and instructor (informally or formally).

Policy had weekly (15) forum requirements (two posts, one had to be a response, but no initiating requirement), one paper, two midterm exams, and a final exam. Policy exams were proctored and administered by the distance education office. Instructor Two's "Teaching Presence: Facilitating Discourse" was evident in the first five weeks of the course. The instructor included brief directions for participating in the forum and a rubric (without point values) for completing the paper. Neither Introduction to Leadership nor Policy offered any group work assignments. Also, neither course required the student to use a technology tool not located in the learning management system for communication.

Diversity had a variety of assignment types. The two group assignments required students to use collaborative authoring tools. The students were expected to create their presentation in Google Slides, with one file shared with all group members for individual contribution. The participants were encouraged to use Google Hangouts or Skype to hold virtual collaboration, and brainstorming sessions and several groups did. The final product for the group presentations required the students to export their presentation from Slides, import it into VoiceThread and then narrate with the audio (or video) recording tool. Discussion forums were used for a variety of purposes: sharing of personal information, collaborative planning, and response to an instructor prompt. In addition, all individual assignments included a rubric with point values. "Teaching Presence: Facilitating Discourse" and "Teaching Presence: Design and Organization" were evident throughout the course.

The design of Diversity afforded the students many opportunities to learn with their peers and form distinct impressions of them. The atypical discussion board design of Policy offered the students choice of topic and response. This encouraged a high level of interaction around a few posts each week. These findings illustrate that instructional design choices do

impact student's ability to perceive their peers as individuals. In addition, the Diversity course offered the students opportunities to engage with their peers in video chats and provided student voice to presentations. These technology tools offered the course participants the opportunity to feel part of a learning community.

# CHAPTER 6 - DISCUSSION AND CONCLUSIONS

This study used a sequential explanatory design to answer the overall research question: Does an online course, designed by professional distance learning designers, promote a Community of Inquiry and provide learning experiences that develop stronger positive student perceptions of teaching, cognitive, and social presence than a course designed by an instructor without the support of instructional design experts? Overall, the professional design did make a difference. The difference was not found in the complex design of the course, which employed books. The differences were evident in the learning experiences that incorporated a variety of collaborative authoring and presenting tools, the use of video conferencing for project planning, and the active facilitation by the instructor. However, Policy also reported strong positive perceptions on some times. Again, this was evident in the design of the discussion board protocol, not visual design elements.

The quantitative and qualitative results provided a comprehensive understanding of the selected courses. The quantitative data showed that there were some differences in student perceptions of community between the different courses, especially with the social presence items relating to affective expression. The qualitative data revealed that when instructors or instructional designers required students to work in groups, use collaborative authoring tools, and share student work with multimedia tools, the students perceived a high level of “Social Presence: Affective Expression” and ”Teaching Presence: Facilitating Discourse.” The primary purpose of this study was to understand how community is developed in distance education and to identify technology tools that may support or

constrain the development of community. Specifically, what technology tools and pedagogical practices can the instructor employ to foster high social and teaching presence?

**Synthesis of Findings**

This sequential explanatory study identified pedagogical practices and technology tools that may support the development of a community in online instruction. Qualitative and quantitative analysis of Diversity found that five of Chickering and Gamson's (1987) seven principles for best practice in undergraduate were evident. Students were encouraged to interact with each other on the discussion boards and via Skype and Google Hangouts. There were two group work assignments, and assignments encouraged active learning and engagement. Instructor One was rated the highest for timely feedback in Diversity, and high expectations were communicated via the specific rubrics for all assignments. Also, Diversity is the only course that avoided a traditional criticism of online coursework, over reliance on text (Boling et al., 2012). The use of virtual group communication tools allowed groups to share and communicate information informally and verbally. In addition, the VoiceThread assignments allowed students to share their learning in a multimedia presentation format. This allowed the students to synthesize what they'd learned and share their knowledge without relying on long text writings. The findings support the work of Borup, West, and Graham (2010) who identified VoiceThread as an asynchronous communication tool to support the development of social presence. In addition, the use of tools outside of the LMS such as VoiceThread, Skype, or Google Hangouts is consistent with other studies that identify ways to improve the affective expression subscale of the CoI framework (Dunlap & Lowenthal, 2009).

Introduction to Leadership and Policy did not require any communication or sharing of learning via any medium other than text, did not require any group work, nor did they have any opportunities for informal discussion. In addition, for Diversity, Instructor One required that the groups include her in their planning sessions. This addressed another criticism of online instruction, lack of opportunity for feedback and clarification (Carr, 2014). Instructor One, for Diversity, had the highest student perceptions on timely feedback and keeping course participants on task helping students to learn. The qualitative data support this finding.

Both Diversity and Policy had high student perceptions of being able to form distinct impressions of some course participants. The differences may be understood in the structure of the assignments. For Diversity this is evident in the group work projects and the varied technology tools the students employed to participate in the work. For Policy the instructor's requirement to have two "quality comments" each week might explain the student's perception of other course participants as individuals. Traditionally, instructors require all students to answer the discussion board prompt (an initiating post) and then respond to peers. In Policy, students were given freedom to either initiate or respond. Since each of the nineteen participants did not have to have an initiating post, it afforded the students the opportunity to choose to simply engage with their peer's thoughts and ideas. This protocol may simulate a more natural discussion because students read their peers posts and then engage, as they are interested. In addition, in Policy the topic for each week's discussion board was simply American public policy. Students were free to identify current events they were interested in and initiate or engage in the discussion. Both the group work in Diversity and the untraditional discussion board practice in Policy encourage the social nature of

learning, where knowledge is created in the mind of the individual but instantiated in the practice of groups (Anderson & Dron, 2012).

The analysis of discussion board responses in Policy revealed many instances of affective social presence. Students would project themselves in their initiating post and in their responses to their peers. In addition, the instructor was active on the discussion boards for the first five weeks of the course. In "Social Presence: Affective Expression", beyond the introduction posts, there were very few instances of affective social presence and very little instructor presence. In Diversity the instances of affective social presence were seen in the group assignments (final product, planning products, and group discussion boards), introduction forum, and the one traditional discussion board forum on sexual identity. The instructor was present in the different group discussions and on the sexual identifies discussion board.

The activities identified by Svinicki and Dixon (1987) that may support Kolb's learning cycle were evident in all three courses at each stage. The courses all included the concrete experiences, readings, and examples. Both Introduction to Leadership and Diversity included many trigger films and Policy's current event requirement allowed for many readings of examples. All the courses included reflective observation in discussion boards and thought questions. Abstract conceptualization is evident in all the courses with weekly lectures and paper assignments. Diversity also included project work. Lastly, each of the courses used case studies for active experimentation. Only Introduction to Leadership has a capstone type project, which Dunlap et al., (2008) suggest as a powerful way to deploy Kolb's learning cycle in the online classroom to situate the learning in the context of the learner's current experience.

Providing both quantitative and qualitative findings in one study offered new information about the online learning experience. Specifically, the mixing of methods offered a narrative of the online course experience and helped explain the quantitative findings. I believe that the mixing of methods leveraged the strengths of each method to provide a more robust and descriptive study than either method alone would provide. Figure 6.1 illustrates the findings relative to each of the presences.

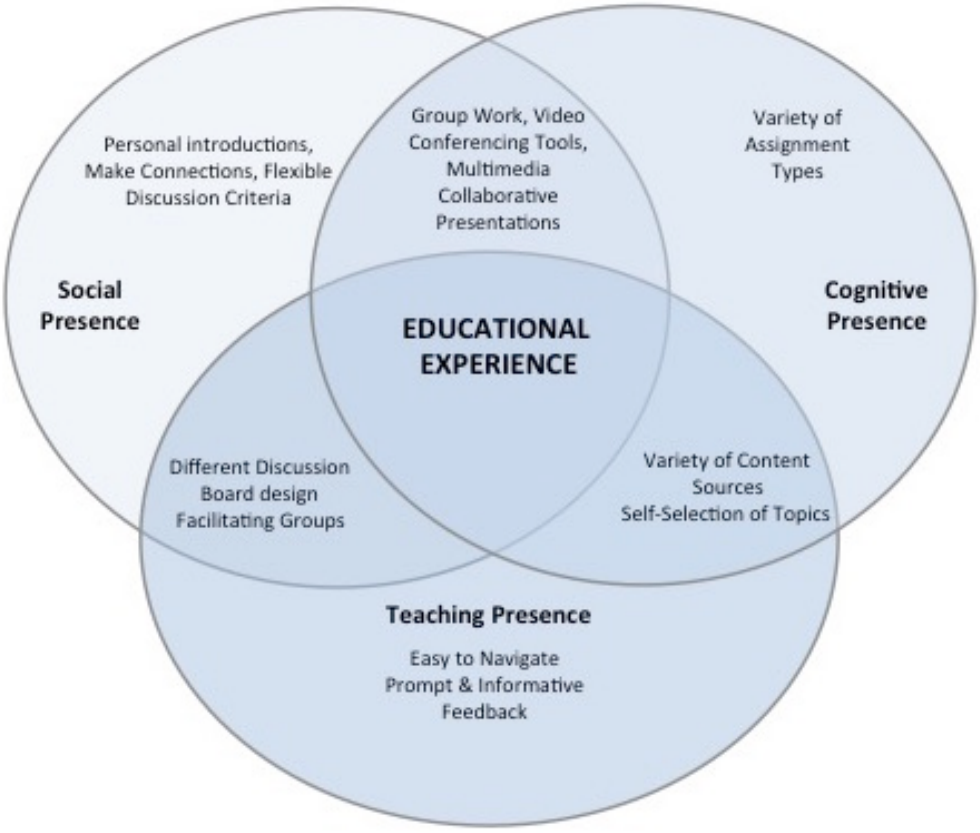



*Figure 6.1.* Community of Inquiry Model with Findings

## Limitations

The study is limited in its scope. One researcher studied the three courses of two online instructors and their students. The number of students in each course was twenty or fewer. The overall response rate was high for a survey (48%), but the total number of responses was only 28, which is fewer than the recommended number of 30 for quantitative data analysis. Because of the small number of responses, especially for Introduction to Leadership, the quantitative data must be interpreted with caution and findings may not be generalizable. The content area and small number participants limit the findings. Also, the majority of the respondents do not match the demographics for the typical online learner. In addition, students in the selected courses may be more motivated and engaged than undergraduate students in introductory courses. With these constraints in mind, the results of the study may not be generalizable to other populations.

## Implications for Practice

The results of this study indicate that there are learning design principles, pedagogical practices, and technology tools that will support the development of a community of inquiry. Instructional design that includes group work and encourages peer-to-peer interaction will help the course participants to develop a sense of community. The data suggest that it is not enough to simply require students to answer a discussion prompt and then respond to a peer. The instructor must be present in the course to facilitate learning and the development of community. Technology tools can support the development of community.

In the courses I studied several pedagogical practices helped encourage the sense of community. The instructional decision to allow the students freedom in responding and not requiring the initiating post in Policy allowed for more peer-to-peer interaction. This

interaction provided the opportunity for the course participants to develop a sense of their peers. In addition, the use of collaborative multimedia tools such as Google Hangouts, Google Slides, VoiceThread, and Skype affords online course participants the opportunity to develop a sense of belonging in a course as well as an opportunity to form distinct impressions of their peers. When students had the opportunity to work with their peers this provided two benefits. First, the students were able to form distinct impressions of some of their classmates. Second, the collaborative group work and active instructor facilitation provided the environment for a sense of community to develop.

**Conclusion**

Instructional designers and course instructors must make design decisions to support peer-to-peer interaction when developing a course. There are technology tools that will support the development of community, and they may be incorporated into the course to support interaction and the development of social presence and a sense of community. When an instructor is actively engaged in the discussion boards, and group work projects, students report that the instructor helps to facilitate the development of community.

## REFERENCES

Akyol, Z., & Garrison, D. R. (2008). The development of a community of inquiry over time in an online course: Understanding the progression and integration of social, cognitive and teaching presence. *Journal of Asynchronous Learning Networks, 12*(3), 3-3-22. Retrieved from http://www.eric.ed.gov.prox.lib.ncsu.edu/contentdelivery/servlet/ERICServlet?accno=EJ837483

Akyol, Z., & Garrison, D. R. (2011). Understanding cognitive presence in an online and blended community of inquiry: Assessing outcomes and processes for deep approaches to learning. *British Journal of Educational Technology, 42*(2), 233-250. http://dx.doi.org.prox.lib.ncsu.edu/10.1111/j.1467-8535.2009.01029.x

Allen, I., & Seaman, J. (2015). *Grade level: Tracking online education in the United States*. Washington, DC: Babson Survey Research Group.

Allen, I. E., & Seaman, J. (2012). *Conflicted: Faculty and online education, 2012*. Washington, DC: Babson Survey Research Group.

Allen, I. E., & Seaman, C. A. (2007). Likert scales and data analyses. *Quality Progress, 40*(7), 64-65. Retrieved from http://search.proquest.com.prox.lib.ncsu.edu/docview/214764202?accountid=12725

Alley, L. R., & Jansak, K. E. (2001). The ten keys to quality assurance and assessment in online learning. *Journal of Interactive Instruction Development, 13*(3), 3-18.

Anderson, T., & Dron, J. (2012). Learning technology through three generations of technology enhanced distance education pedagogy. *European Journal of Open, Distance and E-Learning, 2*, 1-14. Retrieved from http://www.eurodl.org/materials/contrib/2012/Anderson_Dron.pdf

Arbaugh, J. B., Cleveland-Innes, M., Diaz, S. R., Garrison, D. R., Ice, P., Richardson, J. C., & Swan, K. P. (2008). Developing a community of inquiry instrument: Testing a measure of the community of inquiry framework using a multi-institutional sample. *The Internet and Higher Education, 11*(3), 133-136. http://dx.doi.org.prox.lib.ncsu.edu/10.1016/j.iheduc.2008.06.003

Archer, W. (2010). Beyond online discussions: Extending the community of inquiry framework to entire courses. *Internet and Higher Education, 13*(1-2), 69. http://dx.doi.org.prox.lib.ncsu.edu/10.1016/j.iheduc.2009.10.005

Archibald, D. (2010). Fostering the development of cognitive presence: Initial findings using the community of inquiry survey instrument. *Internet and Higher Education, 13*(1-2), 73-74. http://dx.doi.org.prox.lib.ncsu.edu/10.1016/j.iheduc.2009.10.001

Arinto, P. B. (2013). A framework for developing competencies in open and distance learning. *International Review of Research in Open and Distance Learning, 14*(1), 167-185. Retrieved from http://www.eric.ed.gov.prox.lib.ncsu.edu/contentdelivery/servlet/ERICServlet?accno=EJ1008083

Bailey, C. J., & Card, K. A. (2009). Effective pedagogical practices for online teaching: Perception of experienced instructors. *Internet and Higher Education, 12*(3-4), 152-

155. http://dx.doi.org/10.1016/j.iheduc.2009.08.002

Bangert, A. W. (2009). Building a validity argument for the community of inquiry survey instrument. *Internet and Higher Education, 12*(2), 104-111. http://dx.doi.org/10.1016/j.iheduc.2009.06.001

Bangert, A. W. (2004). The seven principles of good practice: A framework for evaluating online teaching. *Internet and Higher Education, 7*(3), 217-232. http://dx.doi.org/10.1016/j.iheduc.2004.06.003

Bland, J. M., & Altman, D. G. (1997). Cronbach's alpha. *British Medical Journal, 314*(7080), 572.

Boling, E. C., Hough, M., Krinsky, H., Saleem, H., & Stevens, M. (2012). Cutting the distance in distance education: Perspectives on what promotes positive, online learning experiences. *The Internet and Higher Education, 15*(2), 118-126. http://dx.doi.org.prox.lib.ncsu.edu/10.1016/j.iheduc.2011.11.006

Bolinger, I., & Inan, F. (2012). Development and Validation of the Online Student Connectedness Survey (OSCS). *International Review of Research in Open and Distance Learning*, *13*(3), 41–65.

Borup, J., West, R. E., & Graham, C. R. (2012). Improving online social presence through asynchronous video. *The Internet and Higher Education, 15*(3), 195-203. http://dx.doi.org.prox.lib.ncsu.edu/10.1016/j.iheduc.2011.11.001

Brew, L. S. (2008). The role of student feedback in evaluating and revising a blended learning course. *Internet and Higher Education*, 11, 58−105. http://dx.doi.org.prox.lib.ncsu.edu/10.1016/j.iheduc.2008.06.002

Carr, M. (2014). The online university classroom: One perspective for effective student engagement and teaching in an online environment. *Journal of Effective Teaching, 14*(1), 99-110. Retrieved from http://www.eric.ed.gov.prox.lib.ncsu.edu/contentdelivery/servlet/ERICServlet?accno=EJ1060450

Chickering, A. W., Gamson, Z. F., & American Association for, H. E. (1987). Seven principles for good practice in undergraduate education. *AAHE Bulletin*, 3-7. Retrieved from http://proxying.lib.ncsu.edu/index.php?url=http://search.ebscohost.com.prox.lib.ncsu.edu/login.aspx?direct=true&db=eric&AN=ED282491&site=ehost-live&scope=site

Creswell, J. W. (2013). *Qualitative inquiry & research design: Choosing among five approaches*. Thousand Oaks, CA: Sage.

Creswell, J. & Clark, V. (2007). *Designing and conducting mixed methods research*. (1st ed). Thousand Oaks, CA: Sage.

Creswell, J. & Clark, V. (2011). *Designing and conducting mixed methods research*. (2nd ed). Thousand Oaks, CA: Sage.

Cronbach, L. J. (1971). Test validation. In R. L. Thorndike (Ed.), Educational measurement (pp. 443–507). (2nd ed.). Washington, DC: American Council on Education.

DeCuir-Gunby, J. T., & Schutz, P. (in press). Developing a mixed methods proposal: A practical guide for beginning researchers. Thousand Oaks, CA: Sage.

Dewey, J., 1859-1952. (1910). *How we think*. Boston, MA: Heath.

Diaz, S. R., Swan, K., Ice, P., & Kupczynski, L. (2010). Student ratings of the importance of survey items, multiplicative factor analysis, and the validity of the community of inquiry survey. *Internet and Higher Education, 13*(1-2), 22-30. http://dx.doi.org/10.1016/j.iheduc.2009.11.004

Dinno, A. 2015. Nonparametric pairwise multiple comparisons in independent groups using Dunn's test. *Stata Journal* 15, 292-300. Retrieved from http://pdxscholar.library.pdx.edu/cgi/viewcontent.cgi?article=1043&context=commhealth_fac

Dringus, L. P., Snyder, M. M., & Terrell, S. R. (2010). Facilitating discourse and enhancing teaching presence: Using mini audio presentations in online forums. *The Internet and Higher Education, 13*(1–2), 75-77. http://dx.doi.org.prox.lib.ncsu.edu/10.1016/j.iheduc.2009.11.001

Dunlap, J. C., Dobrovolny, J., & Young, D. (2008). Preparing e-learning designers using Kolb's model of experiential learning. *Innovate: Journal of Online Education, 4*(4) Retrieved from http://www.innovateonline.info/index.php?view=article&id=490

Dunlap, J. C., & Lowenthal, P. R. (2009). Tweeting the night away: Using Twitter to enhance social presence. *Journal of Information Systems Education, 20*(2), 129-135. Retrieved from http://www.jise.appstate.edu/index.htm

Dunlap, J. C., Sobel, D., & Sands, D. I. (2007). Designing for deep and meaningful student-to-content interactions. *TechTrends: Linking Research & Practice to Improve Learning*, *51*(4), 20-31. http://dx.doi.org.prox.lib.ncsu.edu/10.1007/s11528-007-0052-6

Garrison, D. R. (2007). Online community of inquiry review: Social, cognitive, and teaching presence issues. *Journal of Asynchronous Learning Networks, 11*(1), 61-72. Retrieved from http://sloanconsortium.org/publications/jaln_main

Garrison, D. R., Anderson, T., & Archer, W. (2000). Critical inquiry in a text-based environment: Computer conferencing in higher education. *The Internet and Higher Education, 2*, 87–105. doi:10.1016/S1096-7516(00)00016-6

Garrison, D. R., Anderson, T., & Archer, W. (2001). Critical thinking, cognitive presence, and computer conferencing in distance education. *American Journal of Distance Education, 15*(1), 7-23

Garrison, D. R., Anderson, T., & Archer, W. (2010). The first decade of the community of inquiry framework: A retrospective. *The Internet and Higher Education, 13*(1–2), 5-9. http://dx.doi.org.prox.lib.ncsu.edu/10.1016/j.iheduc.2009.10.003

Garrison, D. R., & Arbaugh, J. B. (2007). Researching the community of inquiry framework: Review, issues, and future directions. *The Internet and Higher Education, 10*(3), 157–172. http://dx.doi.org.prox.lib.ncsu.edu/10.1016/j.iheduc.2007.04.001

Garrison, D. R., & Cleveland-Innes, M. (2005). Facilitating cognitive presence in online learning: Interaction is not enough. *American Journal of Distance Education, 19*(3), 133-148. doi:10.1207/s15389286ajde1903_2

Garrison, D. R., Cleveland-Innes, M., Koole, M., & Kappelman, J. (2006). Revisiting methodological issues in transcript analysis: Negotiated coding and reliability. *The Internet and Higher Education, 9*(1), 1-8. http://dx.doi.org.prox.lib.ncsu.edu/10.1016/j.iheduc.2005.11.001

Guasch, T., Alvarez, I., & Espasa, A. (2010). University teacher competencies in a virtual Teaching/Learning environment: Analysis of a teacher training experience. *Teaching and Teacher Education: An International Journal of Research and Studies, 26*(2), 199-206. http://dx.doi.org.prox.lib.ncsu.edu/10.1016/j.tate.2009.02.018

Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. *Handbook of qualitative research*, *2*(105-117) Retrieved from http://steinhardtapps.es.its.nyu.edu/create/courses/3311/reading/10-guba_lincoln_94.pdf

Holly, C., Legg, T. J., Mueller, D., & Adelman, D. S. (2008). Online teaching: Challenges for a new faculty role. *Journal of Professional Nursing, 24*(4), 254-258. doi:10.1016/j.profnurs.2007.07.003

Horvitz, B., Beach, A., Anderson, M., & Xia, J. (2015). Examination of faculty self-efficacy related to online teaching. *Innovative Higher Education, 40*(4), 305-316. doi:10.1007/s10755-014-9316-1

Jamieson, S. (2004). Likert scales: How to (ab)use them. *Medical Education, 38*(12), 1217-1218. doi:10.1111/j.1365-2929.2004.02012.x

Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2007). Toward a definition of mixed methods research. *Journal of Mixed Methods Research*, *1*(2), 112– 133. doi: 10.1177/1558689806298224

Johnson, R. B., & Onwuegbuzie, A. J. (2004). Mixed methods research: A research paradigm whose time has come. *Educational Researcher, 33*(7), 14-26. Retrieved from http://www.jstor.org.prox.lib.ncsu.edu/stable/3700093

King, A. (1993). From sage on the stage to guide on the side. *College Teaching*, 41(1), 30−35. Retrieved from http://www.jstor.org.prox.lib.ncsu.edu/stable/27558571

Kolb, D. A., 1939-. (1984). *Experiential learning : Experience as the source of learning and development*. Englewood Cliffs, N.J.: Prentice-Hall.

Kovanović, V., Gašević, D., Joksimović, S., Hatala, M., & Adesope, O. (2015). Analytics of communities of inquiry: Effects of learning technology use on cognitive presence in asynchronous online discussions. *The Internet and Higher Education, 27*, 74-89. doi:10.1016/j.iheduc.2015.06.002

Kozan, K., & Richardson, J. C. (2014). New exploratory and confirmatory factor analysis insights into the community of inquiry survey. *Internet & Higher Education, 23*, 39-47. doi:10.1016/j.iheduc.2014.06.002

Lapan, S. D., Quartaroli, M. T., & Riemer, F. J. (2015). *Qualitative research : An introduction to methods and designs* [Ebook]. San Francisco, CA: Jossey-Bass.

Liaw, S. (2008). Investigating students' perceived satisfaction, behavioral intention, and effectiveness of e-learning: A case study of the blackboard system. *Computers & Education, 51*(2), 864-873. doi:10.1016/j.compedu.2007.09.005

Lim, J., & Richardson, J. C. (2016). Exploring the effects of students' social networking experience on social presence and perceptions of using SNSs for educational purposes. *The Internet and Higher Education, 29*, 31-39. http://dx.doi.org.prox.lib.ncsu.edu/10.1016/j.iheduc.2015.12.001

Lincoln, Y., & Guba, E. (2000). Paradigmatic controversies, contradictions, and emerging confluences. In N. Denzin & Y. Lincoln (Eds.), *Handbook of qualitative research* (2nd ed., pp. 163-189). Thousand Oaks, CA: Sage.

Lipman, M. (1991). *Thinking in education*. New York, NY: Cambridge University Press.

Lincoln, Y., & Guba, E. (1985), *Naturalistic inquiry*. Beverly Hills, California: Sage Publications.

Lowenthal, P. R., & Dunlap, J. C. (2010). From pixel on a screen to real person in your students' lives: Establishing social presence using digital storytelling. *Internet and Higher Education, 13*(1-2), 70-72. http://dx.doi.org/10.1016/j.iheduc.2009.10.004

Maxwell, J. A., 1941-. (1996). *Qualitative research design: An interactive approach*. Thousand Oaks, Calif.: Sage Publications. Retrieved from http://www2.lib.ncsu.edu/catalog/record/DUKE002120308

Moller, L., Foshay, W., & Huett, J. (2008). Implications for instructional design on the potential of the web. *Techtrends, 52*(3), 70-75. doi:10.1007/s11528-008-0179-0

Moore, M. G. (1993). Theory of transactional distance. *Theoretical principles of distance education*, *1*, 22-38.

Morgan, D. L. (2007). Paradigms lost and pragmatism regained: Methodological implications of combining qualitative and quantitative methods. *Journal of Mixed Methods Research, 1*(1), 48-76. doi:10.1177/2345678906292462

Munoz, L. R., Pellegrini-Lafont, C., & Cramer, E. (2014). Using social media in teacher preparation programs: Twitter as a means to create social presence. *Penn GSE*

*Perspectives on Urban Education, 11*(2), 57-69. Retrieved from http://urbanedjournal.org

Munoz Carril, P. C., Gonzalez Sanmamed, M., & Hernandez Selles, N. (2013). Pedagogical roles and competencies of university teachers practicing in the E-learning environment. *International Review of Research in Open and Distance Learning, 14*(3), 462-487. Retrieved from Retrieved from http://proxying.lib.ncsu.edu/index.php?url=http://search.proquest.com.prox.lib.ncsu.edu/docview/1634343340?accountid=12725

Palloff, R. M., & Pratt, K. (2005). Collaborating online: Learning together in community San Francisco, CA: Jossey-Bass.

Patton, M. Q. (2014). *Qualitative research & evaluation methods: Integrating theory and practice* (4th ed.). Thousand Oaks, CA: Sage.

Picciano, A. G. (2002). Beyond student perceptions: Issues of interaction, presence, and performance in an online course. *Journal of Asynchronous Learning Networks, 6*(1), 21-40. Retrieved from: http://sloanconsortium.org/

Richardson, J. C., Koehler, A. A., Besser, E. D., Caskurlu, S., Lim, J., & Mueller, C. M. (2015). Conceptualizing and investigating instructor presence in online learning environments. *International Review of Research in Open and Distributed Learning, 16*(3), 256-297. Retrieved from http://www.irrodl.org/index.php/irrodl/article/view/2123

Rourke, L., Anderson, T., Garrison, D. R., & Archer, W. (1999). Assessing social presence in asynchronous text-based computer conferencing. *Journal of Distance Education,*

*14*(2), 50-71. doi: 10.1016/j.iheduc.2006.06.008

Rovai, A., & Wighting, M. J. (2005). Feelings of alienation and community among higher education students in a virtual classroom. *The Internet and Higher Education*, *8*(2), 97–110. doi:10.1016/j. iheduc.2005.03.001

Saldaña, J. (2012). *The coding manual for qualitative researchers*. Los Angeles, California: Sage.

Salkind, N. J. (2011). *Statistics for people who (think they) hate statistics*. Los Angeles: Sage.

Schreier, M. (2012). *Qualitative content analysis in practice*. London: Sage.

Shea, P., & Bidjerano, T. (2009). Community of inquiry as a theoretical framework to foster "epistemic engagement" and "cognitive presence" in online education. *Computers & Education, 52*(3), 543-553. doi: 10.1016/j.compedu.2008.10.007

Shea, P. J., Fredericksen, E. E., Pickett, A. M., & Pelz, W. E. (2003). A preliminary investigation of "teaching presence" in the SUNY learning network. *Elements of Quality Online Education: Practice and Direction, 4*, 279-312

Shea, P., Hayes, S., & Vickers, J. (2010). Online instructional effort measured through the lens of teaching presence in the community of inquiry framework: A re-examination of measures and approach. *International Review of Research in Open and Distance Learning, 11*(3), 127-154. http://dx.doi.org.prox.lib.ncsu.edu/10.1016/j.compedu.2008.10.007

Shea, P., Hayes, S., Vickers, J., Gozza-Cohen, M., Uzuner, S., Mehta, R., … Rangan, P. (2010). A re-examination of the community of inquiry framework: Social network

and content analysis. *The Internet and Higher Education, 13*(1–2), 10–21. doi:10.1016/j.iheduc.2009.11.002

Snyder, M. M. (2009). Instructional-design theory to guide the creation of online learning communities for adults. *TechTrends: Linking Research and Practice to Improve Learning, 53*(1), 48-56. http://dx.doi.org/10.1007/s11528-009-0237-2

Stavredes, T, (2014). *A guide to online course design : Strategies for student success*. San Francisco, CA: Jossey-Bass.

Stodel, E. J., Thompson, T. L., & MacDonald, C. J. (2006). Learners' perspectives on what is missing from online learning: Interpretations through the community of inquiry framework. *International Review of Research in Open and Distance Learning, 7*(3), 1-24.

Straumsheim C, Jaschik, S., Lederman, D., & by Gallup, C. (2015). *Faculty attitudes on technology*. Washington, DC: Inside Higher Ed & Gallup.

Svinicki, M. D., & Dixon, N. M. (1987). The Kolb model modified for classroom activities. *College Teaching, 35*(4), 141-146. Retrieved from http://www.jstor.org.prox.lib.ncsu.edu/stable/27558239

Swan, K. (2002). Building learning communities in online courses: The importance of interaction. *Education, Communication & Information, 2*(1), 23-49. doi:10.1080/1463631022000005016

Swan, K., Shea, P., Richardson, J., Ice, P., Garrison, D., Cleveland-Innes, M., & Arbaugh, J. (2008). Validating a measurement tool of presence in online communities of inquiry. *E-Mentor, 2*(24), 1-12.

Trello, S. (2007). An analysis of student persistence in online education. *International Journal of Information and Communication Technology Education*, *3*(3), 47–62. doi:10.4018/jicte.2007070105

Tourangeau, R., Conrad, F. G., & Couper, M. P. (2013). *The science of web surveys*. New York: Oxford University Press.

Vygotsky, L. S. (1978). *Mind in society*. Cambridge, MA: Harvard University Press.

Young, D. S., Johnson, G. F., Chow, M., & Rosenberger, J. L. (2015). The challenges in developing an online applied statistics program: Lessons learned at Penn State University. *American Statistician, 69*(3), 213-220. doi:10.1080/00031305.2015.1038583

# APPENDICES

## Appendix A: CoI Codebook for this Study

| Code | Indicator | Example |
|---|---|---|
| **CP Cognitive Presence** | The learning and inquiry process | |
| **CP Triggering Event** | Sense of puzzlement | Introduction of a problem/issue for further inquiry<br><br>"North Carolina's recent law prohibits individuals from using a bathroom that does not match the sexual designation found on a birth certificate; essentially, this law prevents transgender individuals from using a bathroom that matches their gender identity" |
| **CP Exploration** | Information exchange | "I like Angela stand conflicted on this issue. But I will say that I lean more towards the decision made by the Charlotte City Council members. Like Beth pointed out one of the biggest tactics that legislators use to deny members of the lbgt community is fear mongering" |
| **CP Integration** | Connecting ideas | "In my opinion, US society has made tremendous progress with regards to the treatment of the LGBT community in an assortment of capacities.<br>With respect to laws, we have seen great progress made under the Supreme Court for same-sex couples. There are two noteworthy cases that are particularly relevant to discuss: United States v. Windsor and Obergefell v. Hodges." |
| **CP Resolution** | Applying new ideas | "As exemplified in the article about Jacob Tobia, many LGBT youth suffer from rejection from their parents and peers and are even faced with the challenge of not being able to find shelter because of the negative stigma associated with being LGBT. In my opinion, this will be the last thing to change in the US culture. Legislation can change very quickly and overtly, but changing personal sentiment is a much slower process." |
| **SP Social Presence** | Communicate purposefully, projecting individual personality | |
| **SP Affective Exp.** | Self projection/ Expressing emotion | "I enjoy anything outdoors, even on a dreary day like today." emoticons |
| **SP Open Comm.** | Learning climate/ risk- free expression | "I honestly have mixed feelings about abortions but this law is just non sense. While I do not fully support random abortions for no reason, I don't believe that the government has |

| | | |
|---|---|---|
| | | any right to ask you why you want an abortion, and then deny it to you based on your answer." |
| **SP Group Cohesion** | Group identity/collaboration | "Hey guys so I figured I would start the thread for getting everything set up. I guess we could give an introduction about ourselves and then start making our lists once that's set. I'm also free to meet to discuss about the project or we could handle everything in a Google hangout." |
| **TP Teaching Presence** | The design, facilitation and direction of cognitive and social processes | |
| **TP Course Design & Organization** | Design methods<br>Setting Curriculum<br>Using medium effectively<br>Establishing parameters<br>Establishing netiquette | Varied content formats<br>Choosing relevant readings, videos and case studies<br>Teacher incorporates different visual layouts<br>Teacher reminds students of participation criteria<br>Course orientation outlines best online communication practices |
| **TP Direct Instruction** | Present content/questions<br>Focus discussion<br>Summarize discussion<br>Confirm understanding<br>Diagnose misconceptions<br>Inject knowledge | Weekly book posted with requirements and content<br>Reminding of expectation<br>Pulling in comments and synthesizing on discussion<br>Discussion responses with confirmation<br>Reminding student of criteria<br>Sharing articles that support a student's post |
| **TP Facilitating Discourse** | ID areas of consensus/conflict<br>Seeking to reach consensus<br>Encouraging, reinforcing contributions, Setting climate, Assessing efficacy | Not viewed<br>Teacher synthesizes student responses<br>Teacher expands on student participation<br>Teacher moderates student posts with encouragement |

Adapted from Garrison, et. al., 2006

**Appendix B: Community of Inquiry Survey Instrument (draft v14)**

***Teaching Presence***
*Design & Organization*

1. The instructor clearly communicated important course topics.
2. The instructor clearly communicated important course goals.
3. The instructor provided clear instructions on how to participate in course learning activities.
4. The instructor clearly communicated important due dates/time frames for learning activities.

*Facilitation*

5. The instructor was helpful in identifying areas of agreement and disagreement on course topics that helped me to learn.
6. The instructor was helpful in guiding the class towards understanding course topics in a way that helped me clarify my thinking.
7. The instructor helped to keep course participants engaged and participating in productive dialogue.
8. The instructor helped keep the course participants on task in a way that helped me to learn.
9. The instructor encouraged course participants to explore new concepts in this course.
10. Instructor actions reinforced the development of a sense of community among course participants.

*Direct Instruction*

11. The instructor helped to focus discussion on relevant issues in a way that helped me to learn.
12. The instructor provided feedback that helped me understand my strengths and weaknesses.
13. The instructor provided feedback in a timely fashion.

***Social Presence***
*Affective expression*

14. Getting to know other course participants gave me a sense of belonging in the course.
15. I was able to form distinct impressions of some course participants.
16. Online or web-based communication is an excellent medium for social interaction.

*Open communication*

17. I felt comfortable conversing through the online medium.
18. I felt comfortable participating in the course discussions.
19. I felt comfortable interacting with other course participants.

*Group cohesion*

20. I felt comfortable disagreeing with other course participants while still maintaining a sense of trust.
21. I felt that my point of view was acknowledged by other course participants.
22. Online discussions help me to develop a sense of collaboration.

***Cognitive Presence***

*Triggering event*

23. Problems posed increased my interest in course issues.
24. Course activities piqued my curiosity.
25. I felt motivated to explore content related questions.

*Exploration*

26. I utilized a variety of information sources to explore problems posed in this course.
27. Brainstorming and finding relevant information helped me resolve content related questions.
28. Online discussions were valuable in helping me appreciate different perspectives.

*Integration*

29. Combining new information helped me answer questions raised in course activities.
30. Learning activities helped me construct explanations/solutions.
31. Reflection on course content and discussions helped me understand fundamental concepts in this class.

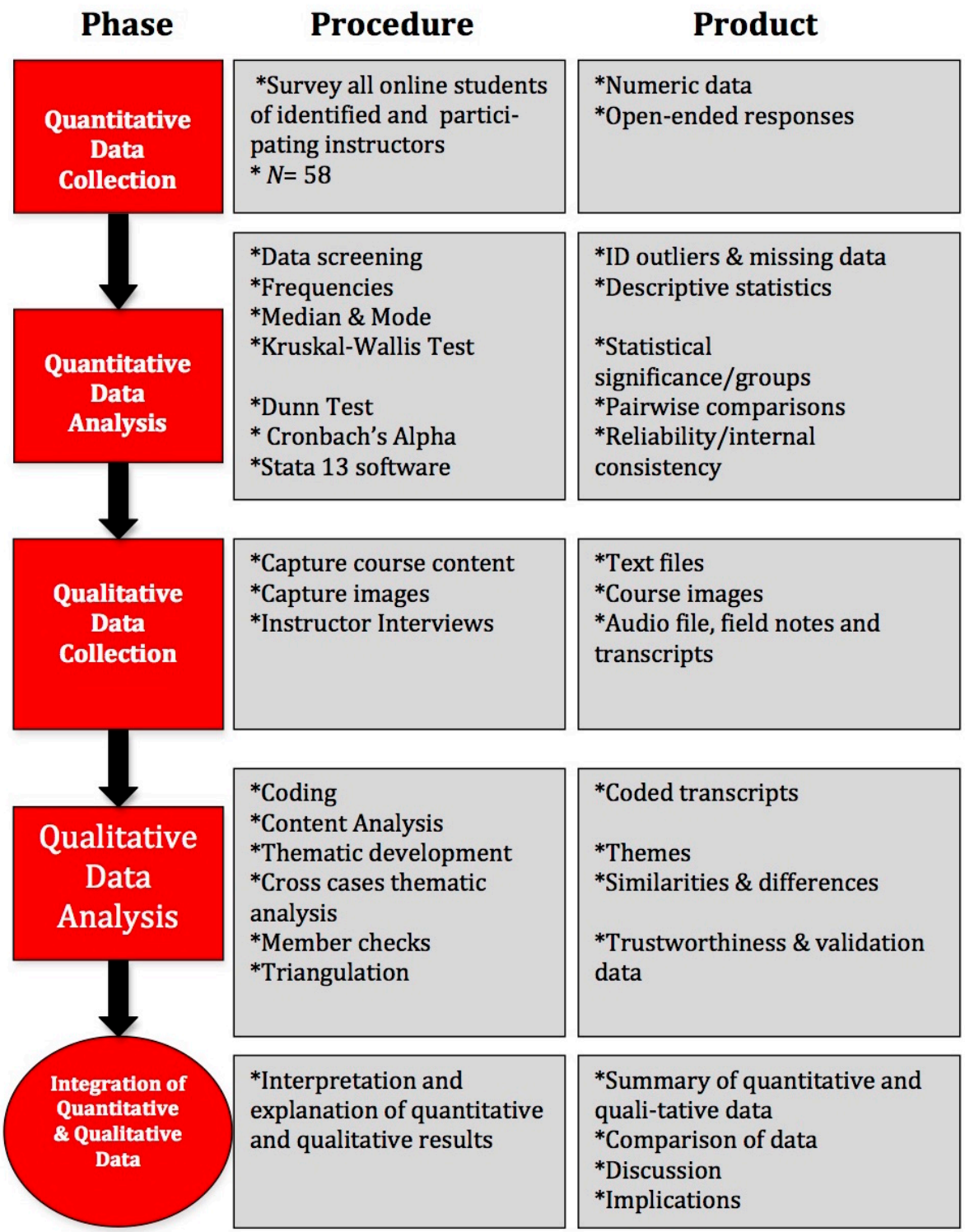
*Resolution*

32. I can describe ways to test and apply the knowledge created in this course.
33. I have developed solutions to course problems that can be applied in practice.
34. I can apply the knowledge created in this course to my work or other non-class related activities.

<u>5 point Likert-type scale</u>

1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree

**APPENDIX C: Mixed Methods Diagram**



## Appendix D: Survey Administered to Course Participants

Course A or Course B - Community of Inquiry Survey

Q1 Informed Consent What is the purpose of this survey?The purpose of this research project is to collect data for the researcher's dissertation.What will happen if you take part in the project?You will contribute to this project by: • Completing a confidential survey about Course A or B Risks & BenefitsThere will be minimal risk associated with your participation in the project. The knowledge the doctoral student gains from your experiences will add to the knowledge base of educational research. ConfidentialityThe information collected will be kept strictly confidential, with your name removed from survey responses. De-identified data may be shared with the course instructor and faculty in the program. Data will be stored securely in the researcher's university affiliated Google Drive account, with two step verification enabled. No reference will be made to your name either in oral or written reports and transcripts that could link you individually to the data. A master list will be kept that provides the researcher with a link to your responses and identity. The master list will be kept separate form the data collected.What if you have questions about this project or your rights as a participant?If you have questions at any time, or if you feel you have not been treated according to the descriptions in this form, or your rights as a participant have been violated during the project, you may contact the researcher, Melissa Stopa at 919.593.1128 or the faculty sponsor, Dr. Ellen Vasu, Associate Dean for Academic Affairs, Poe Hall 204 D or 919.515.5908.

- ❍ Agree (1)
- ❍ Disagree (2)

If Disagree Is Selected, Then Skip To End of Survey

Q24 In the Spring of 2016, which course did you take with Instructor One?

- ❍ Course A - Introduction to Public Leadership (1)
- ❍ Course B - Diversity and Leadership in the Public Sector (2)
- ❍ I did not take either class in Spring of 2016 (3)

If I did not take either class... Is Selected, Then Skip To End of Survey

Q2 What is your gender?

- ❍ Female (1)
- ❍ Male (2)
- ❍ Identify as (3) _____

Q23 In the Spring 2016 semester, what year or level were you considered?

- ❍ Senior (1)
- ❍ Junior (2)
- ❍ Sophomore (3)
- ❍ Freshman (4)
- ❍ Other (5) _____

Q22 What is your major? Select all that apply

- ❑ Agri Business Management: Agricultural Business Management (10)
- ❑ Agriculture & Life Sciences: Agri Business Management (15)
- ❑ Agriculture & Life Sciences: Animal Science (8)
- ❑ Agriculture & Life Sciences: Biochemistry (12)
- ❑ Agriculture & Life Sciences: Biological Engineering (9)
- ❑ Design: Environmental Design in Architecture (4)
- ❑ Education: Mathematics Education (5)
- ❑ Engineering- Civil Engineering (3)
- ❑ Engineering: Electrical Engineering (14)
- ❑ Engineering: Industrial Engineering (6)
- ❑ Engineering: not declared (13)
- ❑ Humanities & Social Sciences: Communications (18)
- ❑ Humanities & Social Sciences: English (19)
- ❑ Humanities & Social Sciences: Leadership in the Public Sector (1)
- ❑ Humanities & Social Sciences: Political Science (11)
- ❑ Humanities & Social Sciences: Religious Studies (20)
- ❑ Management: Accounting (21)
- ❑ Management: Economics (22)
- ❑ Military Studies: Aerospace (16)
- ❑ Management: Undeclared (23)
- ❑ Natural Resources: Sports Management (24)
- ❑ Natural Resources: Sustainable Materials & Tech (7)
- ❑ Non Degree Studies (25)
- ❑ Sciences: Biological Sciences (2)
- ❑ University College: Exploratory Studies (26)
- ❑ Other (17) _____

Q3 What is your age?

- ❍ 18-22 (1)
- ❍ 23-25 (2)
- ❍ 25-34 (3)
- ❍ 35-45 (4)
- ❍ 45-54 (5)
- ❍ 55+ (6)

Q4 How many online courses have you taken?

- ❍ This is my first online course (1)
- ❍ 2 online courses (2)
- ❍ 3 online courses (3)
- ❍ 4 online course (4)
- ❍ 5 or more online courses (5)

Q5 Do you work at a paid job?

- ❑ Yes, full-time 40 or more hours per week (1)
- ❑ Yes part-time 29 hours or less per week (2)
- ❑ I typically work _____ hours per week (3) _____
- ❑ No (4)

Q25 Please answer the following questions about your experiences in Course A or Course B with instructor One in the spring of 2016.

Q6 Teaching Presence Course Design & Organization

| | Strongly Disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |
|---|---|---|---|---|---|
| The instructor clearly communicated important course topics. (1) | ❍ | ❍ | ❍ | ❍ | ❍ |
| The instructor clearly communicated important course goals. (2) | ❍ | ❍ | ❍ | ❍ | ❍ |
| The instructor clearly communicated important due dates/time frames for learning activities. (3) | ❍ | ❍ | ❍ | ❍ | ❍ |
| The instructor provided clear instructions on how to participate in course learning activities. (4) | ❍ | ❍ | ❍ | ❍ | ❍ |

Q7 Teaching Presence Course Facilitation

| | Strongly Disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |
|---|---|---|---|---|---|
| The instructor was helpful in identifying areas of agreement and disagreement on course topics that helped me to learn (1) | ❍ | ❍ | ❍ | ❍ | ❍ |
| The instructor was helpful in guiding the class towards understanding course topics in a way that helped me clarify my thinking. (2) | ❍ | ❍ | ❍ | ❍ | ❍ |
| The instructor helped to keep course participants engaged and participating in productive dialogue. (3) | ❍ | ❍ | ❍ | ❍ | ❍ |
| The instructor helped keep the course participants on task in a way that helped me to learn. (4) | ❍ | ❍ | ❍ | ❍ | ❍ |
| The instructor encouraged course participants to explore new concepts in this course (5) | ❍ | ❍ | ❍ | ❍ | ❍ |
| Instructor actions reinforced the development of a sense of community among course participants. (6) | ❍ | ❍ | ❍ | ❍ | ❍ |

Q8 Teaching Presence Direct Instruction

| | Strongly Disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |
|---|---|---|---|---|---|
| The instructor helped to focus discussion on relevant issues in a way that helped me to learn. (1) | ❍ | ❍ | ❍ | ❍ | ❍ |
| The instructor provided feedback that helped me understand my strengths and weaknesses. (2) | ❍ | ❍ | ❍ | ❍ | ❍ |
| The instructor provided feedback in a timely fashion. (3) | ❍ | ❍ | ❍ | ❍ | ❍ |

Q9 Social Presence Affective Expression

| | Strongly Disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |
|---|---|---|---|---|---|
| Getting to know other course participants gave me a sense of belonging in the course. (1) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I was able to form distinct impressions of some course participants. (2) | ❍ | ❍ | ❍ | ❍ | ❍ |
| Online or web-based communication is an excellent medium for social interaction. (3) | ❍ | ❍ | ❍ | ❍ | ❍ |

Q10 Social Presence Open Communication

| | Strongly Disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |
|---|---|---|---|---|---|
| I felt comfortable conversing through the online medium. (1) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I felt comfortable participating in the course discussions. (2) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I felt comfortable interacting with other course participants. (3) | ❍ | ❍ | ❍ | ❍ | ❍ |

Q11 Social Presence Group Cohesion

| | Strongly Disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |
|---|---|---|---|---|---|
| I felt comfortable disagreeing with other course participants while still maintaining a sense of trust. (1) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I felt that my point of view was acknowledged by other course participants. (2) | ❍ | ❍ | ❍ | ❍ | ❍ |
| Online discussions help me to develop a sense of collaboration. (3) | ❍ | ❍ | ❍ | ❍ | ❍ |

Q12 Cognitive Presence Triggering Event

| | Strongly Disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |
|---|---|---|---|---|---|
| Problems posed increased my interest in course issues. (1) | ❍ | ❍ | ❍ | ❍ | ❍ |
| Course activities piqued my curiosity. (2) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I felt motivated to explore content related questions. (3) | ❍ | ❍ | ❍ | ❍ | ❍ |

Q13 Cognitive Presence Exploration

| | Strongly Disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |
|---|---|---|---|---|---|
| I utilized a variety of information sources to explore problems posed in this course. (1) | ❍ | ❍ | ❍ | ❍ | ❍ |
| Brainstorming and finding relevant information helped me resolve content related questions. (2) | ❍ | ❍ | ❍ | ❍ | ❍ |
| Online discussions were valuable in helping me appreciate different perspectives. (3) | ❍ | ❍ | ❍ | ❍ | ❍ |

Q14 Cognitive Presence Integration

| | Strongly Disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |
|---|---|---|---|---|---|
| Combining new information helped me answer questions raised in course activities. (1) | ❍ | ❍ | ❍ | ❍ | ❍ |
| Learning activities helped me construct explanations/solutions. (2) | ❍ | ❍ | ❍ | ❍ | ❍ |
| Reflection on course content and discussions helped me understand fundamental concepts in this class. (3) | ❍ | ❍ | ❍ | ❍ | ❍ |

Q15 Cognitive Presence Resolution

| | Strongly Disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |
|---|---|---|---|---|---|
| I can describe ways to test and apply the knowledge created in this course. (1) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I have developed solutions to course problems that can be applied in practice. (2) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I can apply the knowledge created in this course to my work or other non-class related activities. (3) | ❍ | ❍ | ❍ | ❍ | ❍ |

Q16 Please describe your overall impression of this course. Q17 What would you change about this course?

Q18 What other comments or thoughts do you have about this course?

Q20 In order to receive your gift card, please provide your email address

Q23 Thank you for your participation. You may be contacted to participate in an interview. Your Amazon gift card will arrive within in the next 2 weeks.

Course C - Community of Inquiry Survey

Q1 Informed Consent What is the purpose of this survey?The purpose of this research project is to collect data for the researcher's dissertation.What will happen if you take part in the project? You will contribute to this project by: • Completing a confidential survey about Course C Risks & Benefits There will be minimal risk associated with your participation in the project. The knowledge the doctoral student gains from your experiences will add to the knowledge base of educational research. Confidentiality The information collected will be kept strictly confidential, with your name removed from survey responses. De-identified data may be shared with the course instructor and faculty in the program. Data will be stored securely in the researcher's university affiliated Google Drive account, with two step verification enabled. No reference will be made to your name either in oral or written reports and transcripts that could link you individually to the data. A master list will be kept that provides the researcher with a link to your responses and identity. The master list will be kept separate form the data collected.What if you have questions about this project or your rights as a participant?If you have questions at any time, or if you feel you have not been treated according to the descriptions in this form, or your rights as a participant have been violated during the project, you may contact the researcher, Melissa Stopa at 919.593.1128 or the faculty sponsor, Dr. Ellen Vasu, Associate Dean for Academic Affairs, Poe Hall 204 D or 919.515.5908.

- ❍ Agree (1)
- ❍ Disagree (2)

If Disagree Is Selected, Then Skip To End of Survey

Q2 What is your gender?

- ❍ Female (1)
- ❍ Male (2)
- ❍ Identify as (3) _____

Q23 In the Spring 2016 semester, what year or level were you considered?

- ❍ Senior (1)
- ❍ Junior (2)
- ❍ Sophomore (3)
- ❍ Freshman (4)
- ❍ Other (5) _____

Q22 What is your major? Select all that apply

- ❑ Agriculture & Life Sciences: Extension Education (15)
- ❑ Engineering- Chemical Engineering (3)
- ❑ Engineering: Construction Engineering (14)
- ❑ Engineering: not declared (13)
- ❑ Humanities & Social Sciences: Criminology (1)
- ❑ Humanities & Social Sciences: International Studies (6)
- ❑ Humanities & Social Sciences: Political Science (11)
- ❑ Humanities & Social Sciences: Psychology (5)
- ❑ Humanities & Social Sciences: Science, Tech & Society (4)
- ❑ Management: Business Administration (7)
- ❑ Management: Economics (9)
- ❑ Sciences: Biological Sciences (2)
- ❑ University College: Environment Sciences (16)
- ❑ Other (17) _____

Q3 What is your age?

- ❍ 18-22 (1)
- ❍ 23-25 (2)
- ❍ 25-34 (3)
- ❍ 35-45 (4)
- ❍ 45-54 (5)
- ❍ 55+ (6)

Q4 How many online courses have you taken?

- ❍ This is my first online course (1)
- ❍ 2 online courses (2)
- ❍ 3 online courses (3)
- ❍ 4 online course (4)
- ❍ 5 or more online courses (5)

Q5 Do you work at a paid job?

- ❑ Yes, full-time 40 or more hours per week (1)
- ❑ Yes part-time 29 hours or less per week (2)
- ❑ I typically work _____ hours per week (3) _____
- ❑ No (4)

Q23 Answer the following questions about Course C with Instructor Two (Spring 2016)

Q6 Teaching Presence Course Design & Organization

| | Strongly Disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |
|---|---|---|---|---|---|
| The instructor clearly communicated important course topics. (1) | ❍ | ❍ | ❍ | ❍ | ❍ |
| The instructor clearly communicated important course goals. (2) | ❍ | ❍ | ❍ | ❍ | ❍ |
| The instructor clearly communicated important due dates/time frames for learning activities. (3) | ❍ | ❍ | ❍ | ❍ | ❍ |
| The instructor provided clear instructions on how to participate in course learning activities. (4) | ❍ | ❍ | ❍ | ❍ | ❍ |

Q7 Teaching Presence Course Facilitation

| | Strongly Disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |
|---|---|---|---|---|---|
| The instructor was helpful in identifying areas of agreement and disagreement on course topics that helped me to learn (1) | ❍ | ❍ | ❍ | ❍ | ❍ |
| The instructor was helpful in guiding the class towards understanding course topics in a way that helped me clarify my thinking. (2) | ❍ | ❍ | ❍ | ❍ | ❍ |
| The instructor helped to keep course participants engaged and participating in productive dialogue. (3) | ❍ | ❍ | ❍ | ❍ | ❍ |
| The instructor helped keep the course participants on task in a way that helped me to learn. (4) | ❍ | ❍ | ❍ | ❍ | ❍ |
| The instructor encouraged course participants to explore new concepts in this course (5) | ❍ | ❍ | ❍ | ❍ | ❍ |
| Instructor actions reinforced the development of a sense of community among course participants. (6) | ❍ | ❍ | ❍ | ❍ | ❍ |

Q8 Teaching Presence Direct Instruction

| | Strongly Disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |
|---|---|---|---|---|---|
| The instructor helped to focus discussion on relevant issues in a way that helped me to learn. (1) | ❍ | ❍ | ❍ | ❍ | ❍ |
| The instructor provided feedback that helped me understand my strengths and weaknesses. (2) | ❍ | ❍ | ❍ | ❍ | ❍ |
| The instructor provided feedback in a timely fashion. (3) | ❍ | ❍ | ❍ | ❍ | ❍ |

Q9 Social Presence Affective Expression

| | Strongly Disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |
|---|---|---|---|---|---|
| Getting to know other course participants gave me a sense of belonging in the course. (1) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I was able to form distinct impressions of some course participants. (2) | ❍ | ❍ | ❍ | ❍ | ❍ |
| Online or web-based communication is an excellent medium for social interaction. (3) | ❍ | ❍ | ❍ | ❍ | ❍ |

Q10 Social Presence Open Communication

| | Strongly Disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |
|---|---|---|---|---|---|
| I felt comfortable conversing through the online medium. (1) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I felt comfortable participating in the course discussions. (2) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I felt comfortable interacting with other course participants. (3) | ❍ | ❍ | ❍ | ❍ | ❍ |

Q11 Social Presence Group Cohesion

| | Strongly Disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |
|---|---|---|---|---|---|
| I felt comfortable disagreeing with other course participants while still maintaining a sense of trust. (1) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I felt that my point of view was acknowledged by other course participants. (2) | ❍ | ❍ | ❍ | ❍ | ❍ |
| Online discussions help me to develop a sense of collaboration. (3) | ❍ | ❍ | ❍ | ❍ | ❍ |

Q12 Cognitive Presence Triggering Event

| | Strongly Disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |
|---|---|---|---|---|---|
| Problems posed increased my interest in course issues. (1) | ❍ | ❍ | ❍ | ❍ | ❍ |
| Course activities piqued my curiosity. (2) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I felt motivated to explore content related questions. (3) | ❍ | ❍ | ❍ | ❍ | ❍ |

Q13 Cognitive Presence Exploration

| | Strongly Disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |
|---|---|---|---|---|---|
| I utilized a variety of information sources to explore problems posed in this course. (1) | ❍ | ❍ | ❍ | ❍ | ❍ |
| Brainstorming and finding relevant information helped me resolve content related questions. (2) | ❍ | ❍ | ❍ | ❍ | ❍ |
| Online discussions were valuable in helping me appreciate different perspectives. (3) | ❍ | ❍ | ❍ | ❍ | ❍ |

Q14 Cognitive Presence Integration

| | Strongly Disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |
|---|---|---|---|---|---|
| Combining new information helped me answer questions raised in course activities. (1) | ❍ | ❍ | ❍ | ❍ | ❍ |
| Learning activities helped me construct explanations/solutions. (2) | ❍ | ❍ | ❍ | ❍ | ❍ |
| Reflection on course content and discussions helped me understand fundamental concepts in this class. (3) | ❍ | ❍ | ❍ | ❍ | ❍ |

Q15 Cognitive Presence Resolution

| | Strongly Disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |
|---|---|---|---|---|---|
| I can describe ways to test and apply the knowledge created in this course. (1) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I have developed solutions to course problems that can be applied in practice. (2) | ❍ | ❍ | ❍ | ❍ | ❍ |
| I can apply the knowledge created in this course to my work or other non-class related activities. (3) | ❍ | ❍ | ❍ | ❍ | ❍ |

Q16 Please describe your overall impression of this course.

Q17 What would you change about this course?

Q18 What other comments or thoughts do you have about this course?

Q20 In order to receive your gift card, please provide your email address.

Q23 Thank you for your participation. You may be contacted to participate in an interview.

Your Amazon gift card will arrive within in the next 2 weeks.

## Appendix E: Complete Descriptive Statistics of Survey Respondents

| Participant Number | Course | Gender | Year | College | Age | Number of Online Courses | Average Hours worked at a paid job |
|---|---|---|---|---|---|---|---|
| 1 | A | Female | Junior | Humanities & Social Sciences | 18-22 | 5+ | 29 |
| 2 | B | Female | Senior | Humanities & Social Sciences | 36-45 | 5+ | 40 |
| 3 | B | Female | Senior | Sciences | 18-22 | 5+ | 29 |
| 4 | B | Male | Senior | Engineering | 23-25 | 5+ | 40 |
| 5 | C | Female | Freshman | Humanities & Social Sciences | 18-22 | 3 | 29 |
| 6 | C | Female | Junior | Engineering | 18-22 | 3 | 12 |
| 7 | B | Male | Senior | Humanities & Social Sciences | 18-22 | 5+ | 40 |
| 8 | C | Female | Junior | Humanities & Social Sciences | 18-22 | 5+ | 0 |
| 9 | B | Male | Junior | Engineering | 18-22 | 5+ | 0 |
| 10 | A | Male | Junior | Natural Resource | 18-22 | 4 | 0 |
| 11 | C | Male | Sophomore | Management | 18-22 | 2 | 0 |
| 12 | B | Male | Junior | Humanities & Social Sciences | 36-45 | 5+ | 40 |
| 13 | C | Male | Senior | Humanities & Social Sciences | 18-22 | 5+ | 29 |
| 14 | A | Female | Junior | Humanities & Social Sciences | 36-45 | 5+ | 40 |
| 15 | B | Female | Junior | Natural Resource | 18-22 | 5+ | 30 |
| 16 | C | Male | Senior | Humanities & Social Sciences | 18-22 | 2 | 0 |
| 17 | B | Male | Junior | Engineering | 18-22 | 3 | 0 |
| 18 | C | Male | Junior | Humanities & Social Sciences | 18-22 | 4 | 29 |
| 19 | C | Female | Senior | University College | 18-22 | 5+ | 0 |
| 20 | A | Male | Senior | Management | 18-22 | 2 | 29 |
| 21 | C | Female | Senior | Humanities & Social Sciences | 23-25 | 5+ | 29 |
| 22 | B | Male | Junior | Engineering | 18-22 | 4 | 0 |
| 23 | C | Female | Sophomore | Management | 18-22 | 1 | 29 |
| 24 | A | Male | Senior | Management | 18-22 | 5+ | 20 |
| 25 | C | Female | Sophomore | Humanities & Social Sciences | 18-22 | 4 | 29 |

| Participant Number | Course | Gender | Year | College | Age | Number of Online Courses | Average Hours worked at a paid job |
|---|---|---|---|---|---|---|---|
| 26 | A | Female | Senior | Humanities & Social Sciences | 23-25 | 5+ | 29 |
| 27 | B | Female | Senior | Humanities & Social Sciences | 46-55 | 5+ | 30 |
| 28 | C | Female | Junior | Humanities & Social Sciences | 18-22 | 4 | 29 |

**APPENDIX F: Recruitment and Reminder Email**

Please consider participating in a brief survey about online learning environments and experiences.

You will receive a $10 Amazon gift card for completing the survey *
**Follow this link to the Survey:**
${l://SurveyLink?d=Take the Survey}
Or copy and paste the URL below into your Internet browser:
${l://SurveyURL}

North Carolina State University Institutional Review Board has approved this research study.

Melissa Stopa
PhD Candidate, College of Education
Teacher Education and Learning Sciences
Focus: Digital Teaching and Learning

*gift card will be emailed to your NCSU email account approximately 2 weeks after completing the survey

# Appendix G: Descriptive Statistics by Question

| | | Introduction to Leadership | | | | Diversity | | | | Policy | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Median | Mode | % Agree Strongly Agree | % Disagree Strongly Disagree | Median | Mode | % Agree Strongly Agree | % Disagree Strongly Disagree | Median | Mode | % Agree Strongly Agree | % Disagree Strongly Disagree |
| **Teaching Presence Course Design & Organization** | | | | | | | | | | | | | |
| 1 | The instructor clearly communicated important course topics | Agree | Agree | 67% | 0% | Agree | Agree | 60% | 20% | Agree | Agree | 83% | 8% |
| 2 | The instructor clearly communicated important course goals. | Agree | Agree | 67% | 17% | Agree | Strongly Agree/ Agree | 60% | 20% | Agree | Agree | 75% | 8% |
| 3 | The instructor clearly communicated important due dates/time frames for learning activities. | Neutral/ Agree | Agree | 67% | 17% | Agree | Agree | 70% | 20% | Agree | Agree | 67% | 0% |
| 4 | The instructor provided clear instructions on how to participate in course learning activities. | Neutral | Neutral/ Agree | 50% | 2% | Agree | agree | 70% | 20% | Agree | Agree | 83% | 8% |
| 5 | The instructor was helpful in identifying areas of agreement and disagreement on course topics that helped me to learn | Agree | Neutral | 33% | 17% | Agree | Agree | 60% | 20% | Agree | Agree | 75% | 8% |
| 6 | The instructor was helpful in guiding the class towards understanding course topics in a way that helped me clarify my thinking. | Neutral | Strongly Agree | 50% | 17% | Agree | Agree | 60% | 20% | Agree | Agree | 83% | 8% |
| 7 | The instructor helped to keep course participants engaged and participating in productive dialogue. | Neutral/ Agree | Agree | 50% | 33% | Agree | Agree | 70% | 20% | Agree | Agree | 92% | 0% |
| **Teaching Presence Course Facilitation** | | | | | | | | | | | | | |
| 8 | The instructor helped keep the course participants on task in a way that helped me to learn. | Neutral/ Agree | Neutral | 33% | 17% | Agree | Agree | 70% | 20% | Neutral/ Agree | Agree | 50% | 8% |
| 9 | The instructor encouraged course participants to explore new concepts in this course | Agree | Agree | 67% | 17% | Agree | Strongly Agree/ Agree | 80% | 20% | Agree | Strongly Agree/ Agree | 83% | 8% |
| 10 | Instructor actions reinforced the development of a sense of community among course participants. | Disagree/ Neutral | Disagree | 33% | 50% | Agree | Agree | 90% | 0% | Neutral | Neutral/ Agree | 42% | 25% |
| 11 | The instructor helped to focus discussion on relevant issues in a way that helped me to learn. | Neutral | Agree | 67% | 17% | Agree | Agree | 80% | 20% | Neutral/ Agree | Strongly Agree | 75% | 0% |
| 12 | The instructor provided feedback that helped me understand my strengths and weaknesses | Agree | Strongly Agree | 50% | 17% | Neutral/ Agree | Agree | 50% | 40% | Neutral/ Agree | Strongly Agree/ Neutral | 50% | 17% |

| | | Introduction to Leadership | | | | Diversity | | | | Policy | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Median | Mode | % Agree Strongly Agree | % Disagree Strongly Disagree | Median | Mode | % Agree Strongly Agree | % Disagree Strongly Disagree | Median | Mode | % Agree Strongly Agree | % Disagree Strongly Disagree |
| 13 | The instructor provided feedback in a timely fashion | Neutral/ Agree | Agree | 50% | 17% | Agree | Agree | 70% | 20% | Neutral/ Agree | Strongly Agree/ Disagree | 50% | 42% |
| **Social Presence Affective Expression** | | | | | | | | | | | | | |
| 14 | Getting to know other course participants gave me a sense of belonging in the course. | Disagree/ Neutral | Disagree/ Neutral | 17% | 50% | Agree | Agree | 80% | 10% | Neutral | Neutral | 17% | 33% |
| 15 | I was able to form distinct impressions of some course participants | Disagree/ Neutral | Disagree/ Neutral | 17% | 50% | Agree | Agree | 90% | 0% | Agree | Agree | 67% | 8% |
| 26 | Online or web-based communication is an excellent medium for social interaction | Neutral/ Agree | Agree | 50% | 17% | Neutral/ Agree | Agree | 50% | 10% | Agree | Strongly Agree | 58% | 0% |
| **Social Presence Open Communication** | | | | | | | | | | | | | |
| 17 | I felt comfortable conversing through the online medium. | Strongly Agree/ Agree | Strongly Agree | 83% | 0 | Agree | Agree | 70% | 0% | Strongly Agree/ Agree | Strongly Agree | 83% | 8% |
| 18 | I felt comfortable participating in the course discussions | Agree | Strongly Agree/ Agree | 67% | 0 | Agree | Agree | 90% | 0% | Strongly Agree/ Agree | Strongly Agree | 83% | 0% |
| 19 | I felt comfortable interacting with other course participants | Neutral/ Agree | Neutral | 50% | 0 | Agree | Agree | 80% | 10% | Strongly Agree/ Agree | Strongly Agree | 83% | 0% |
| **Social Presence Group Cohesion** | | | | | | | | | | | | | |
| 20 | I felt comfortable disagreeing with other course participants while still maintaining a sense of trust | Neutral/Agree | Neutral | 50% | 0% | Neutral | Neutral | 40% | 10% | Strongly Agree | Strongly Agree | 92% | 0% |
| 21 | I felt that my point of view was acknowledged by other course participants | Agree | Agree | 67% | 0% | Agree | Agree | 80% | 0% | Strongly Agree | Strongly Agree | 83% | 8% |
| 22 | Online discussions help me to develop a sense of collaboration | Neutral | Neutral/ Disagree | 33% | 33% | Agree | Agree | 80% | 10% | Agree | Agree/ Neutral | 58% | 8% |
| **Cognitive Presence Triggering Event** | | | | | | | | | | | | | |
| 23 | Problems posed increased my interest in course issues | Agree | Agree | 33% | 50% | Agree | Agree | 67% | 17% | Agree | Strongly Agree | 75% | 0 |
| 24 | Course activities piqued my curiosity | Neutral/ Agree | Neutral/ Agree | 33% | 33% | Agree | Agree | 58% | 17% | Agree | Agree | 75% | 0 |
| 25 | I felt motivated to explore content related questions. | Neutral/ Disagree | Agree/ Disagree | 50% | 33% | Agree | Agree | 58% | 25% | Agree | Strongly Agree | 75% | 0 |
| **Cognitive Presence Exploration** | | | | | | | | | | | | | |
| 26 | I utilized a variety of information sources to explore problems posed in this course. | Disagree/ Neutral | Agree/Disagree | 33% | 50% | Agree | Agree | 58% | 25% | Agree | Agree | 75% | 8% |

| | | Introduction to Leadership | | | | Diversity | | | | Policy | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Median | Mode | % Agree Strongly Agree | % Disagree Strongly Disagree | Median | Mode | % Agree Strongly Agree | % Disagree Strongly Disagree | Median | Mode | % Agree Strongly Agree | % Disagree Strongly Disagree |
| 27 | Brainstorming and finding relevant information helped me resolve content related questions | Neutral/ Agree | Agree | 33% | 33% | Agree | Agree | 67% | 8% | Agree | Neutral | 58% | 0% |
| 28 | Online discussions were valuable in helping me appreciate different perspectives | Neutral/ Agree | Agree | 50% | 33% | Agree | Agree | 80% | 8% | Agree | Strongly Agree | 75% | 8% |
| **Cognitive Presence Integration** | | | | | | | | | | | | | |
| 29 | Combining new information helped me answer questions raised in course activities | Neutral/ Agree | Agree | 50% | 17% | Agree | Agree | 67% | 17% | Agree | Agree | 75% | 0% |
| 30 | Learning activities helped me construct explanations/solutions. | Neutral/ Agree | Disagree | 33% | 33% | Agree | Agree | 67% | 17% | Agree | Agree/ Neutral | 58% | 8% |
| 31 | Reflection on course content and discussions helped me understand fundamental concepts in this class | Agree | Strongly Agree/ Agree | 67% | 17% | Agree | Agree | 67% | 17% | Agree | Agree/ Neutral | 83% | 0% |
| **Cognitive Presence Resolution** | | | | | | | | | | | | | |
| 32 | I can describe ways to test and apply the knowledge created in this course. | Neutral | Agree/ Neutral/ Disagree | 33% | 33% | Agree | Agree | 58% | 17% | Agree | Strongly Agree | 67% | 0% |
| 33 | I have developed solutions to course problems that can be applied in practice. | Neutral | Agree/ Neutral/ Disagree | 33% | 33% | Agree | Agree | 58% | 17% | Agree | Strongly Agree | 67% | 0% |
| 34 | I can apply the knowledge created in this course to my work or other non-class related activities. | Agree | Agree | 67% | 17% | Agree | Strongly Agree | 67% | 17% | Strongly Agree | Strongly Agree | 83% | 0% |

**Appendix H: Instructor Interview Protocol (adapted from Creswell, 2013)**

Time of Interview:

Date:

Place:

Interviewer:

Instructor ☐ One ☐ Two

Good morning/afternoon/evening. This is Melissa Stopa, the doctoral student that has been reviewing your online course, (course name). I appreciate your support of my research this semester. I'd like to ask you a few questions about the course, your experiences teaching online and any training you've received about online teaching and learning. Before we begin I would like to clarify a few things:

- your participation is entirely voluntary, you may choose to stop at any time or not answer any of the questions
- your responses will be remain confidential, your identity will not be revealed in the reporting of results
- I will audio record this interview, there will be no identifying material with the recording and after transcription and check, it will be deleted

1. First, please describe your this semester experience teaching xxx course. (probe, include if necessary … interactions, group assignments, student participation

2. Tell me about the biggest challenge you faced in this course this semester

(probe, include if necessary an example assignment where students asked many questions)

3. Which aspect of this class do you believe is the most important to help students meet their learning objectives? (probe, if necessary identify different aspects, type of sessions, type of assignments, refer to syllabus and online interface)

4. Please describe your amount of experience teaching online

5. What type of training and support have you received about teaching an online course (probe: formal training, workshops, work with distance instructional designers)

6. Do you feel students are able to master the course content and meet the learning objectives effectively in the online classroom? (probe, differences, what could make it better)

7. What other comments or thoughts do you have about this course and teaching online in general?

I appreciate your willingness to support my research. Thank you for your time and participation.