Virtual learning community: Utilizing learning communities in hybrid and online graduate programs

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Virtual learning community: Utilizing learning communities in hybrid and online graduate programs

by

Amy J. Pilcher

A dissertation submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Major: Education (Educational Leadership)

Program of Study Committee:
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Larry Ebbers
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Wade Miller
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Iowa State University
Ames, Iowa

2017

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DEDICATION

This dissertation is dedicated to my husband Josh for always supporting me no matter how crazy my ideas are; and my children, Aria and Carter for putting up with all the hours I locked myself away to work on this thing.
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I would also like to thank the members of my virtual community, especially the TWITPITS posse for their enduring support of my endeavors.
Learning communities are well-established on-campus practices with evidence supporting their effectiveness in increasing student learning outcomes, student retention efforts, and student satisfaction. Students who enroll in online and hybrid programs have limited access to their classmates and institutional resources, which can cause feelings of isolation and frustration (Shelton & Saltsman, 2005); therefore, institutions are looking for ways to reduce this isolation and frustration by attempting to create community within online courses and programs. It has been demonstrated that establishing a robust online community allows students to interact with each other, builds a support network of fellow students, improves persistence and retention; increases perceived satisfaction with the program; increases students sense of belonging, and increases their level of access to institutional resources (e.g. Lee, 2010; Rovai, Ponton & Baker, 2008; Scott, Sorotki, & Merrell, 2016; Shelton & Saltsman, 2005).

Learning communities provide opportunities for sharing of resources by providing students an environment to share and interact with each other (Shapiro & Levine, 1999). Finding ways to support learners in hybrid and online programs with limited access to the institution will continue to be important as these programs grow. Having research based on student experiences within hybrid and online programs can help institutions design online courses and programs which can increase the perceived experience and value of the education received by the learner. The purpose of this study was to research virtual learning communities and whether or not their availability and use improves students’ perceived experiences in an online/hybrid program.
CHAPTER I: INTRODUCTION

“The process of developing and delivering online education is not just the dissemination of information using technology. This educational paradigm is characterized by openness, equal access, flexibility, dynamism, portability, nonlinear transfer, multisensory delivery modes, and responsiveness to the practical needs of learners.” (White & Birdwell, 2004, p. 274)

Introduction

The introduction of technology has changed the world in ways that we never imagined and continues to change the way we do things every day. Technology advancements have occurred at a rapid pace in the last 20 years, more than in the previous 200 years prior (Bowen, 2013). Educational research continues to fill a need in the gaps of practices in pedagogy and instruction using current technologies. As technology has evolved, access to information has increased. The creation of the internet has facilitated the availability of (nearly) unlimited content and knowledge resources. The availability of numerous technologies and sources of information has had a dramatic impact on higher education. Never before have we had more tools and technology to bring education to more students in so many ways (Renes & Strange, 2011). The demand for new ways to facilitate learning continues to grow in a globalized world where information retrieval, information sharing, and high communication skills are key, but the means by which these goals may be reached are constantly undergoing technological change (Svendsen, 2012). Continuous research efforts are needed to study the impacts and implications of educational technologies and access to education.

The study of online students is important because the percentage of students taking courses online has increased much faster over the last ten years than the number of students enrolled in face-to-face classrooms. The average rate of growth in total college enrollments over the last ten years is 2.39 percent, while the average rate of growth in total online enrollments is
15.77 percent (Allen & Seaman, 2013). The proportion (one in three) of college students taking at least one online course a year is at an all-time high (Allen & Seaman, 2013, Bowen, 2013). In 2009, there were 835,000 students enrolled in fully online undergraduate programs and 510,000 in fully-online graduate programs (Wildavsky, Kelly, & Carey, 2011). As of 2012, more than 11,200 college-level programs had been designed for online delivery and this number increases every year (Shea & Bidjerano, 2012).

Students have greater access to technology today than any previous generation before them. No cohort in human history has experienced so many technological enhancements in their lifetime (Baeurlein, 2009). This generation has integrated technology into their lives and it has shaped how they behave, socialize, work, think, learn, and develop (Pletka, 2007). Wakefield Research reported that 99 percent of students have at least one digital device and 68 percent use at least three devices a day (Campus Technology, 2013). The top three most-used devices were laptops (93 percent), smartphones (78 percent) and tablets (35 percent) (Campus Technology, 2013). Smartphone usage has almost doubled since 2011 (Campus Technology, 2013). Students’ lives are shaped by the digital world they live in and they have new skills and expectations in regard to their schooling and work lives (Vander Ark, 2012). Because of this constant access to technology, today's students actually process information differently from any generation before them and assumptions that existing teaching methods will continue to work are no longer valid (Prensky, 2011).

As technology use increases, online enrollments increase, and students’ demand for technology in the classroom increases; the need for research on educational uses of technology will also increase. In 2012, 12 percent of K-12 students did a portion or all of their learning online and half of U.S. school systems already operate or are planning online learning programs
Some predict that by 2020, high school students will do most of their learning completely online or in a hybrid online environment (Vander Ark, 2012). Studying the experiences of hybrid and online students will continue to be important if enrollment in these programs continues to grow at its current and projected rates.

The majority of students today now live, work, and learn differently; they require flexibility and look for classes that are technology enhanced, blended, or fully online (Prensky, 2011). Computer games, email, internet, cell phones, texting, and instant access to information are integral parts of students’ lives and they expect the same from their education system (Prensky, 2011). Additionally, the ability to study anytime, anywhere, while continuing to work, has a number of economic advantages for adult students (Wildavsky et al., 2011). Students with work and family responsibilities often do not have the option to relocate for educational opportunities. Adult learners often cite flexibility of schedule, inability to attend day-time courses, need to work around job and family constraints, and location of the institution as reasons for selecting hybrid or online programs over fully face-to-face programs (Benke & Miller, 2014). If they want to change or advance their careers with the addition of a college degree, then they need the college degree to come to them.

Students who enroll in online and hybrid programs have limited access to their classmates and institutional resources, which can cause feelings of isolation and frustration (Shelton & Saltsman, 2005). It has been demonstrated that establishing a robust virtual community allows students to interact with each other, builds a support network of fellow program students, improves persistence and retention, increases perceived satisfaction with the program, increases students’ sense of belonging and increases their level of access to institutional resources (e.g. Lee, 2010; Rovai, Ponton & Baker, 2008; Scott, Sorotki, & Merrell, 2016;
Shelton & Saltsman, 2005). Finding different methods for supporting online learners is important to institutions utilizing online education. Online learning requires additional skill sets and tools not usually associated with traditional, face-to-face learning (Derrick, 2003). Having student-based research on their experiences within an online environment can help institutions and programs to establish programs which increase the perceived experience and value of the education received by an online learner.

**No Significant Difference Phenomenon**

From the advent of correspondence courses delivered via mail to short courses at satellite locations to video conferencing to internet and computer enhanced courses, institutions have been offering alternative learning methods to students for years. While there are many reasons to offer course materials to students outside of the traditional classroom setting, many scholars question the quality of education that occurs via these delivery methods. Some researchers argue education that does not include face-to-face interaction with the instructor, classmates, and that the institution is suspect to quality concerns (Allen & Seaman, 2013).

Research over the last decade has demonstrated that online learning and face-to-face instruction resulted in no significant difference relative to learning outcomes. In fact, an increasing number of studies reveal advantages for online learning (Means, Toyama, Murphy & Baki, 2009; Olson & Wisher, 2002; Russell, 1999; Shachar & Nuemann, 2003; Shea & Bidjerano, 2010). Russell (1999) started to research the subject of differences between distance/online education and face-to-face education. His companion website, [www.nosignificantdifference.org](http://www.nosignificantdifference.org), compiles hundreds of studies conducted between the 1980s and today comparing online instruction to face-to-face. Shea and Bidjerano (2010) coin 1998 as
the no-significant-difference year in which an increasing number of publications revealed numerous advantages for online learning. Shachar and Neumann (2003) performed a meta-analysis of 86 research studies with a combined student population of 15,000 students and discovered that in two-thirds of the cases, students taking online courses outperformed their face-to-face counterparts. Meta-analysis research exploring experimental or quasi-experimental research, conducted between 1996 and 2008, that objectively studied the learning outcomes of online students compared to face-to-face students indicated that students in online courses perform better on average than students learning the same material through traditional face-to-face instruction (Means et al., 2009). Instruction combining online and face-to-face elements or hybrid/blended instruction produces the highest learner advantages and performance outcomes (Means et al., 2009).

Many research studies show no statistical differences in learning outcomes between online courses and traditional courses (Bowen, 2013). Selingo (2013) believes that skepticism of the strength of online programs diminishes research of them and that this skepticism persists even though numerous research studies show that students who take classes online perform better than those who take traditional courses. Even though that majority of literature demonstrates the value and quality of online instruction, many of these publications site a sense of isolation among online learners and disconnection from their classmates, instructor, and institution. This has led researchers to begin to study the concept of sense of community and social interaction as it applies to online learning (e.g. Dawson, 2006; Garrison & Anderson, 2000; Rovai, 2001; Swan, 2001; Tu, 2000).
Problem Statement

Opponents of online learning cite that students need to physically interact with their learning and environment in meaningful ways to truly develop and learn. In the online classroom, the absence of visual meaning-making cues such as gesture, voice tone, and immediate interaction can frustrate students and lead to feelings of isolation and disconnectedness (Delahunty, Verenikina & Jones, 2013; Gallagher-Lepak, Reilly, Killian, 2009; Liu, Magjuka, Bonk & Lee, 2007; McInerney & Roberts, 2004). Proponents of online learning argue that the benefits of such education far outweigh any negative factors such as isolation of the student from the institution. Palloff and Pratt (2007) indicate that if online programs fail it has been attributed primarily to the inability or unwillingness to integrate collaborative learning processes. Research on online education continues to search for ways to effectively collaborate and connect with students through technology, in an effort to reduce issues of isolation and disconnection.

Review of the literature focusing on online learners exposed a variety of terms associated with student perceptions of their connections to peers, instructors and the institution. Most literature describes interaction within the online environment as either “sense of belonging;” “engagement;” or building a “sense of community (Palloff & Pratt, 2007; Rovai, 2002).” Strayhorn (2012) defines “sense of belonging” as the feeling of being valued, needed, and significant within a system or environment. Students who lack a sense of belonging suffer higher levels of mental and physical illness, are more likely to drop out of learning environments, and exhibit feelings of isolation, rejection, and exclusion (Bauemeister & Leary, 1995). Students who feel a strong sense of belonging have higher academic achievement, retention and
persistence (Baumeister & Leary, 1995; Strayhorn, 2012). Engagement is defined as the amount of time and effort students devote to their academic responsibilities (Strayhorn, 2012). Community is defined as a group of learners who share knowledge and goals, possess shared expectations, and believe that they matter to each other (Mercer, 2000; Rovai, 2002). Technology has made it possible for communities to be developed beyond time, space, or physical proximity, and made communities accessible to a diverse and widely-distributed membership (Mercer, 2000; Rovai, 2002). Whiting, Liu, and Rovai (2008) indicated that the two most important variables in the study of online learning are the sense of community experienced by the students and the degree to which students are motivated to learn in an online environment.

The literature noted that it is important for facilitators of online learning to understand how online communication differs from face-to-face communication in order to create practices that help to foster community and reduce the amount of isolation among online students (Benke & Miller, 2014; Rovai, 2002). Researchers believe that digital communication is creating new opportunities for communications and removes barriers of time and geographical boundaries (Levine & Dean, 2012; Pletka, 2007). Although several forms of digital communication exist, online courses are often asynchronous. As previously stated, the number one reason that students choose online learning is for the flexibility of time for participation. However, waiting for students and instructors who are geographically dispersed across time zones, can lead to feelings of isolation (Palloff & Pratt, 2007). Thus, researchers have sought to discover how community can be built in an online environment that transcends these issues.

There is an abundance of literature addressing online communities - creating community within an individual course, creating large online communities, utilizing tools to create community, and research of how community building within courses creates a better learning
environment for online students (e.g. Delahunty et al., 2013; Garrison, 2004; Palloff & Pratt, 2007; Rovai, 2002). Most of the literature is focused on creating community within individual courses. Recent literature has introduced the idea of virtual learning community which includes faculty, staff, current students and alumni for an entire program; however, there are very few research examples of this in practice (Scott et al., 2016). It is important for institutions to look beyond the scope of learning community within individual courses and to understand how the concept of learning community can be woven throughout the course, the curriculum, the program, and the institution (Lock, 2007).

**Purpose of the Study**

Online learning in higher education has become part of the mainstream and is here to stay; therefore, it is important that educators and institutions ensure they are designing and implementing online programming in a way that increases education access and allows for the development of community among its students. Much like traditional education, online learning cannot remain static, but must welcome innovation, pedagogical developments, research findings, and new forms of technology in the name of improvement. This study was just one of many exploring how institutions and instructors can maximize the online learning experience for all students.

The purpose of this study was to examine how institutions are working to design online learning to optimize students’ sense of belonging and/or community and students’ perceptions of their experiences within a virtual community. This research examined how students utilize a virtual learning community to create peer networks, develop knowledge, support each other, share resources, and develop relationships with fellow program students outside of a physical
classroom environment. This study examined virtual learning community development within three graduate programs in the United States.

**Research Questions**

The guiding research question for this study was how graduate students perceive their experiences after participating in a virtual learning community as part of their graduate program. Specific questions investigated were:

1. How does participation in a virtual learning community impact graduate students’ perceptions of sense of belonging; sense of community?
2. How does participation in a virtual learning community impact graduate students’ perceptions of their access to resources, faculty, peers and support?
3. To what extent do graduate students who participate in a virtual learning community report instances of the four presences reported as necessary by the Community of Inquiry framework: teaching presence, social presence, cognitive presence, and learner presence?

**Theoretical Framework**

Scholars have been using the Community of Inquiry (CoI) framework to examine the development of online learning for over a decade (Scott et al., 2016). In higher education, it is considered valuable to create a community of inquiry where interaction and reflection are sustained; where ideas can be explored, and critiqued; and where the process of inquiry can be facilitated (Garrison & Cleveland-Innes, 2005). This is true whether learning occurs in a traditional classroom environment, an online environment, or a blended environment. The CoI
framework was developed to provide an ordered understanding and methodology for researching and practicing online learning (Garrison, 2016).

This framework focuses on the intentional development of a virtual learning community in an online course (Shea & Bidjerano, 2009). The CoI framework inherently recognizes the social nature of education and peoples’ motivation to connect socially with each other (Garrison, 2016). The CoI framework is based on goal-directed collaborative interaction supporting a sense of community through three forms of presence: teaching, social, and cognitive (Garrison, Anderson & Archer, 2000) (See Figure 1). Teaching presence is viewed as the core role of the instructor and involves instruction, course design, and facilitation of discourse (Shea, Li, & Pickett, 2006). Social presence is the ability to project one’s self and establish purposeful relationships, and is considered essential for establishing relationships within the online learning community (Ryman, Burrell, & Richardson, 2009). Cognitive presence is defined as the exploration, construction, resolution and confirmation of understanding through collaboration and reflection in a community (Garrison, 2016). Applying the CoI framework to research a virtual learning community allows for the analysis of teaching, social and cognitive presence that occurs in these types of environments (Scott et al. 2016).
This research study utilized a mixed-methods approach, using case study, survey, and open-ended survey questions. A case study involves the study of a case within a real-life setting, bounded by time and place (Creswell, 2013). Three virtual communities will be studied. Each community was considered an individual case study. Each institution participating in the study has an online or hybrid graduate program and seeks to create a virtual community which encompasses a student’s entire time in the program.

- Virtual Learning Community (VLC) 1 is a private, Midwest university offering bachelors and master’s degrees. The participants from this institution are graduate students in a hybrid program. This hybrid program was designed for working adults. Course work is completed online with a two-day, face-to-face experience every 10-week quarter. Students may begin the program in either the first quarter of the fall or spring semester.
The university uses an enterprise social networking platform as their LMS and virtual learning community.

- Virtual Learning Community (VLC) 2 was a public, Midwest university offering bachelors, masters, and doctoral degrees. The participants from this institution were online graduate students. This program is offered fully online, with no face-to-face participation. This program has rolling admissions allowing students to begin in any semester. This program utilized Blackboard for both its LMS and virtual learning community.

- Virtual Learning Community (VLC) 3 is a public Midwest university offering bachelors, masters, and doctoral degrees. The participants in this program were considered online graduate students. This program offers a three-year cohort model for graduate students. Each cohort starts in the summer and students in cohorts take courses together over a three-year period. This program utilized Blackboard and Moodle for their LMS. Each cohort created a locked Facebook group comprised only of student cohort members.

Students at each institution were given an online survey addressing their experiences and requesting their opinions of the virtual community in which they were participating. Participation was voluntary. The survey instrument utilized a series of statements with Likert-scale responses and open-ended questions. This instrument was specifically designed at Iowa State University to evaluate learning communities (Iowa State University, 2015). Survey results provided evidence on the strengths of virtual learning communities, technology utilized in virtual learning communities, and students’ perceptions of participating in a virtual learning community.

Data analysis focused on of how the community was designed, the platform in which the community was hosted, student involvement and interaction within the community, and the
survey results. Survey results and responses to open-ended questions were also analyzed using the Community of Inquiry (CoI) coding scheme. The CoI coding scheme was used to identify responses that could be coded at the category level for teaching, social, cognitive, and learning presence. This study used the expanded community of inquiry coding scheme as developed by Shea, Hayes, Uzuner-Smith, Gozza-Cohen, Vickers and Bidjerano (2014) to include an additional category of learner presence to the original community of inquiry framework (see Figure 2).

Delimitations and Anticipated Limitations

This study was limited to students in online and hybrid graduate programs of study. The delimitations include students who participate in a virtual learning community as part of their overall studies and are willing to complete a survey about their experiences. In this research study, the virtual environment included all students within a program with voluntary participation on the part of the students.

Anticipated limitations are the inability to generalize the results of this study to a general student population. As students must self-select to participate in the virtual community, this research will not be typical of students enrolled in just a single online course. Despite these limitations, as online education grows and educational technologies advance, research focused on students’ perceptions in virtual communities can provide valuable information and insight into design of online courses and programs.
Definitions

- **Learning Community**: A learning community is a group of people who share common academic goals and attitudes, who meet semi-regularly to collaborate on classwork (Lenning & Ebbers, 1999).

- **Virtual Learning Community**: An online learning community that is a public or private designation on the internet and addresses the learning needs of its members through social networking and computer-mediated communication (Lock, 2007).

- **Online Learning**: Courses/programs that have at least 80% of their course content delivered online and typically have no face-to-face meetings (Allen & Seaman, 2013).

- **Hybrid Learning**: Courses that blend online and face-to-face delivery. A substantial proportion (30% to 79%) of the content is delivered online and face-to-face meetings are reduced (Allen & Seaman, 2013).

Dissertation Overview

This dissertation is divided into five chapters. Chapter 2 is a literature review, which includes an examination of the theories relevant to virtual learning communities, online learning and social learning. Chapter 3 provides a description of the research methods and includes an explanation of the study design, site selection, participants, data collection, data analysis, ethical concerns, trustworthiness, and research positionality. Chapter 4 reports the research findings. Chapter 5 summarizes and discusses the findings and shares insights into the future implication of this research related to theory and practice.
CHAPTER 2. LITERATURE REVIEW

The purpose of this study was to examine how institutions are working to design online learning to optimize students’ sense of belonging and/or community and students’ perceptions of their experiences within a virtual community. This chapter includes an introduction to Community of Inquiry framework as it pertains to the study of online learning and creation of virtual community. Additionally, discussion of the concept of community as it relates to virtual environments; the components and dynamics of learning communities; and the creation of virtual learning communities within the online environment is included. The guiding research question for this study was what are students’ perceptions of their participation in a virtual learning community? Additional questions being studied are how does participating in a learning community affect students’ perceptions of their sense of belonging and their access to resources, faculty and peers. Additionally, how do students perceive the four presences identified in the Community of Inquiry framework: teaching, social, cognitive, and learning.

The literature review was initiated by conducting searches in university library databases, EBSCOhost, and ERIC. Additionally, Google Scholar searches were performed. Search words and phrases included: online learning community, virtual learning community, community of inquiry, sense of belonging, sense of community, online learning, and social media. Additional literature was found through search referrals, frequently cited literature within found resources, and recursive reference searches. Research literature which studies online learning uses many different terms such as distance learning, e-learning, and online learning. For the purpose of consistency “online learning” will be used throughout this dissertation to convey all modes of distance education, and “virtual learning community” will be used to convey technology facilitated learning community.
Community of Inquiry Framework

The Community of Inquiry (CoI) framework was developed to provide an ordered understanding and methodology for researching and practicing online learning (Garrison, 2016). The CoI framework is based on goal-directed, collaborative interaction that supports a sense of community using three forms of presence: teaching, social and cognitive (Garrison, et al. 2000) (See Figure 1). This framework understands learning to be socially constructed within a community of learners. Rovai (2004) defines social constructivist learning as the feeling that knowledge and meaning are actively constructed within a community that enhances the acquisition of knowledge and meets the needs of its members. Designing an online learning environment where students can bring their own experiences, values, and beliefs into discussions is critical for social constructivism and can provide learners with multiple opportunities for self-expression and reflection (Levine, 2007; Oztok, 2012).

In an online environment knowledge is generated through interactions with other people. This type of learning allows students to take control of their learning and places the instructor in the role of facilitator (Corich, Kinshuk, & Jeffrey, 2007; Palloff & Pratt, 2007). Under the social constructivist perspective, teaching is a shared experience and knowledge is generated through group discussion, collaboration, group activities, and reflection (Arbaugh & Benbunan-Fich, 2005; Corich et al. 2007). Delahunty et al. (2013) discovered that educational community is built through cooperative and reciprocal exchanges of information and knowledge; therefore, online courses that are purposely designed for the social construction of knowledge should automatically create an educational community among its members. An optimal learning environment for social constructivism includes dynamic interactions between its members and allows learners to create their own understanding through interaction and communication with
others (Corich et al. 2007). Building on the social constructivist view of learning, online environments can provide learners with exceptional opportunities for self-expression and reflection, which assist in creating higher levels of cognitive learning (Levine, 2007). As previously indicated, the CoI framework was designed to research and measure the level of teaching, social and cognitive presence created in a virtual learning community.

Scholars have been using the CoI framework to examine the development of online learning for over a decade (Scott et al. 2016). Garrison and Cleveland-Innes (2005) describe a community of inquiry as a higher education environment where interaction and reflection are sustained; where ideas can be explored and critiqued; and where the process of critical inquiry can be facilitated. These communities of inquiry are valuable learning environments whether they are located in a traditional classroom environment, an online environment or a blended (hybrid) learning environment.

This framework focuses on the intentional creation of a virtual learning community. In a community of inquiry, participants must collaboratively take responsibility for creating a sense of community with each other (Garrison, 2016). The CoI framework inherently recognizes the social nature of education and peoples’ motivation to connect socially with others, how sense of belonging/community contribute to motivation, and that motivation is essential for sustaining interest and effort in an online course (Garrison, 2016). Applying the CoI framework to research of online community allows for the analysis of social, teaching and cognitive presence that occurs in these types of environments (Scott et al., 2016). Each of these presences will be defined and discussed briefly in the following sections.
**Teaching Presence**

“While it is the students who gather information, absorb new ideas, elicit connections, and fashion what they have learned into new knowledge – it is the instructor who expedites the process. In asking questions, helping students to identify benchmarks by which to measure their progress, and validating students’ experiences in a nonjudgmental fashion, faculty play a critical facilitative role in students’ willingness to engage in a collaborative learning community.” (Nicholson, 2004, p. 328)

Teaching presence is the essential component of a successful and sustained community of inquiry (Garrison, 2016). Teaching presence is viewed as the core role of the instructor; involves instruction, course design, and facilitation of discourse; and is vital for developing sense of community (Shea, Li, & Pickett, 2006). It is the instructor who must take primary responsibility for building a sense of community in an online course; however, the full concept of teacher presence also includes the idea of students as active participants in the instruction (Garrison, 2016). Levine (2007) states that the highest level of cognitive learning is built around the assumption that all ideas, whether introduced by the instructor or other learners, are important, valued, and contribute to knowledge generation.

Student perceptions of teacher presence, including effective instructional design and course organization, affects their perceptions of sense of community (Miller, 2014). Multiple studies show the instructor, their actions in the learning environment, and his/her ability to develop a strong teaching presence are core components to establishing community in an online course (Buchanan, 2000; Hiltz & Goldman, 2005; Palloff & Pratt, 2007; Rovai, Ponton, & Baker, 2008). In a study by Liu et al. (2007) students confirmed that regular course announcements, individualized feedback, and guidelines for communication were positively correlated to the feelings of sense of community. Therefore, it can then be concluded that online
instruction involves creating strategies to increase motivation and self-regulation of students while fostering communication and socialization (Fisher & Baird, 2005).

One of the highest-rated course components contributing to teaching presence is interaction (Garrison, 2016). Online students reported that effective online teachers strive to establish relationships and to facilitate course discussion and student interaction (Bailey & Card, 2009). When instructors share from their personal perspective rather than always displaying their academic identity, students become more likely to interact in meaningful ways (Delahunty et al. 2013).

Another highly-rated form of teacher-student interaction was in the form of feedback. Students ranked thoughtful and prompt feedback as an integral component of teacher presence in several research studies (Boling, Hough, Krinsky, Saleem & Stevens, 2012; Chickering & Gamson, 1987; Gallagher-Lepak, et al. 2009; Miller, 2014; Stansfield, McLellan & Connolly, 2004). Students also indicated the importance of authentic and individualized feedback. Several research studies noted students’ displeasure with general feedback (Gallagher-Lepak at al. 2009; Greenhow & Burton, 2011; Miller, 2014).

Wilson et al. (2004) identified teaching presence as a critical component of virtual learning communities. Their research shows that students quickly notice when instructors are absent from a course. Teachers can avoid being viewed as absent by modeling community participation skills and values, responding promptly, promoting interaction, and facilitating discussions. They discovered five themes and associated actions identified with teaching presence in a virtual learning community. These teaching presence themes and their associated attitudes, actions and beliefs are presented in Table 1.
Table 1.

Themes supporting the construct of teaching presence, with associated attitudes, actions, and beliefs (adapted from Wilson et al., 2004, p. 10)

<table>
<thead>
<tr>
<th>Themes</th>
<th>Associated Attitudes, Actions and Beliefs</th>
</tr>
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| Interpersonal, human relatedness            | • Authentically relates and represents genuine self to students  
• Interactions are sincere and unique  
• Joins in communication with the student  
• Listens without judging and communicates empathy  
• Respects students  
Believes in the agency of the students. Recognizes that students are responsible for and in charge of their own learning | • Advances students’ efforts to become independent and intentional learners  
• Engages students in active learning  
• Builds students’ self-efficacy through participative/affirming experiences |
| Mutual willingness to be available          | • Is available to students, focused on them  
• Explains concepts at the students’ level  
• Holds self and student accountable for growth  
• Issues reassurances of support  
Communicates effectively with students       | • Demonstrates expertise in the subject  
• Committed to strengthening their own and students’ knowledge bases  
• Maintains professional self-efficacy  |
| Trustworthy                                 | • Pursues the student's best interest  
• Engages students in worthwhile learning activities  
• Competently leads students towards learning goals |

Students were more likely to express themselves in online discussion forums and develop a strong social presence when they perceived high teaching presence from the instructor (Delahunty et al., 2013). Strong teaching presence leads to greater satisfaction within the course and increased interaction which leads to students perceiving a strong social presence within the course.
Social Presence

Social presence is the ability to project one’s self and establish purposeful relationships and is considered essential for establishing relationships within the online learning community (Ryman et al., 2009). Social presence is divided into two aspects: learner-to-learner and learner-to-instructor. According to Tu (2002), social presence consists of three dimensions: social context, online communication and interactivity. Social context includes being comfortable with technology, familiarity with class members, and the qualities of the online environment. Online communication is the nature of language exchanged among learners in an effort to establish relationships and exchange knowledge. Interactivity is the extent to which course design supports interaction and how much of the interaction is relational in addition to being academic.

Students report their perception of social presence between their peers and their instructors differently (Yang, Tsai, Kim, Cho, & Laffey, 2006). When students rank social presence as low, they are indicating an inability to interact effectively with their instructor and peers (Shea & Bidjerano, 2012). Learning is considered a social experience and therefore learning experiences should support interaction and the development of community among learners within a course (White & Birdwell, 2004). Familiarity with classmates, development of informal relationships, trust, and positive attitude towards the use of technology in communication have all been shown to have a positive influence on the development of social presence in an online learning environment (Tu & McIsaac, 2002).

Research on social presence varies in agreement on the time it takes students to establish and perceive social presence. Baumeister and Leary (1995) state people are strongly inclined to form social relationships and will invest a great deal of time in fostering the development of these relationships. Hughes (2007) argues that most students are willing to engage in online
discussion when prompted and will readily develop congruence with the group and Pelz (2004) states online students tend to self-disclose to a greater extent which leads them to bond earlier with their online classmates than students in a traditional classroom setting. Once individuals feel they are accepted and belong in a group, their willingness to speak openly increases, which is integral to the development of social presence (Rovai, 2002). Gallagher et al. (2009) discovered students who experience social presence within an online course feel connected as a member of the group and trust other members. Mutual exchanges of information were valued and contributed to feelings of trust and connections, which motivated students to interact even more.

While the above research indicates that online students are more willing to self-disclose and build their social identity, other research shows that online courses are not conducive to creating social presence. The level of exchange needed to develop social presence is also disputed in the research. Baumeister and Leary (1995) state social bonds form easily and require little more than frequent contact, however; Tu and McIsaac (2002) discovered frequency of participation did not result in the development of social presence among their research participants. Social presence is established over time, and, as many online courses last only a few weeks or months, it is arguable whether enough time elapses for online identities to be built and social presence to develop (Oztok, 2012). Others state online communication contributes to isolation and, in the absence of facial expressions and voice inflections, can lead to misunderstandings that adversely affect the development of social presence (Delahunty et al., 2013; Rovai & Jordan, 2004). Social presence is highly correlated to strong cognitive presence in research of community among online learners (Shea & Bidjerano, 2012).
Cognitive Presence

Cognitive presence is defined as the exploration and construction of knowledge through collaboration and reflection in a community of learners (Garrison, 2004). Collaboration is defined as a deep and meaningful approach to learning that uses critical and creative thinking through engagement with content and other learners which extends beyond the simple acquisition of information and competencies (Garrison, 2016). This collaborative learning promotes critical thinking, involves students actively in the learning process, and improves learning outcomes (Roberts, 2005). As students find their peers have different ideas and perspectives on the content, they are forced to confront these different perspectives to develop their own understanding (Akyol & Garrison, 2011).

Online environments can encourage knowledge construction through social interaction and asynchronous communication via discussion boards (Shea & Bidjerano, 2009). Students interact with the content and then post to the discussion boards their thoughts about said content. Knowledge sharing involves an understanding on the content being shared, thus before a student posts to a discussion they must collect information, make meaning of it, and then share it (Lin et al., 2013). Deep learning occurs when students aim to understand new ideas and relate those ideas to their previous knowledge and experiences through reflection and discussion (Stansfield, et al., 2004). Discussion supports the development of metacognitive knowledge. Students must talk about what they are learning, write about it, relate it to past experiences, and apply it to their daily lives in order to develop deep cognitive presence (Chickering & Gamson, 1987).

CoI researchers define four phases of cognitive inquiry: triggering event, exploration, integration, and resolution (Aykol & Garrison, 2011). A triggering event occurs when the issue or problem is identified and defined. Exploration is a process whereby learners explore
information and ideas that might provide insight. Integration happens when learners construct meaning about their new knowledge and share within the community. Resolution occurs when learners collaboratively confirm solutions to the original problem posed. All of these phases of cognitive inquiry are part of the element of cognitive presence.

This section has reviewed the CoI framework. Three presences are associated with the CoI framework: teaching, social and cognitive. Various research has explored each presence individually, but some researchers feel that integration of all three presences is necessary for formation of a virtual community (Garrison & Cleveland-Innes, 2005).

**Integration of Teaching, Social and Cognitive Presence**

Research on the three individual components of the CoI framework led to the conclusion that all three components must be present in order for a community of inquiry to truly exist (Garrison & Cleveland-Innes, 2005). It is the integration of teaching, social and cognitive presence that creates a productive online learning environment (Shea & Bidjerano, 2009). Several studies on the components of the CoI framework have shown strong correlations between the three presences. For example, students identifying a high perception of teaching presence in an online course were also more likely to report high cognitive and social presence (Paechter, Maier, & Macher, 2010). In a study of 3,200 online students, those who responded favorably to the social presence questions about sense of belonging within their online course were also significantly more likely to report high cognitive presence scores (Shea & Bidjerano, 2009). These examples show the importance of integrating all three presences associated with the CoI framework into online learning environments.

Recently, researchers have been suggesting the addition of a new concept to the original CoI framework (Shea & Bidjerano, 2010). Currently, student actions within an online course are
Shea and Bijerano (2010) introduce the concept of learning presence as a fourth presence for coding student actions such as self-efficacy, motivation, time management and help seeking. This research study includes learning presence in its data analysis.

**Learning Presence**

Shea and Bidjerano (2010) first introduced the concept of learning presence in a study of students’ perceptions of their online learning environments. Studying discussion board posts, they found many of the posts content could not be reliably coded as teaching, social or cognitive presence. They argue that while teaching presence and social presence are key predictors of a learner’s ability to attain cognitive presence, individual differences in learner self-efficacy cannot be ignored. Further reflection led them to suggest an adaption of the CoI framework that included learning presence (See Figure 2).

![Figure 2](image.png)

**Figure 2.** Suggestions for a revised Community of Inquiry Model. Shea, Hayes, Smith, Vickers, Bidjerano, Pickett, Gozza-Cohen, Wilde, & Shoubang (2012).
Learning presence is defined as the phases of forethought, performance, and reflection associated with self-regulated learning (Shea, Hayes, & Uzner-Smith, 2014). The forethought phase includes planning, coordinating and delegating tasks to oneself. The performance phase involves checking in with classmates for understanding; identifying problems or issues; seeking and offering help; and engaging in content and discussion. The reflective phase involves acknowledging gained information and relating it back to the group. Components of learner presence, as presented by Shea and Bidjerano (2010), include self-efficacy, effort regulation, motivation, peer interaction resulting in informal knowledge development, and active participation in the learning process.

Learners continuously seek information to address a problem at work, school, home; or just to fill curiosity (Dabbagh & Kitsantas, 2012). When seeking out information they often turn to digital and networked technologies. This is also true when they seek to share information. These strategies for seeking and sharing information would be attributed to learner presence under the modified CoI framework. Learning presence indicates active participation of the students to take control of their learning (Shea et al., 2012). Greenhow and Robelia (2009) discovered during their research of social media use that students exercised considerable control over their learning; practice formal and informal learning across a wide range of contexts; and decide how they learn, when they learn, and who they want to learn with. Junco and Locken (2011) in a study with first-year students using Twitter, discovered that students who used social media in combination with their course engaged in more activities of persistence, help seeking, deep discussion, and creation of study groups. Students use social media to become active participants in their learning and is one of the reasons that Shea et al., (2012) has proposed the importance of learner presence in the study of online learning. The CoI framework focuses on
creating a community of learners in an online environment. The underlying belief behind this framework is that integrating the presences identified within the theory will help students establish a sense of community in their online course.

**Sense of Community**

Review of the literature pertaining to hybrid and online learners discovered a variety of terms associated with students’ perceptions of their connections to peers, instructors and the institution. Most literature described interaction within the higher education environment as either “sense of belonging;” “engagement;” or building a “sense of community.” Strayhorn (2012) defines “sense of belonging” as the feeling of being valued, needed, and significant within a system or environment. Students who lack a sense of belonging suffer higher levels of mental and physical illness, are more likely to drop out of learning environments, and exhibit feelings of isolation, rejection, and exclusion (Baumeister & Leary, 1995). Students who feel a strong sense of belonging have higher academic achievement, retention and persistence rates (Baumeister & Leary, 1995; Strayhorn, 2012). Delahunty et al. (2013) defines sense of community as an emotional response to relationships between group members and the individual’s perception of its existence.

Strayhorn (2012) builds upon Maslow’s hierarchy of needs theory (Maslow, 1968) to develop a model that stresses “sense of belonging” as a basic human need that must be fulfilled before college students are able to succeed in academic and social endeavors. Maslow (1968) stated that humans have a fundamental need to belong and other needs, such as learning, cannot be met without satisfying this need of belongingness. In relation to college students, Strayhorn discusses that sense of belonging refers to students’ perceived social support, their feeling of
connection with their environment, and their feeling of being accepted, respected and important to the college (Strayhorn, 2012).

Sense of belonging is relational; created by frequent, positive interactions; and needs to be maintained; therefore, educational environments seeking to create community among students need to understand how students perceive sense of belonging, how it is created, and how to maintain it (Strayhorn, 2012). Learning communities have proven themselves as successful on-campus initiatives in confronting issues with retention, attrition and sense of belonging among students which stands to reason that they could be effective in confronting the same issues in online learning (DiRamio & Wolverton, 2006). Organizations that focus on learning communities can effectively implement change through a culture that emphasizes learner engagement, initiative and persistence (Derrick, 2003). The section discussed the importance of students’ perceived sense of community in an educational environment. The next section discusses how learning communities traditionally have been utilized on campus, features of learning communities, and how these features can be implemented in a virtual environment.

**Traditional On-Campus Learning Community**

The majority of literature about on-campus learning communities shares common elements in their definition such as shared goals, membership, connectedness, collaboration, and support. The contemporary version of on-campus learning communities surfaced in the late 1980s and grew from a recognition that student engagement in educational activities both inside and outside of the classroom resulted in higher academic performance, improved social experiences, skill development and knowledge growth, and overall satisfaction with the student experience (Zhao & Kuh, 2004). Learning communities can have both social and academic functions. Lenning and Ebbers (1999) proposed learning communities that emphasize
collaborative learning and serve both academic and social purposes will become important factors in improving educational outcomes for students.

Over a four-year study on the impact of learning communities, Engstrom and Tinto (2008) discovered that students who participate in learning communities perceive themselves as having experienced significantly more encouragement, support, and cognitive gain than students who were not enrolled in learning communities. Students described learning communities as a safe place to learn where they were free to express themselves and learn from each other. Learning community students also reported feeling validated by faculty and peers. Students stated that learning community participation increased their own confidence in their ability to succeed, developed a sense of belonging, and helped to reduce fears and anxieties about learning.

In addition to improved student satisfaction and outcomes, learning communities aim for the social construction of knowledge through collaboration; sharing of knowledge and expertise; and diversity of thought from their members (Palloff & Pratt, 2007; Ryman, et al., 2009; Shapiro & Levine, 1999). Learning communities seek to restructure the learning environment and alter the way students experience the content (Tinto, 2003). Learning communities should be concerned with both the cognitive and social development of the individual and group (Garrison, 2016).

Learning communities have multiple shapes, sizes, structure and purpose but the basic components required for successful learning communities are consistent across the literature. It is suggested that learning communities contain the following elements:

- Incorporate and value diversity;
- Establish connections among classes;
- Are interdisciplinary;
• Foster internal communication;
• Promote caring and trust;
• Foster development of its members;
• Maximize active and collaborative learning;
• Help students establish academic and social support networks;
• Help students learn the expectations and norms of the institution; and
• Provide access to and knowledge of resources (Garrison, 2016; Lenning & Ebbers, 1999; Shapiro & Levine, 1999; Tinto, 1998; Zhao & Kuh, 2004;).

These common elements of on-campus learning communities are carried over into emerging literature about virtual learning communities. Similarities in the definition of and common elements required for virtual learning communities include the ability to build trust, connection among students, sense of belonging, sense of support, shared knowledge, collaborative learning, and frequent internal communication (Luppicini, 2007; Palloff & Pratt, 2007; Shea, Li, Swan, & Pickett, 2002). It is evident the elements making learning communities successful in the past are being applied to virtual learning environments in an effort to benefit online courses and programs in the same way they have benefited on-campus courses and programs.

DiRamio and Wolverton (2006), administered surveys while attending a learning community conference in an effort to understand which components of learning community would be deemed most important in a virtual environment. Results of the survey revealed that encouraging collaboration; sharing of knowledge and experiences; encouraging interaction; and faculty involvement were the top elements identified as integral to success in a virtual environment (DiRamio & Wolverton, 2006). There is no single best model or approach when
creating learning communities either on-campus or virtually. The best design depends on the institutional environment and the characteristics of the faculty, students, and staff who participate (Garrison, 2016; Palloff & Pratt, 2007; Shapiro & Levine, 1999).

The most effective learning communities involve commitment and participation from both faculty and students (e.g. Garrison, 2016; Lenning & Ebbers, 1999; Shapiro & Levine, 1999). As technology and digital communication continue to advance, development of virtual learning communities will continue to evolve. Research shows technological and pedagogical requirements for creating virtual learning communities exist, but propose the largest barrier to facilitation and acceptance is faculty willingness to embrace technology (Blanchard & Cook, 2012; DiRamio & Wolverton, 2006; Lenning & Ebbers, 1999). Positive benefits to embracing technology in the creation of learning communities include increased accessibility, synchronous and asynchronous communications, flexibility, and the ability to extend classroom discussions outside of the classroom. Also, the ability to participate at any time gives students the opportunity to reflect and compose their thoughts before posting (Schwier, 2007). Blanchard and Cook (2012) noted that there was a lack of research about virtual communities even though more than a decade has passed since Lenning and Ebbers (1999) first introduced the concept.

**Virtual Learning Community**

“Although it may be difficult to establish a deep sense of community due to the brief duration of an online course, the sense of learning community is worth pursuing as the process of building community itself enhances effective collaboration, communication, learner engagement, and social networking that will eventually benefit both participants and the program.” (Liu et al., 2007, p. 111)

Virtual Learning Communities (VLCs) are defined as a group of students, instructors, staff, mentors, and/or alumni who interact and connect with one another using technology in an effort to converse, exchange information, share resources, and generate knowledge (Blanchard &
Virtual learning communities can connect students across classes, programs, disciplines, and years. An essential feature of VLCs is user generation of content that can be shared, thus creating a collaborative and co-construction of knowledge that reflects the collective intelligence of all the users (Gunawardena, Hermans, Sanchez, Richmond, Bohley, & Tuttle, 2009).

The creation of learning community in a virtual environment adds extra considerations for development such as choice of technology, privacy issues and the technological skills of students and faculty (Palloff & Pratt, 2007; Schwier, 2007). Lock (2007) identifies basic guidelines for creating virtual learning communities:

1) Awareness of the value of learning communities and how to establish a sense of community online;
2) consideration of the technical design and the technologies to be used;
3) ensuring that mechanisms are in place that will facilitate collaboration and communication among members; and
4) ongoing research to provide direction and support for the virtual learning community.

Likewise, Blanchard and Cook (2012) believe that the creation of a successful VLC requires identification of student needs; engagement of students and faculty in creation and design; and continued evaluation of how well the components of the VLC help students connect. Web tools and social-media enhanced learning platforms can facilitate both motivation and learning - provided that tools are utilized in a way that benefit students, meet learning outcomes, and are introduced to students as a valuable learning tool (Svendsen, 2012; Wankel & Blessinger, 2012). Virtual learning communities should be safe places that allow for reflection,
interaction, and collaborative learning; so when using existing technologies such as Facebook or other social networking sites, steps must be taken to ensure that the environment is secure (Palloff & Pratt, 2007).

Virtual learning communities can be utilized to develop an academic community of students when face-to-face interactions are not viable or to compliment and extend the traditional academic environment (Blanchard & Cook, 2012). VLCs can be utilized in online learning to improve community and interaction among students to reduce feelings of isolation in an online environment. They can also be utilized to enhance face-to-face instruction by allowing an online, easily-accessible environment, where students can continue discussions and share resources outside of the time constrains of the face-to-face classroom. Baumeister and Leary (1995) stated that people who have things in common, share common experiences, or are simply exposed to each other frequently will form social attachments to each other. Educational groups are not self-selecting; people are grouped together because they have common interests in a subject; however, through this shared interest and several interactions these educational groups can form communities among learners (Hughes, 2007).

Although it may be difficult to establish a deep sense of community in a short online course, the process of building community itself enhances collaboration, communication, learner engagement and social networking eventually benefiting both participants and their selected program (Liu et al., 2007). Brown (2001) studied how students created community within an online course and the length of time it took for them to consider that a sense of community existed. She discovered three stages of community development in an online course. First, students develop relationships and become comfortable communicating with each other. Second, thoughtful and interactive threaded discussions occur. These discussions should
demonstrate an increase in cognitive development. Finally, camaraderie is achieved after long-term, intensive interaction. Wilson, Ludwig-Hardman, Thorman, and Dunlap (2004) describe these three stages as initiation, participation and closure. Initiation focuses on learning the ropes of the course structure and technology; becoming familiar with others in the course; and developing an identity within the community. Participation involves the identification of shared goals; engagement in progressive discourse; mutual appropriation and support of knowledge building; and the development of a collaborative and respectful environment. Closure focuses on the reflection of the intensive activities performed during the participation phase.

Brown (2001) found that not all learners progressed through all three levels of community building or reported experiencing a sense of community over the period of one course. However, students who did report a sense of community, placed a high priority on the class, desired to get to know others, and participated in discussions frequently. Brown also discovered that students who were experienced with technology and online learning start community-building activities immediately, while students who are new to online learning took more time to become engaged. Additionally, students were more willing to participate in discussions when their ideas and posts were acknowledged and validated by instructors and peers. Brown learned that increased interaction led to increased levels of community which then led to increased participation and engagement.

The asynchronous nature of online communication and the potential for disconnectedness and feelings of isolation among students have led to the importance of fostering sense of community in online courses (Garrison, 2004; McInerney & Roberts, 2004; Rovai, 2002). The literature noted that it is important for facilitators of online learning to understand how online communication differs from face-to-face communication in order to create practices that help
foster community and reduce the amount of isolation among online students (Benke & Miller, 2014; Rovai, 2002). Faculty should be instructed in how to make students comfortable with technology and the different format of learning that occurs in a digital environment. Students need to be oriented to learning online and using technology. Students’ familiarity and comfort level with using technology and learning online influences the amount of social presence they perceive and can affect their ability to develop a sense of community (Tu, 2000). Because students’ level of familiarity with technology can affect their ability to develop a sense of community, the technology utilized for a virtual learning community must be selected carefully.

**Social Networking Services**

Many platforms and technologies exist today that are used for social collaboration online. These technologies can facilitate real-time social interaction and allow users to interact in a variety of ways over multiple platforms (e.g. mobile, tablet, laptop) (Lim & Richardson, 2016). Social networking sites are spaces that users can personalize and utilize for online conversations and sharing of content that promotes informal and unstructured learning (Selwyn, 2009). Research continues to explore how these social networking services (SNS), such as Facebook, Twitter, and other technologies, can be utilized as educational tools to support formal learning. These social technologies are easily accessible, available anytime, and studies suggest they have the ability to help develop students’ social and cognitive abilities (Greenhow, Gibbons, & Menzer, 2015; Wankel & Blessinger, 2012). When purposefully integrated into online courses, SNS support interaction and collaboration can be sustained over time and space (Fisher & Baird, 2005; Garrison, 2016). Students report several benefits of using SNS, such as greater access to information, peer feedback, and access to emotional support (Greenhow & Burton, 2011). Peer feedback within the SNS took several forms: chatting online to mitigate anxiety, asking
questions about instructions or deadlines, planning study groups, sharing educational resources, and brainstorming.

Caws (2012) identifies two major obstacles in using SNS for educational purposes: first, educators may assume that students are masters of all technology; and secondly, while the social use of technology has been integrated into our daily lives, education has been slow to adapt at the same level. Skills used to communicate on social media do not necessarily translate into the same skills necessary for fostering virtual learning community and deep cognitive processes, therefore students must be coached to utilize SNS technology for educational purposes rather than simply social ones (Caws, 2012). Just like any other teaching and learning tool, SNS technology must be used in a purposeful and attentive way that is appropriate to the context of the learning (Wankel & Blessinger, 2012). This section discussed virtual learning communities and some of the available technologies used to create virtual learning community. The next session discusses students’ perceptions of virtual learning community.

**Student Perceptions of Virtual Learning Community**

Students report positive experiences from participating in virtual learning communities. In a study conducted by Allan and Lewis (2006), students noted they used the community as a comfort zone to gain strength and confidence. In follow-up interviews four years later, many stated they still felt a part of their virtual learning community and continued to connect with fellow classmates. Online learners who report strong sense of community also perceive greater cognitive learning, feel less isolated, and have greater satisfaction with their academic programs (Rovai, 2002). Liu et al. (2007) reported students have a strong desire to get to know their online peers better in hopes of building an academic and social network. Their study involved content-analysis of twenty-seven online courses and a Likert-scale survey of 102 students currently
enrolled in those courses. The study also revealed evidence of a significant relationship between sense of community and students’ perceived learning and satisfaction.

Perceptions of emotional support from other students and the establishment of trust are critical aspects of social relationships formed through collaboration in a learning community (Allen & Lewis, 2006; So & Brush, 2007). Pelz (2004) discovered that online students bond earlier and better than students in a face-to-face setting because of the absence of appearance-based social factors and the relative anonymity online discussions provide. There are a number of ways that support can be exchanged in a virtual community from public discussion boards to private chat or email conversations (Blanchard, 2008). Using communication tools within the virtual learning environment to communicate and interact with each other, learners can create a network where they perceive sense of community among their classmates.

**Communication and Interaction**

Student interactions with content, instructor and peers are critical to the creation of a virtual learning community (Swan, 2001). A survey of 1,406 students indicated that students believed their level of interaction with the content, instructor, and peers in an online course was as high or higher than in face-to-face classrooms (Swan, 2001). Social interactions between students in an online course help to build trust and familiarity with others, play a significant role in the development of sense of community, and are a primary focus in the study of online education (Delahunty et al., 2005; Garrison & Cleveland-Innes, 2005; Hill, Song, & West, 2009). Most interaction within an online environment occurs in the form of threaded discussions.

Research shows that online learning can create knowledge construction and sense of community through asynchronous communication in discussion boards (Arbaugh, 2008; Liu et al., 2007; Shea & Bidjerano, 2009). There is substantial evidence that online communication allows for
greater participation and voice for traditionally-underrepresented members (Blanchard & Cook, 2012). For example, students who are timid and unlikely to speak out in a face-to-face discussion are more likely to participate in an online discussion. Not all learners, however, find online discussion board communication as useful and fulfilling (Gunawardena & Zittle, 1997; Huges, 2007). Additionally, the reduced non-verbal cues and the absence of facial expressions in computer mediated-communication can generate misunderstandings as students attempt to develop their own context and tone from their classmates’ written responses (Rovai & Jordan, 2004).

Computer-mediated communication can be carried out with anyone who has access to a computer, so the availability of personal interactions and connections is limited only by time and access (Palloff & Pratt, 2007). This asynchronous access allows students to participate at times when it is most convenient for them. As identified earlier, many online students self-select this learning medium because they need flexible access to content. Students express that online communication provides more opportunities for discussion with the instructor and classmates than the face-to-face classroom (Hill et al., 2009). Garrison and Cleveland-Innes (2005) discovered that once virtual community was formed, interaction would become deeper than simple exchanges of information and lead to deeper engagement and discussions, which in turn creates cognitive development.

Social contact and connection has been shown to be a powerful motivator (Kraut & Resnick, 2011). One concern often identified within online learning environments is the lack of interaction available to students. Students who mentioned feeling connected to their online classmates where more willing and motivated to interact (So & Brush, 2007). Continued interaction and feedback from instructors and peers increases motivation and engagement.
Students are more likely to continue interacting when they receive responses and validation from their instructor and peers (Kraut & Resnick, 2011). This was also found to be the case with non-verbal interactions in online communication such as the use of emoticons or a “like” button (Kraut & Resnick, 2011). Both verbal and non-verbal forms of validation motivated students to continue interacting in an online environment.

In their seven principles for best practices in education, Chickering and Gamson (1987) note frequent student-faculty interaction as the most important factor in student motivation and engagement. Delahunty et al., (2013) confirmed this principle by reporting that peer interaction was ranked far lower than instructor interaction for the purpose of developing sense of belonging and reducing isolation. However, Palloff and Pratt (2007) discovered that as students bonded with each other in a learning community they become more likely to look to one another for feedback and information and become less dependent on the instructor.

Lurking is a term used to describe people who read discussion board postings but do not actively participate in the discussion (Garrison, 2016). Students who are not very active in posting comments may still be highly involved in what is occurring in the discussions (Levine, 2007). Everyone within an online course has the ability to read all discussion posts. This means that all group members benefit from the exchange even if they are not actively creating discussions themselves (Blanchard, 2008). One of the benefits of online discussion boards is that posts are available to be read, reacted to, and reflected upon throughout the length of the course.

Interactions are a vital component of creating a sense of community in an online learning environment. This can include both verbal and non-verbal interactions. While most interaction that occurs within a course is focused on the content and formal instruction, there can be benefits
Informal Learning

Learning is found to be most effective when informal and formal learning coexist within a flexible learning environment that allows learners to establish community with each other (Dabbagh & Kitsantas, 2012; Hall, 2009; Selwyn, 2012). Social constructivist theory suggests that a considerable amount of learning occurs through informal interactions with others; however, little has been researched regarding how informal learning occurs in online environments (Greenhow et al., 2015). Greenhow and Robelia (2009) stated that informal learning:

- complements, supplements, and enhances classroom studies;
- does not use formal guidelines;
- extends to the affective, cognitive and social realms;
- and allows for different learning styles and students at different levels in their learning to have alternatives for how they gather information.

Off-topic and social discussions in online discussion boards are helpful in improving sense of community, building emotional connections, creating trust, generating informal knowledge, and encouraging students to participate in online communication (Lin, Hou, Wang, & Chang, 2013). These social interactions have sometimes been thought of as irrelevant discussion that detracts from the educational purpose of the course. Social interactions can actually generate informal knowledge and cognitive thinking (Fisher & Baird, 2005; Lin et al., 2013). During the process of building online community human issues emerge. Research found that conversations outside the topics of course content helped establish camaraderie, social
capital, and a sense of community among the students (Gallagher-Lepak et al., 2009). Any interactions and topics that stimulate discussion, curiosity and facilitate bonding should be encouraged in an online environment (Blanchard & Cook, 2012).

Social networking sites often are celebrated for promoting informal and unstructured learning (Selwyn, 2009). Studies revealed that college students integrate social media into their academic experiences both formally and informally (Dabbagh & Kitsantas, 2012). Many students have utilized social media to create academic groups and support networks outside of their formal learning environment (Greenhow et al., 2015). The creation of these informal groups may demonstrate that students desire to have increased access to their peers outside of the classroom. This desire to connect with peers may increase a student’s willingness to participate in various course activities that improve creation of community. The next section explores the connection between student motivation and online learning.

**Motivation to Participate**

What motivates students to participate in online discussions and interact with their peers in an online course? Kraut and Resnick (2011) feel members of online communities are intrinsically motivated to participate because it is rewarding. So and Brush (2007) reported students mentioned their feelings of closeness and connection with other students greatly affected their willingness and motivation to engage in discussions. In another study, comparing online learners to face-to-face learners, Whiting et al. (2008) discovered that students who self-select online learning have higher levels of self-efficacy and motivation, which means they are more willing to engage in active learning and interaction.

Students need to be motivated to participate in formal and informal learning activities (Garrison, 2016). Students’ perceived sense of belonging was found to contribute significantly
to their motivation to participate (Picciano, 2002). Immersion in an online course and the creation of community raised students’ self-confidence and their motivation to participate (Gallagher et. al, 2009; Whiting et. al, 2008). However, when students are not immersed in an online course or feel a sense of community, their motivation wains. When students do not feel personally valued in an academic setting, their motivation to perform is diminished and reflects in their work (Strayhorn, 2012).

This chapter has reviewed literature regarding online learning, learning community, virtual learning community, what motivates online learners, and how community can be established among learners. Research of online learning explores how existing technologies can be utilized to improve the student experience. The next section discusses the need for continued research focused on online education and virtual learning environments.

**Identified Research Needs**

Technology changes have occurred at a greater pace over the last 20 years than in the previous 200 years. Educational research continues to fill a need in the gaps of practices in pedagogy and instruction using current technologies. It is only through varied and continuing research approaches that we will gain further insight into the ways that online education can benefit from advances in technology, pedagogy, and the science of learning (Shea & Bidjerano, 2009). Research studies that improve the experiences of students have many future benefits as we learn how best to integrate technology into the teaching and learning experience. Given the many forms that learning community can take on, it is beneficial to conduct research that looks in depth at how each type affects students in an effort to predict if some learning community elements are better than others (Zhao & Kuh, 2004). Gaining insight into how to support the development of sense of community and learning within an online environment can help us to
improve course design, pedagogy, and faculty development in an effort to enhance the quality of online learning environments (Shea et al., 2006). Understanding the factors that have an influence on the success of online students has significant implications for designing virtual learning communities (Shea & Bidjerano, 2010). Learning is a social activity and the social nature of learning is important both to satisfaction with the learning experiences and perceived learning outcomes; because of this, the social aspect of online learning should be investigated (Yang et al., 2006). Although the concept of sense of community is widely acknowledged in educational research, it is not necessarily a reality in the current practice of many online programs, thus creating a need for further research and development of its pedagogical importance (Liu et al., 2007).

Summary

The purpose of this chapter was to review literature on online learning and the creation of community and sense of belonging among online students. While literature discusses the need for community among hybrid and online students and how to best develop community in an online course, there is little research on the development of virtual learning communities beyond individual courses. The research pertaining to community among entire academic programs is just beginning to emerge.

This chapter presented and discussed the literature that forms the base for this study. First, the literature on sense of community and sense of belonging was reviewed which included definitions of each. This section also outlined the conceptual framework for this study, which is based on four presences: teaching, social, cognitive, and learner existing within an online community. Next, the literature on learning community and virtual learning community was reviewed. The definition and design of learning communities and virtual learning communities
were explored to understand the positive benefits to students and the development of a sense of belonging and community among students. Finally, identified research needs were introduced. The next chapter explains the study’s research design including the research context, data collection techniques and the analysis procedures.
CHAPTER 3: METHODOLOGY

This chapter includes a description of the methods used to examine this study’s research questions. A brief review of the study’s purpose and research questions is provided. Additionally, a description of the process and criteria for selecting participants is described, as well as the research instruments and a description of the data collection and analysis methods used.

As presented in chapter two, the review of the current literature on virtual communities reveals strong evidence that the benefits of on-campus learning communities can be applied to the online environment. There is abundant research on the creation of community within a single online course; however, research on virtual learning communities use in programs is still emerging. This is significant, as there are numerous studies discussing the possibilities of virtual learning communities to support entire online programs but very few reports of their actual use.

Purpose of the Study

The purpose of this study was to determine whether the availability of an online community improves students’ perceived experiences in hybrid and online programs. This research examined students’ perceptions of a virtual learning community’s (VLC) ability to create peer networks, develop knowledge, support each other, share resources, and develop relationships with fellow program students, faculty and staff outside of a physical classroom environment. Students within each VLC will self-report on their perceptions and experiences within the community utilizing a survey instrument with Likert-scale and open-ended questions.

This is a descriptive research study with the goal of describing a particular phenomenon. Non-experimental quantitative research takes one of three forms: descriptive research, predictive research, or explanatory nonexperimental research (Johnson & Christensen, 2008). The primary
purpose of descriptive research is to provide an accurate description of a situation or phenomenon. The focus is not on cause-and-effect relationships shown through statistical analysis of variables, but rather a description of the relationships that exist. Descriptive research often is conducted to learn about the attitudes, opinions, beliefs, and perceptions of a particular population.

**Restatement of Research Questions**

The guiding research question for this study was how participants perceive their experiences after participating in a virtual learning community as part of their graduate program. Specific questions investigated were:

1. How does participation in a virtual learning community impact graduate students’ perceptions of sense of belonging; sense of community?
2. How does participation in a virtual learning community impact graduate students’ perceptions of their access to resources, faculty, peers and support?
3. To what extent do graduate students who participate in a virtual learning community report instances of the four presences reported as necessary by the Community of Inquiry framework: teaching presence, social presence, cognitive presence, and learner presence?

**Research Methods**

This mixed methods descriptive research study sought to explore, understand, and describe the perceptions of students participating in a virtual learning community. Online learning is complex; therefore, the research methods used to investigate online learning must address this complexity. Presence is a perception which can vary from individual to individual, is situational, and can vary across time which makes it a complex subject to research (Picciano,
Mixed methods research can answer questions that neither qualitative nor quantitative analysis methods can answer alone.

The mixed methods research design used in this study is a concurrent triangulation approach (Creswell & Plano Clark, 2007). It is defined as a study that runs quantitative and qualitative phases concurrently and mixes the results to create inferences. The quantitative data and qualitative data were collected concurrently with each receiving equal priority. Data analysis included information about how the community was designed, the platform in which the community was hosted, the program students are enrolled in and the results of the survey taken by students.

In addition, this research study utilized a multiple case study approach. A case study involves the study of a case within a real-life setting, bounded by time and place (Creswell, 2013). The selection of multiple cases for this study permitted the opportunity to compare similar and contrasting data and therefore helped draw more robust conclusions from the study (Yin, 2016). Additionally, multiple-case design helped to collect information about various VLC’s such as technology used, context, and enrolled students, giving a wealth of information that would have been difficult to discover by using only one case. For the purpose of this study, three VLCs were explored at different institutions, with each VLC serving as an individual case.

**Ethical Considerations**

All information collected from literature and institutions was properly cited and collected in a way that personal, identifying data were not disclosed. Students who voluntarily participated in the online surveys did not share any identifying data and remained anonymous. Email surveys that do not request identifying or personal information, that allow the research subject to remain anonymous, and are voluntary are exempt from human subject research
approval. Institutional Review Board at Iowa State University gave approval for this study on November 11, 2015 (see Appendix B). Students completing the online surveys consented to participating by returning the online surveys. Data were stored on the researcher’s computer and backed up into University-provided cloud storage. Both storage locations were password protected.

**Research Context**

The research context for this study was three virtual learning communities in the United States. These communities will be designated in the following descriptions by the labels VLC 1, VLC 2, and VLC 3 in order to obscure their identities. The descriptions of these VLCs are meant to be similar to the actual VLC in order to establish the study’s context.

**VLC 1**

Established more than 165 years ago, VLC 1 is at a private institution offering bachelors, masters and doctoral degrees. Participants in VLC 1 are students in a graduate program. This program offers traditional, evening-format courses and blended (hybrid) learning courses that combine face-to-face and online instruction. VLC 1 was created specifically for this academic program in an effort to create community among their students. At implementation, this VLC had a full-time community manager dedicated to faculty and student support within the community and software.

Of the students enrolled in this program, 63% are registered in evening-format classes (meeting in person for three hours, once per week). The remaining 37% registered students were for blended-format courses that combine online instruction with an in-person 2-day course component during each 10-week quarter. Blended-format courses are a hybrid of classroom and
online learning that include the convenience online learning without the complete loss of face-to-face content (Rovai & Jordan, 2004). The online component of this program uses an enterprise social networking system which includes formal and informal learning spaces. The blended-format program currently had 107 registered students who were invited to participate in this study.

This program utilizes the enterprise social networking (ESN) system Jive and was implemented in 2012. This ESN is used for administrative information sharing, content management for formal learning, and includes social networking aspects to encourage social, interaction, informal learning opportunities, and the creation of community. All community members have free and open access to the social and informal learning spaces. These informal discussion areas allow students to connect and expand their networks beyond students in their current courses. Members of the community include current students, faculty, administrators, and program alumni.

**VLC 2**

VLC 2 is at a public Midwest university, established more than 150 years ago offering bachelors, masters, and doctoral degrees. The participants in VLC 2 are graduate students seeking a Master of Science degree. This program is fully online and has no face-to-face meetings or requirements. VLC 2 is managed within an academic college. Students within this VLC are all in the same academic program. This program was created and is managed by a full-time staff member dedicated to student support services within this academic college.

This program is a non-thesis graduate degree requiring 30 credit hours and a creative component for completion. The program has rolling admissions. Students may start in any
semester after acceptance to the program. This means students can choose from the courses available each semester, new students will be mixed with experienced students in courses, and there is an opportunity to have different students in each course. Students in this program also share three core courses with another online graduate program at the institution. Students enrolled in these three courses could be completing either program. Students are geographically dispersed throughout the United States, Canada and South America. The program had 65 students enrolled at the time of this study.

This program uses Blackboard Learning Management System (LMS) for all of its courses and informal community organization. Blackboard Organizations are designed to be used by non-academic and academic groups for an informal collaboration space outside of the formal classroom space. This VLC was established to create community among students in this program and give them a place to collaborate with each other. This organization was established in 2015 and includes students, faculty, and administrators. The space includes announcements, discussion boards, information about the program and content sharing.

VLC 3

VLC 3 is at a public Midwest university, established more than 150 years ago offering bachelors, masters, and doctoral degrees. VLC 3 is managed within an academic college and all students within the VLC are in the same academic program. This program has a dedicated community manager. The participants in VLC 3 are graduate students in an online master’s program. This program is a hybrid program combining online courses with occasional face-to-face meetings. This program utilizes a cohort model. A new cohort begins every other summer and enrollment is limited to 15 to 20 students per cohort. Each cohort takes all program courses together, typically one course per semester. This program requires 32 credit hours and has a
creative component that requires the completion of an e-portfolio. The recommended course progression takes three years to complete.

Course delivery occurs via a learning management system (LMS). The program has used both Blackboard and Moodle. Courses are asynchronous but students are required to follow a course schedule, participate with each other in online discussions, and some courses require work on group projects. Some courses may require on-campus Saturday meetings during the semester. Students who cannot physically get to campus for these occasional face-to-face meetings may attend via video conference. The cohort model combined with occasional face-to-face meetings and video conference opportunities over a three-year period allows students to develop relationships with other students in their cohort. Many of the cohorts develop informal Facebook groups designed to support each other throughout the program.

Participants

Purposive sampling was utilized for this study in order to study programs and students who were utilizing virtual learning communities with their hybrid and online programs. The primary intention of this study was to evaluate a broad range of virtual learning communities from a single online course to a broad, informal learning community. Initial efforts to create the sample for this study began in the fall of 2015, at which time an email solicitation was sent to online program at land-grant institutions. A second call was placed on the discussion boards of a professional distance education association – University, Professional, and Continuing Education Association (UPCEA). Additional outreach efforts were made through the United States Distance Learning Association Facebook page. Three programs responded that they were working to integrate virtual learning communities into their programs but would not grant access to their students for the purposes of this study. Subsequent to this, the design of the study was
altered to include hybrid programs in addition to fully online programs. A third solicitation was sent out including the modifications for program inclusion and this resulted in three programs expressing a willingness to allow access to students for the purpose of this study.

Once a program had agreed to participate, an invitation email with an embedded survey link was sent to each program contact. Once received, the institutional contact distributed surveys to their students. Any student willing to participate simply clicked the link embedded in the email and was taken to a Qualtrics survey. Informed consent was built into the survey introduction and consent was given by virtue of completing the survey. Survey questions were based on Iowa State University’s learning community survey instrument (see Appendix A). Results of the student surveys and institution inquiries helped to identify strengths of virtual learning communities, methods for creating virtual learning communities, and technology utilized in virtual learning communities.

Twenty-three students responded to the online survey from VLC 1 yielding a 21% response rate. Of these students, thirteen were female, nine were male, and one declined to respond. Ten of the students were aged 25 to 34, eight were 35 to 44, two were 45 to 54 and three were 55 to 64. 74% of the survey respondents were Caucasian.

Fourteen students responded to the online survey from VLC 2 yielding a 21% response rate. Ten of the respondents were male and four were female. Ten of the students were aged 30 to 34, three were 35 to 44, and one was 45 to 54. The majority of the respondents were Caucasian (70%).

Twenty-nine students responded to the online survey from VLC 3 yielding a 58% response rate. Of these students, twenty-one were female, six were male, and one declined to
respond. Eight of the students were aged 25 to 34, twelve were 35 to 44, six were 45 to 54 and two were 55 to 64. 74% of the survey respondents were Caucasian.

**Research Instruments**

The survey instrument used for this research study utilizes a series of 49 statements with Likert-scale responses and 5 open-ended questions. The Likert of Summated Scale, developed by Rensis Likert in 1932 (Likert, 1932), requires individuals to make a decision on their level of agreement with a particular statement or issues on a five-point scale (i.e., Strongly Agree, Agree, Disagree, Strongly Disagree). A Likert scale is a summated rating scale composed of multiple items that are designed to measure an idea or abstract construct (Johnson & Christensen, 2008). Participants were restricted to choosing one response for each Likert scale question on the survey. Participants were able to skip any Likert-scale, open-ended statements, and questions. The Likert Scale is a commonly used tool for assessing participants’ attitudes, views, and experiences. This instrument was designed at Iowa State University to evaluate learning communities. The 49 Likert-scale statements were divided into sections based on university experience, personal experience, overall satisfaction with the learning community, learning experiences, critical thinking skills, time management, and relation to career. The five open-ended questions were: please explain why you would or would not recommend joining a virtual learning community; why did you choose to join a virtual learning community; what was the most satisfying aspect of your virtual learning community; what was your most disappointing aspect of your virtual learning community; and do you have any comments and suggestions for your virtual learning community. Survey instruments studying learning community experiences are designed to measure self-reported student perceptions.
Teaching presence was coded to 7 items on the survey instrument. Items that were attributed to teaching presence included questions about interactions with instructor and level of perceived feedback. Social presence was coded to 11 items on the survey instrument. Items that were attributed to social presence included questions about perceived support, levels of trust, levels of isolation, and levels of comfort. Cognitive presence was coded to 8 items on the survey instrument. Items that were attributed to cognitive presence included statements on analyzing and critically evaluating ideas; application of learned knowledge to work and life experiences; and exploration and recognition of new ideas presented by others. Learner presence was coded to 12 items on the survey instrument. Items that were attributed to learner presence included statements about study habits, persistence, self-efficacy, and perceived control of the learning process. Cronbach’s Alpha was used to measure the reliability of the subscales of teaching, social, cognitive, and learner presence. All of the Cronbach Alpha scores were above 0.7 (see Table 3.1), and deemed to be acceptable measures for internal consistency (O’Dwyer & Bernauer, 2014).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Institution 1</th>
<th>Institution 2</th>
<th>Institution 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching Presence</td>
<td>.861</td>
<td>.890</td>
<td>.844</td>
</tr>
<tr>
<td>Social Presence</td>
<td>.891</td>
<td>.861</td>
<td>.819</td>
</tr>
<tr>
<td>Cognitive Presence</td>
<td>.948</td>
<td>.949</td>
<td>.892</td>
</tr>
<tr>
<td>Learner Presence</td>
<td>.905</td>
<td>.909</td>
<td>.899</td>
</tr>
</tbody>
</table>

Data Collection

This descriptive, mixed methods study included quantitative and qualitative data. Data collection was concurrent with the qualitative and quantitative data receiving equal weight. Intra-method mixing, often called data triangulation when data instruments include both
quantitative and qualitative methods, was used in the surveys which included both closed- and open-ended questions. Results of the student surveys are intended to provide evidence on the strengths of virtual learning communities, methods for creating learning communities, technology utilized in online learning communities, and students’ perceptions of the sense of community, teaching presence, social presence, cognitive presence, and learning presence. Student response data were collected using online survey software tool (Qualtrics) and created a data file that was imported into SPSS.

Multiple case study data were collected through visits to institution websites, collection of program marketing documents, and via phone and email conversations with institutional representatives. Data collected included number of students in program, how program is structured, whether the program required a face-to-face component, the technology used for the virtual learning community, how the VLC is utilized by students, how long the VLC has been in use, and the parameters for survey data collection. The parameters for survey data collection included how the survey would be shared with students (whether posted in the VLC or via email), dates the survey would be open, and number of reminders that would be sent to students to increase responses during the collection phase. This information was shared in the research context for each VLC and was used to frame the findings.

**Quantitative Phase**

Students in each VLC received an online survey that asked questions about their experiences and opinions of the virtual community for which they were participating. The survey contained 49 Likert-scale statements and five open-ended questions. Participation was voluntary, with all students in each VLC having the opportunity to access the survey.
Participants responded to questions on perceptions of their experiences in a virtual learning community.

**Qualitative Phase**

Data from the qualitative phase were collected through open-ended questions from the online surveys. The survey contained five open-ended questions/statements:

1. Please explain why you would or would not recommend joining a virtual learning community.
2. Why did you choose to join a virtual learning community?
3. What is the most satisfying aspect of your virtual learning community?
4. What is the most disappointing aspect of your virtual learning community?
5. Do you have comments and/or suggestions for your virtual learning community?

**Data Analysis**

The Community of Inquiry (CoI) framework was used to guide, interpret, and analyze the data. This study utilized the CoI framework in two ways: as a conceptual theory and as a coding template. The CoI framework is based on goal-directed collaborative interaction that supports a sense of community through three forms of presence: teaching, social and cognitive (Garrison et al., 2000). The expanded CoI framework which includes the addition of learning presence was utilized for this study. Teaching presence is viewed as the core role of the instructor and involves instruction, course design, and facilitation of discourse (Shea et al., 2006). Social presence is the ability to project one’s self and establish purposeful relationships, and is considered essential for establishing relationships within the online learning community (Ryman et al., 2009). Cognitive presence is defined as the exploration, construction, resolution and
confirmation of understanding through collaboration and reflection in a community (Garrison, 2004). Learning presence is defined as the phases of forethought, performance, and reflection associated with self-regulated learning (Shea et al., 2014).

**Legitimation**

Reliability of the quantitative phase included comparing the internal consistency of the survey findings to previous studies that utilized the CoI coding schematic. Validation involved using experts (i.e., Garrison, Arbaugh, Cleveland-Innes, Shea, & Swan) who are researchers that have all conducted qualitative and quantitative investigations contributing to the development of the CoI framework. All of these researchers have reported numerous studies and results that support the alignment of the survey items with the elements of the CoI framework (Shea & Bidjerano, 2009).

Applying the CoI framework to research an online community allows for the analysis of social, teaching, cognitive and learning presence that occurs in these types of environments (Scott et al., 2016). The amount of presence perceived in an environment is situational and varies from person to person, thus making presence a complex subject to research (Picciano, 2002). The CoI coding scheme was utilized to identify messages that could be analyzed at the category level for teaching, social, cognitive and learning presence. Shea et. al (2014) added the learner presence element after researching a variety of informal online learning environments and finding that they wanted a way to show peer-to-peer interactions outside of the teaching presence element which is where the original coding scheme locates them. A brief synopsis of the CoI coding scheme is included in Table 3.2.
Table 3.2: Expanded Community of Inquiry framework and coding scheme (Shea et al., 2012; Scott et al., 2016).

<table>
<thead>
<tr>
<th>Elements</th>
<th>Categories</th>
<th>Indicators (examples only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive Presence</td>
<td>Triggering Event</td>
<td>Sense of puzzlement</td>
</tr>
<tr>
<td></td>
<td>Exploration</td>
<td>Information exchange</td>
</tr>
<tr>
<td></td>
<td>Integration</td>
<td>Connecting ideas</td>
</tr>
<tr>
<td></td>
<td>Resolution</td>
<td>Apply new ideas</td>
</tr>
<tr>
<td>Social Presence</td>
<td>Emotional Expression</td>
<td>Emotions</td>
</tr>
<tr>
<td></td>
<td>Open Communication</td>
<td>Risk-free expression</td>
</tr>
<tr>
<td></td>
<td>Group Cohesion</td>
<td>Encouraging collaboration</td>
</tr>
<tr>
<td>Teaching Presence</td>
<td>Instructional Management</td>
<td>Defining and initiating discussion topics</td>
</tr>
<tr>
<td></td>
<td>Building Understanding</td>
<td>Sharing personal meaning</td>
</tr>
<tr>
<td></td>
<td>Direct Instruction</td>
<td>Focusing discussion</td>
</tr>
<tr>
<td>Learner Presence</td>
<td>Strategy</td>
<td>Seeking help</td>
</tr>
<tr>
<td></td>
<td>Forethought &amp; Planning</td>
<td>Goal setting</td>
</tr>
<tr>
<td></td>
<td>Monitoring</td>
<td>Checking for understanding</td>
</tr>
<tr>
<td></td>
<td>Reflection</td>
<td>Sharing opinion, understanding or meaning</td>
</tr>
</tbody>
</table>

Data for the quantitative segment of this study were analyzed by using descriptive statistical methods. With descriptive statistics, the goal is to describe, summarize, or make sense of a particular set of data (Johnson & Christensen, 2008). To check the reliability of the survey, Cronbach’s Alpha value was used to compute and report each scale for all the items of the questionnaire to test internal consistency. Data for the qualitative segment of this study were analyzed themes according to the CoI framework and coding scheme. Additional themes that emerged outside of CoI elements of teaching presence, social presence, learner presence, and cognitive presence were explored and will be reported in the research findings.

Limitations

This study addresses the experiences of students within online or hybrid graduate programs. Most students in this population are working professionals with significant responsibilities at home and in the workplace. They may also have existing support systems
outside of their peer learners that they are dependent on which could contribute to their lack of participation in a VLC. The delimitations include students who willingly participate in an informal VLC as part of their overall studies and were willing to self-report their experiences through participation in the online survey. In this research study, the VLC environment included all students within a program with voluntary participation on the part of the students. The VLC was not part of a single course and students were not graded for their participation in the VLC.

Anticipated limitations are the inability to generalize this study to the general student population. As students must self-select to participate in the survey, this research will not be typical of students in a single course. Despite these limitations, as online education grows and educational technologies advance, research that studies students’ perceptions in online communities can provide valuable information and insight into design of online courses and programs.

Chapter Summary

This chapter covered the research methodology employed in this study. This descriptive study employs a mixed-methods concurrent triangulation approach centered around case study data, Likert survey data, and open-ended survey questions. Finally, the research procedures were described followed by the research settings and an overview of how data analysis was carried out. This information provides the background for the results presented in Chapter 4.
CHAPTER 4: FINDINGS

The purpose of this descriptive study was to explore, understand, and describe the perceptions of students participating in virtual learning communities as part of their graduate program. A concurrent triangulation design was used which collects qualitative and quantitative data at the same time with equal weight given to both data types. The rationale for collecting both quantitative and qualitative data was to merge the results as to more fully describe the student perceptions of the virtual learning community. This chapter presents the results of the survey data and open-ended responses per virtual learning community (VLC). Additionally, results of the survey and open-ended responses as they pertain to teaching presence, social presence, cognitive presence, learning presence, and overall sense of community are presented. Some additional auxiliary findings will also be shared and discussed.

Research Results

The research findings are presented in an effort to answer each research question. The guiding research question for this study was how graduate students perceive their experiences after participating in a virtual learning community as part of their graduate program. Specific research questions investigated were:

1. How does participation in a virtual learning community impact graduate students’ perceptions of sense of belonging; sense of community?
2. How does participation in a virtual learning community impact graduate students’ perceptions of their access to resources, faculty, peers and support?
3. To what extent do graduate students who participate in a virtual learning community report instances of the four presences reported as necessary by the Community of Inquiry framework: teaching presence, social presence, cognitive presence, and learner presence?
Results for the three sub-questions are shared first. In addition, auxiliary findings that report the students' overall experience will be analyzed in an effort to determine whether students indicate positive experiences with their educational experience after participating in a virtual learning community as part of their graduate program.

**Research Question One**

The first research question asked how does participation in a virtual learning community impact graduate students' perceptions of sense of belonging; sense of community? Strayhorn defines “sense of belonging” as the feeling of being valued, needed, and significant within a system or environment (Strayhorn, 2012). Students who lack a sense of belonging suffer higher levels of mental and physical illness, are more likely to drop out of learning environments, and exhibit feelings of isolation, rejection, and exclusion (Baumeister & Leary, 1995). Students who feel a strong sense of belonging have higher academic achievement, retention and persistence (Baumeister & Leary, 1995; Strayhorn, 2012). Community is defined as a group of learners who share knowledge and goals, possess shared expectations, and believe that they matter to each other (Mercer, 2000; Rovai, 2002).

All of the survey questions asked students about perceptions of virtual learning community (VLC), however, two of the survey questions specifically asked students about perceptions of their sense of belonging or sense of community within the program. One question focused on their sense of belonging in the college community and the other question asked about their sense of belonging among other students. Tables 4.1 and 4.2 display the Likert-scaled responses for all three VLCs.
Table 4.1

Responses to survey question: My Participation in an online learning community best describes my sense of belonging in the college community

<table>
<thead>
<tr>
<th></th>
<th>VLC 1</th>
<th></th>
<th></th>
<th>VLC 2</th>
<th></th>
<th></th>
<th>VLC 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>5</td>
<td>21.7%</td>
<td>2</td>
<td>14.3%</td>
<td>9</td>
<td>31.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td>9</td>
<td>39.1%</td>
<td>4</td>
<td>28.6%</td>
<td>17</td>
<td>58.6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neither</td>
<td>5</td>
<td>21.7%</td>
<td>3</td>
<td>21.4%</td>
<td>2</td>
<td>6.9%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disagree</td>
<td>2</td>
<td>8.7%</td>
<td>1</td>
<td>7.1%</td>
<td>1</td>
<td>3.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>2</td>
<td>8.7%</td>
<td>4</td>
<td>28.6%</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>n=23</td>
<td>100.0%</td>
<td>n=14</td>
<td>100.0%</td>
<td>n=29</td>
<td>100.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As presented in table 4.1, students in VLC 3 reported the highest agreement for feeling a sense of belonging in the college community with 89.6% of respondents either agreeing or strongly agreeing. Three students from VLC 3 commented that the sense of college community was the most satisfying aspect of participating in a VLC. 60.8% of the students in VLC 1 agreed that they felt a sense of belonging within the college community. A student from VLC 1 commented that participating in a VLC, “elevates one’s sense of community.” However, slightly less than half of the students (42.9%) in VLC 2 agreed that they felt a sense of belonging within the college community. VLC 2 was the only community among the three which was entirely online. The other two communities had required face-to-face components. It is possible that the requirement to physically come to campus as part of the program explains the higher sense of belonging in the college community among VLC 1 and VLC 3.
Table 4.2

Responses to survey question: I feel a sense of belonging with other students

<table>
<thead>
<tr>
<th></th>
<th>VLC 1</th>
<th></th>
<th>VLC 2</th>
<th></th>
<th>VLC 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>6</td>
<td>26.1%</td>
<td>1</td>
<td>7.1%</td>
<td>15</td>
<td>51.7%</td>
</tr>
<tr>
<td>Agree</td>
<td>11</td>
<td>47.8%</td>
<td>5</td>
<td>35.7%</td>
<td>13</td>
<td>44.8%</td>
</tr>
<tr>
<td>Neither</td>
<td>2</td>
<td>8.7%</td>
<td>4</td>
<td>28.6%</td>
<td>1</td>
<td>3.4%</td>
</tr>
<tr>
<td>Disagree</td>
<td>2</td>
<td>8.7%</td>
<td>3</td>
<td>21.4%</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>2</td>
<td>8.7%</td>
<td>1</td>
<td>7.1%</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>n=23</td>
<td>100.0%</td>
<td></td>
<td>n=14</td>
<td>100.0%</td>
<td>n=29</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Table 4.2 shows a higher agreement about the sense of belonging felt with other students in VLC 1 (73.9%) and 3 but similar agreement from students in VLC 2 (42.8%). Students in VLC 3 reported the highest agreement for feeling a sense of belonging with other students with 96.5% of respondents either agreeing or strongly agreeing. One student from VLC 3 commented, “we really became a cohesive unit and we still keep in contact with each other after graduation.” Nine students from VLC 3 responded that the most satisfying aspect of participating in a VLC was the connections and relationships they developed with fellow students. 73.9% of the students in VLC 1 agreed or strongly agreed that they felt a sense of belonging with other students. A student from VLC 1 commented that the most satisfying aspect of participating in a VLC was, “the ability to build relationships and feel connections with other students even when I rarely see them.” Another student in VLC 1 agreed with this by stating their most satisfying aspect was, “connectedness I feel with my classmates.” However, slightly less than half of the students (42.8%) in VLC 2 agreed that they felt a sense of belonging with other students. One student from VLC 2 did state that the most satisfying aspect of their VLC was, “developing a sense of camaraderie among other students.” However, five students from VLC 2 expressed their
frustrations with the lack of interaction and relationships among their peers when responding to the question asking about the most disappointing aspect of their community. One student from VLC 2 responded, “you don’t get any real interaction or form any actual relationships. It’s also hard to read people through strictly online interactions.”

The first research question asked how participation in a virtual learning community impacts graduate students’ perceptions of sense of belonging; sense of community? Students from VLC 1 and VLC 3 reported high perceptions of sense of belonging and sense of community both with the college and their fellow students. Students from VLC 2 were more varied in their perceptions with less than half of the students reporting a sense of belonging within the college community and among other students. Both VLC 1 and VLC 3 have been in existence for several years. VLC 2 had been established only six months prior to administration of the survey. It is possible that students in VLC 2 are less inclined to perceive a sense of belonging because of the short time frame their VLC has been in place. This could possibly indicate that students’ sense of belonging and sense of community need a greater amount of time to be established. Sense of community is established over time, and, as many online courses last only a few weeks or months, it is arguable whether enough time elapses for online identities to be built and sense of community to develop (Oztok, 2012).

Additionally, rolling admissions in VLC2 allow students to start the program during any course and any semester. This can decrease the likelihood that program students would share several classes together over the course of a couple of years. VLC 1 and VLC 3 require students to start together and VLC 3 utilizes a cohort model which recommends that students take all of the program courses together. Further research is necessary to determine if the cohort model in online learning allows students to form a stronger sense of community than other programmatic
forms. There is little literature about the online cohort learning experience (Tisdell, Strohschen, Carver, Corriga, Nash, Nelson, Royer, Strom-Mackey, & O’Connor, 2004). However, what literature does exist shows positive benefits for the cohort model and their ability to establish community and sense of belonging among students (Conrad, 2002; Conrad, 2005; Tisdell et al., 2004). One student from VLC 3 stated, “I was with the same group of students for three years so I was able to develop closer relationships with them when compared to stand alone online courses.” Another student from VLC 3 also commented positively about the cohort model, “I love having the cohort model in my online courses so I could stay with the same people throughout the program.” Additionally, a third student from VLC 3 commented, “the most satisfying part of the VLC was being in a cohort. It’s helpful and easier to learn and work with people you know well.”

Another interesting difference between VLC 1, VLC 2, and VLC 3, is that VLC 2 is the only community with no face-to-face interaction during their program. Conrad (2005) discovered during two separate studies of hybrid programs that learners indicated the ability to meet faculty and students face-to-face enhanced their ability to create community in an online environment. Both of the programs Conrad studied required a face-to-face two-day orientation before the start of the program. Students in a different study acknowledged that meeting other program students and faculty face-to-face made subsequent online communication easier and more familiar (Tisdell et al., 2004). It is possible that the higher agreement reported for sense of belonging within VLC 1 and VLC 3 are the result of their required face-to-face components throughout their respective programs.
Research Question Two

The second research question asked how does participating in a virtual learning community impact graduates’ students’ perceptions of their access to resources, faculty, peers and support. Results of survey questions will be shared. Additionally, students’ responses to open-ended questions that specifically mention their perceptions of access to resources, faculty, peers and support will also be shared.

This section reviews how participating in a VLC impacts students’ perceptions of their access to resources, faculty, peers and support. One of the ongoing challenges for institutions engaged in online learning is providing support services for students (Simpson, 2012). Access to support and resources are important factors in online students’ perceived satisfaction with their programs and can have a large impact on retention of online students (Lee, 2010). According to Strayhorn (2012), graduate students feel more confident in their academic abilities when they have clear access to resources, instructions, and support. Available, easy to find resources and access to support are integral factors preventing students from academic failure (Tinto & Engstrom, 2008). Tables 4.3, 4.4, and 4.5 display the results of graduate students’ perceptions of their access to resources, faculty, peers and support.

Table 4.3

*Responses to the statement: My participation in a virtual learning community increases my opportunity to interact with university faculty and staff*

<table>
<thead>
<tr>
<th></th>
<th>VLC 1</th>
<th></th>
<th>VLC 2</th>
<th></th>
<th>VLC 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>10</td>
<td>43.5%</td>
<td>3</td>
<td>21.4%</td>
<td>10</td>
<td>34.5%</td>
</tr>
<tr>
<td>Agree</td>
<td>10</td>
<td>43.5%</td>
<td>6</td>
<td>42.9%</td>
<td>14</td>
<td>48.3%</td>
</tr>
<tr>
<td>Neither Agree or Disagree</td>
<td>3</td>
<td>13.0%</td>
<td>4</td>
<td>28.6%</td>
<td>2</td>
<td>6.9%</td>
</tr>
<tr>
<td>Disagree</td>
<td>0</td>
<td>0.0%</td>
<td>1</td>
<td>7.1%</td>
<td>3</td>
<td>10.3%</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>0</td>
<td>0.0%</td>
<td>0</td>
<td>0.0%</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>n=23</td>
<td></td>
<td>100.0%</td>
<td>n=14</td>
<td>100.0%</td>
<td>n=29</td>
<td>100.0%</td>
</tr>
</tbody>
</table>
Students in every VLC reported that participating in a VLC increased their opportunities to interact with faculty and staff (see Table 4.3). VLC 1 reported the highest agreement (87.0%), with VLC 3 at 82.8% and VLC 2 at 64.3% for strongly agreeing and agreeing with this statement. VLC 1 has a dedicated staff community manager during the implementation of the ESN software but this person was removed once administration felt the community was established. Two students from VLC 1 suggested in their written comments that the manager was an important asset to students. One student commented, “continue with active management of the community. It is so overwhelming for students and the manager helped navigate that.” Another student from VLC 1 commented, “I wish they would bring back the community manager. I disagree that the institution felt the community was established enough to function without continued management.” These were the only comments from any of the participating students across all three VLCs that talked about the importance of program staff. All other interaction was focused on the interaction between faculty/student and student/student. The findings related to these interactions are further explored under research question three.

Table 4.4

Responses to the statement: Participation in a VLC has affected my sense of social support at the institution

<table>
<thead>
<tr>
<th></th>
<th>VLC 1</th>
<th></th>
<th>VLC 2</th>
<th></th>
<th>VLC 3</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>7</td>
<td>30.4%</td>
<td>2</td>
<td>14.3%</td>
<td>5</td>
<td>17.2%</td>
</tr>
<tr>
<td>Agree</td>
<td>8</td>
<td>34.8%</td>
<td>2</td>
<td>14.3%</td>
<td>12</td>
<td>41.4%</td>
</tr>
<tr>
<td>Neither Agree or Disagree</td>
<td>3</td>
<td>13.0%</td>
<td>6</td>
<td>42.9%</td>
<td>9</td>
<td>31.0%</td>
</tr>
<tr>
<td>Disagree</td>
<td>3</td>
<td>13.0%</td>
<td>1</td>
<td>7.1%</td>
<td>3</td>
<td>10.3%</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>2</td>
<td>8.7%</td>
<td>3</td>
<td>21.4%</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>n=23</td>
<td>100.0%</td>
<td>n=14</td>
<td>100.0%</td>
<td>n=29</td>
<td>100.0%</td>
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</tr>
</tbody>
</table>
Students’ sense of support is closely related to motivation, satisfaction and quality of learning (Lee, 2010; Lee, Srinivasan, Trail, Lewis, & Lopez, 2011). Simpson (2012) identifies two types of support necessary for college students: academic and non-academic. Non-academic, or social support, is a support of students in the emotional and organizational aspects of their studies. Rovai (2002) defines social support as students’ perception that they have assistance available from other people. In a survey asking students to rank who it was important to receive support from, students ranked family first, faculty second, peers third, and the institution last (Simpson, 2012). Holder (2007) discovered that student’s level of perceived support directly affected satisfaction and persistence.

A slight majority (65.2%) of students from VLC 1 either strongly agreed or agreed to feeling a sense of support at the institution (see Table 4.4). 28.5% of students in VLC 2 did not feel a sense of social support at the institution as part of their participation within a VLC, while almost half (42.9%) choose the option of neither agreeing or disagreeing that they felt a sense of support. Choosing this option might indicate that they are not looking to the institution for support. Just over half of the students from VLC 3 (58.6%) agreed or strongly agreed to feeling a sense of support at the institution. One student from VLC 3 commented, “the VLC becomes like a second family, as they are going through all the same things you are.”

What is not known from this finding is how students defined support and whether their definitions of support would be found at the institutional level. The lower responses to this question could indicate what Simpson (2012) found in relation to where students seek out support. Simpson (2012) discovered that the institution was the last place students looked to for support. Some researchers feel that feelings of social support can take a long time to establish among online students (Oztok, 2012). The degree of social support students perceive is based on
a combination of the characteristics of the environment and user’s perceptions (Tu & McIsaac, 2010). This may account for the mixed reports of feeling a sense of social support at the institution. Additionally, this statement asks about sense of support felt within the institution and not within the VLC. Students could report a strong sense of support within their community and a low sense of support from the institution. Students from all three VLCs shared comments about their experiences participating in a VLC but none specifically mentioned their relationship with the institution. Yang et al. (2006) found during their research that students report their perceptions of social presence differently between peers, instructors, and the institution.

Table 4.5

<table>
<thead>
<tr>
<th></th>
<th>VLC 1</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
<td>f=</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>11</td>
<td>47.8%</td>
<td>2</td>
<td>14.3%</td>
<td>10</td>
</tr>
<tr>
<td>Agree</td>
<td>7</td>
<td>30.4%</td>
<td>6</td>
<td>42.9%</td>
<td>11</td>
</tr>
<tr>
<td>Neither Agree or Disagree</td>
<td>4</td>
<td>17.4%</td>
<td>4</td>
<td>28.6%</td>
<td>5</td>
</tr>
<tr>
<td>Disagree</td>
<td>0</td>
<td>0.0%</td>
<td>2</td>
<td>14.3%</td>
<td>3</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>1</td>
<td>4.3%</td>
<td>0</td>
<td>0.0%</td>
<td>0</td>
</tr>
<tr>
<td>n=23</td>
<td>100.0%</td>
<td></td>
<td>n=14</td>
<td>100.0%</td>
<td>n=29</td>
</tr>
</tbody>
</table>

The majority of students from VLC 1 agree that participation in a VLC allows them access to resources (see Table 4.5). Resources are defined as institutional support services available to students such as advising, tutoring, writing assistance, access to library materials, career services, financial aid and technical support (Buchanan, 2000; Simpson, 2012). 78.2% of the students from VLC 1 agreed or strongly agreed that participating in a VLC allowed them to be aware of resources available to online student. One student wrote the most satisfying aspect of
participating in a VLC was the ability to “save resources to return to later.” Another student from VLC 1 reported that they appreciated the “vast amount of available information and ability to reach out to others and quickly get answers.” Some students in VLC 1 did express their frustrations with learning the new technological skills needed to navigate the VLC system. One student wrote, “I wish they would provide students with guidelines, examples and support. I felt like it was a sink or swim experience.”

Slightly more than half of the students from VLC 2 (57.2%) felt aware of resources available to online students. When asked for suggestions to improve their VLC, one student from VLC 2 commented, “For incoming students, it would be great to have an introduction page that features all of the instructors and staff. Also, a central location for all resources would be beneficial.” Another student from VLC 2 commented when asked about the most disappointing aspect of participating in a VLC, “the lack of an orientation for my program. I don’t know what resources are available or where to find them.”

72.4% of the students from VLC 3 perceived awareness of resources available to online students. However, one student from VLC 3 commented, “don’t make students have to go searching for resources. Make them all available right away and in the same place. Make it organized and easy for the student so they can focus on learning.” Another student from VLC 3 focused on course resources instead of institutional resources and commented, “there were inconsistencies in how course resources were shared and accessible. Some instructors were great and others were poorly organized.”

Benke and Miller (2013) stated successful online programs must provide resources and support to students in ways that are easily accessible. Rovai et al. (2008) describe the ideal learning environment as one which provides learners with the resources needed to take charge of
their own learning. The results from this statement show that a majority of the students who participated in this study feel that they know how and where to find resources. Students who were frustrated and felt they did not know what resources were available to them suggested orientation and central repositories of resources as ways to improve access to resources. Students perceptions of access to resources, support, and services has a higher total impact on motivation and student satisfaction than other constructs and lack of resources, support and services can lead to feelings of isolation and frustration (Lee, 2010; Shelton & Saltsman, 2005).

One of the recurring issues in online learning literature is the feeling of isolation among students studying remotely from their peers. Pallff and Pratt (2007) argue that careful attention should be paid to course design and establishing instructor presence in an effort to reduce feelings of isolation. Course design that aims to instill a sense of community with various components such as chat and discussions are recommended to reduce the feeling of isolation. Reducing feelings of isolation among online learners has been shown to increase retention and satisfaction (Rovai, 2002). Students report that courses designed with high levels of reading text-based content and video lectures led to feelings of disconnectedness and isolation from the faculty and other students; however, when courses included active discussion and socialization, students reported high satisfaction (Boling et al., 2012). When Conrad (2005) asked students whose responsibility it was to create community in an online environment, 23% of respondents said instructors while the remaining respondents indicated it should be a mixed responsibility between instructors, staff and students. Students who participated in this study were asked to report on their feelings of isolation. The results are displayed in Tables 4.6, 4.7, and 4.8.
Table 4.6

<table>
<thead>
<tr>
<th></th>
<th>VLC 1</th>
<th>VLC 2</th>
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</thead>
<tbody>
<tr>
<td>f</td>
<td>%</td>
<td>f</td>
<td>%</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>0</td>
<td>0.0%</td>
<td>1</td>
</tr>
<tr>
<td>Agree</td>
<td>0</td>
<td>0.0%</td>
<td>8</td>
</tr>
<tr>
<td>Neither Agree or Disagree</td>
<td>4</td>
<td>17.4%</td>
<td>2</td>
</tr>
<tr>
<td>Disagree</td>
<td>11</td>
<td>47.8%</td>
<td>2</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>8</td>
<td>34.8%</td>
<td>1</td>
</tr>
<tr>
<td>n=23</td>
<td>100.0%</td>
<td>n=14</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

None of the students in VLC 1 reported feeling isolated from the institution and 20.7% of the students in VLC 3 reported feeling isolated; however, more than half of the students from VLC 2 (64.2%) reported feeling isolated from the institution (see Table 4.6). What these findings do not show is what outreach and activities reduce feelings of isolation between institutions and online students. None of the participating students wrote comments in their responses to open-ended questions about relationships or feelings about the institution as a whole. VLC 2 is the only program which operates completely online and has no face-to-face requirements. The students in VLC 2 are not required to physically visit campus anytime during their program. The lack of physical interactions between students and the institution may explain why students in VLC 2 feel so isolated.
Table 4.7

Responses to the statement: I feel isolated from the faculty

<table>
<thead>
<tr>
<th></th>
<th>VLC 1</th>
<th></th>
<th>VLC 2</th>
<th></th>
<th>VLC 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>0</td>
<td>0.0%</td>
<td>1</td>
<td>7.1%</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Agree</td>
<td>1</td>
<td>4.3%</td>
<td>6</td>
<td>42.9%</td>
<td>5</td>
<td>17.2%</td>
</tr>
<tr>
<td>Neither Agree or Disagree</td>
<td>5</td>
<td>21.7%</td>
<td>4</td>
<td>28.6%</td>
<td>4</td>
<td>13.8%</td>
</tr>
<tr>
<td>Disagree</td>
<td>8</td>
<td>34.8%</td>
<td>2</td>
<td>14.3%</td>
<td>16</td>
<td>55.2%</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>9</td>
<td>39.1%</td>
<td>1</td>
<td>7.1%</td>
<td>4</td>
<td>13.8%</td>
</tr>
<tr>
<td>n=23</td>
<td></td>
<td>100.0%</td>
<td>n=14</td>
<td>100.0%</td>
<td>n=29</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

The majority of students from VLC 1 (73.9%) and VLC 3 (69.0%) do not report feeling isolated from faculty; however, 50% of the students from VLC 2 did report feeling isolated from faculty (see Table 4.7). None of the written student comments discussed feelings of isolation from faculty. The majority of written comments about faculty were in reference to faculty’s experience working with technology. Additional statements and findings regarding faculty will be discussed in relation to teaching presence.

Table 4.8

Responses to the statement: I feel isolated from the faculty

<table>
<thead>
<tr>
<th></th>
<th>VLC 1</th>
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<th>VLC 2</th>
<th></th>
<th>VLC 3</th>
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<tbody>
<tr>
<td></td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>0</td>
<td>0.0%</td>
<td>1</td>
<td>7.1%</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Agree</td>
<td>1</td>
<td>4.3%</td>
<td>6</td>
<td>42.9%</td>
<td>5</td>
<td>17.2%</td>
</tr>
<tr>
<td>Neither Agree or Disagree</td>
<td>5</td>
<td>21.7%</td>
<td>4</td>
<td>28.6%</td>
<td>4</td>
<td>13.8%</td>
</tr>
<tr>
<td>Disagree</td>
<td>8</td>
<td>34.8%</td>
<td>2</td>
<td>14.3%</td>
<td>16</td>
<td>55.2%</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>9</td>
<td>39.1%</td>
<td>1</td>
<td>7.1%</td>
<td>4</td>
<td>13.8%</td>
</tr>
<tr>
<td>n=23</td>
<td></td>
<td>100.0%</td>
<td>n=14</td>
<td>100.0%</td>
<td>n=29</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

The majority of students from VLC 1 (73.9%) do not feel isolated from other students (see Table 4.8). Student comments from VLC 1 during open-ended comments included
responses about missing face-to-face interaction and wishing their peers participated more in online discussions. Examples of comments from VLC 1 students include, “The VLC does not enhance relationship building,” and “there could always be more participation from other students.” One student from VLC 1 commented, “I feel that virtual learning communities are shadows of face to face interaction.”

57.2% of the students from VLC 2 report feeling isolated from other students. Some students in VLC 2 expressed that online learning felt more isolating than face-to-face. Similar to comments in VLC 1, three students from VLC 2 also commented on the lack of participation from other students as being an issue. One student commented that, “it can just never compare to being on-campus and communicating face-to-face.” Another student from VLC 2 suggested adding video components to the VLC as, “online students are faceless voices.” Adding video conferences to online programs can allow students to see each other when interacting. Conrad (2002) discovered that students felt more comfortable communicating in online discussion boards after physically seeing the faces of their classmates.

79.3% of the students from VLC 3 either disagree or strongly disagree to feeling isolated from other students. Two students from VLC 3 commented on the participation levels of others. One student from VLC 3 commented, “the more you participate, the more you get out of the VLC experience.” Otherwise, student comments from VLC 3 focused on creating a social environment where students could connect with each other on a social level outside of the academic environment. Several students referenced a Facebook community utilized by their cohort. One student from VLC 3 stated, “authentic conversations and friendships were built using social media – away from the eyes of faculty. When these discussions occur in the academic boards they can feel evaluative instead of authentic.”
As discussed in the findings of research question one, the feelings of isolation within VLC 2 could be contributed to the short amount of time the VLC had been established or the structure of the online program. Not all learners find online communication with unseen persons useful and fulfilling, and many do not feel socially connected online (Gunawardena & Zittle, 1997; Hughes, 2007). A student from VLC 2 commented that, “I chose this program because it was online and advertised for working professionals. In my opinion, discussions, group projects, and attempting to connect to others are needless busy work and a waste of my time.” Liu et al. (2007) discovered that while many students indicated a desire to connect with their peers, a few showed indifference and associated online learning with lowered expectations for being social.

An interesting finding is that VLC 3 reported a higher sense of community within the college (only 1 student selected disagree) and higher sense of belonging among students (no students selected disagree than VLC 1 and VLC 2; however, a minimum of 5 students from VLC 3 reported feeling isolated from the institution, faculty and other students. The findings from VLC 1 and VLC 2 were more consistent in their reports of isolation and feeling a sense of community. This finding, while small, contradicts the literature which states that an established sense of community reduces feelings of isolation among students (Rovai, 2002).

This section looked at how students perceived their access to resources, faculty, peers and support. The literature in chapter 2 discussed that online students’ perceptions of access to resources, faculty, peers and support can reduce feelings of isolation and improve overall reported satisfaction with an online program (Palloff & Pratt, 2007; Rovai, 2002). While many of the findings in this section show that participation in a VLC can reduce feelings of isolation and increase access to resources, faculty, peers, and support, there were also gaps in how all students
perceived the level of access. Students in VLC 1 and VLC 2 noted that an orientation or guide would be beneficial to online students participating in a VLC.

**Research Question Three**

The third research question asked to what extent do graduate students who participate in a virtual learning community report instances of the four presences reported as necessary by the Community of Inquiry framework: teaching presence, social presence, cognitive presence, and learner presence? This section reports the findings related to the four presences identified within the community of inquiry framework: teaching, social, cognitive and learner. Survey results are presented as examples of how students perceive each of the presences within their own communities. Each of the four presences will be reported individually.

**Teaching Presence**

Teaching presence is viewed as the core role of the instructor and involves instruction, course design, and facilitation of discourse (Shea et al., 2006). Student perceptions of teacher presence, including effective instructional design and course organization, affects their perceptions of sense of community (Miller, 2014). Conrad (2005) discovered that instructors who students regarded as good with technology and online teaching created community while poorly rated instructors negatively affected community. One of the highest-rated course components contributing to teaching presence is interaction (Garrison, 2016). Online students reported that effective online teachers strive to establish relationships and facilitate course discussion and student interaction (Bailey & Card, 2009). Another highly rated form of teacher-student interaction was in the form of feedback. Students ranked feedback as an integral component of teacher presence in several research studies (Boling, Hough, Krinsky, Saleem &
Seven items on the virtual learning community survey were attributed to teaching presence. Items that were attributed to teaching presence included questions about interactions with instructor and level of perceived feedback. Tables 4.9, 4.10, and 4.11 display the Likert scale responses of students from all three VLCs to a representation of some of the teaching presence items on the survey.

**Table 4.9**

<table>
<thead>
<tr>
<th></th>
<th>VLC 1</th>
<th></th>
<th>VLC 2</th>
<th></th>
<th>VLC 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>8</td>
<td>34.8%</td>
<td>2</td>
<td>14.3%</td>
<td>13</td>
<td>44.8%</td>
</tr>
<tr>
<td>Agree</td>
<td>13</td>
<td>56.5%</td>
<td>7</td>
<td>50.0%</td>
<td>12</td>
<td>41.4%</td>
</tr>
<tr>
<td>Neither Agree or Disagree</td>
<td>0</td>
<td>0.0%</td>
<td>2</td>
<td>14.3%</td>
<td>3</td>
<td>10.3%</td>
</tr>
<tr>
<td>Disagree</td>
<td>2</td>
<td>8.7%</td>
<td>2</td>
<td>14.3%</td>
<td>1</td>
<td>3.4%</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>0</td>
<td>0.0%</td>
<td>1</td>
<td>7.1%</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>n=23</td>
<td>100.0%</td>
<td></td>
<td>n=14</td>
<td>100.0%</td>
<td>n=29</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Table 4.9 illustrates that the majority of students in all three VLCs felt that participation in a VLC offered increased opportunities to communicate with their class instructor. This supports similar findings from a research study conducted by Swan (2001) which indicated that most online students perceived their level of interaction with their instructor was as high or higher in an online environment when compared to face-to-face courses. 91.3% of students from VLC 1 either agreed or strongly agreed that opportunities to communicate with instructors were increased, while 64.3% students from VLC 2 and 86.2% of students from VLC 3 felt the same. One student from VLC 2 commented that the most satisfying aspect of participating in a VLC was, “interaction with students and instructors.” Another student from VLC 2 noted that the most
satisfying aspect for them was, “interaction with the instructors and hearing about their research expertise.” One student from VLC 3 responded that the most disappointing aspect of her VLC was, “lack of instructor involvement in the course.”

**Table 4.10**

*Response to the statement: I feel that I receive valuable feedback*

<table>
<thead>
<tr>
<th></th>
<th>VLC 1</th>
<th></th>
<th>VLC 2</th>
<th></th>
<th>VLC 3</th>
<th></th>
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<tbody>
<tr>
<td></td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>2</td>
<td>8.7%</td>
<td>2</td>
<td>14.3%</td>
<td>10</td>
<td>34.5%</td>
</tr>
<tr>
<td>Agree</td>
<td>13</td>
<td>56.5%</td>
<td>6</td>
<td>42.9%</td>
<td>17</td>
<td>58.6%</td>
</tr>
<tr>
<td>Neither Agree</td>
<td>2</td>
<td>8.7%</td>
<td>5</td>
<td>35.7%</td>
<td>2</td>
<td>6.9%</td>
</tr>
<tr>
<td>Disagree</td>
<td>6</td>
<td>26.1%</td>
<td>1</td>
<td>7.1%</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>0</td>
<td>0.0%</td>
<td>0</td>
<td>0.0%</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>n=23</td>
<td>100.0%</td>
<td></td>
<td>n=14</td>
<td>100.0%</td>
<td>n=29</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

The majority of students from VLC 1 (65.2%) and VLC 3 (93.1%) felt that they receive valuable feedback. A student from VLC 1 shared that the most satisfying aspect of participating in a VLC was the “feedback you get from others in the community.” While a majority (57%) selected agreement from VLC 2, the results are lower than the other two VLCs studied. One student from VLC 1 responded that the most disappointing aspect of their VLC was, “canned feedback from the instructors.” Canned feedback is described as non-specific and generalizable to any student (Boling et al., 2012). Individualized and timely feedback is considered an important component for strong teaching presence and students often express displeasure when they do not receive it (Boling, et al., 2012). Another student from VLC 1 made a suggestion for improving the VLC was to, “improve the quality of feedback.” Three students from VLC 3 wrote that the most disappointing aspect of their VLC was, “instructors took too long to offer feedback or return assignments.” Feedback should be given as soon as possible so students have the
opportunity to learn from the comments and improve their performance in the future (Stansfield et al., 2004).

Although a majority of students in all three VLCs reported increased interaction with faculty (see Table 4.9), few students reported not feeling isolated from faculty (see Table 4.7). For example, 21 students from VLC 1 reported agreement to increased interaction with instructor; however, only 17 students reported not feeling isolated from faculty. Additionally, 25 students from VLC 3 reported agreement to increased interaction with instructor; however, only 20 students reported not feeling isolated from faculty. The shift in VLC 2 was even greater. Nine students from VLC 2 expressed agreement to increased instructor interaction (see Table 4.9); however, in table 4.7, seven students expressed agreeing with feelings of isolation from the instructors. The results from Table 4.9 could possibly explain that increased interaction does not alleviate feelings of isolation. Research shows that high levels of interaction and discussions do not always translate into feelings of community (Garrison & Cleveland-Innes, 2005; Picciano, 2002). Further investigation is required to determine what types of interaction reduce feelings of isolation among online students.

**Table 4.11**

*Responses to the statement: I feel that I learn from other students*

<table>
<thead>
<tr>
<th></th>
<th>VLC 1</th>
<th></th>
<th></th>
<th>VLC 2</th>
<th></th>
<th></th>
<th>VLC 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>7</td>
<td>30.4%</td>
<td>1</td>
<td>7.1%</td>
<td>15</td>
<td>51.7%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td>11</td>
<td>47.8%</td>
<td>8</td>
<td>57.1%</td>
<td>12</td>
<td>41.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neither Agree</td>
<td>2</td>
<td>8.7%</td>
<td>2</td>
<td>14.3%</td>
<td>2</td>
<td>6.9%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disagree</td>
<td>2</td>
<td>8.7%</td>
<td>2</td>
<td>14.3%</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>1</td>
<td>4.3%</td>
<td>1</td>
<td>7.1%</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>n=23</td>
<td>100.0%</td>
<td></td>
<td>n=14</td>
<td>100.0%</td>
<td></td>
<td>n=29</td>
<td>100.0%</td>
<td></td>
</tr>
</tbody>
</table>
Another component of teaching presence includes all who are within a community can become responsible for teaching presence at any given time. This occurs when students take on the role of knowledge transfer and facilitator within discussion boards. Table 4.1 displays the results of the statement which asked students if they felt they were learning from other students. Students from all three VLCs indicated learning from other students within their VLC. This was true for 78% of students from VLC 1, 64% of students from VLC 2, and 93% of students from VLC 3. One student from VLC 1 shared the most satisfying aspect of participating in a VLC, “being able to hear everyone else’s opinions, in very great detail. It’s different from just hearing someone share their thoughts in class. It let me get deeper in my understanding.” Another student from VLC 1 shared that her favorite part of VLC was “getting to learn from each other.”

However, not all students felt they were learning from others. A small percentage of student from both VLC 1 (13.0%, n=3) and VLC 2 (21.4%, n=3) either disagreed or strongly disagreed that they were learning from other students. A student in VLC 1 commented that, “participating in a VLC and online discussions is little added benefit for expended time. It’s mostly chit-chat and a lack of critically vetting ideas” Another student from VLC 2 commented, “group discussions and projects are needless busy work and a waste of my time.”

*Teaching Presence Summary*

The two highest-rated course components contributing to students’ perception of teaching presence are perceptions of interaction with faculty and feedback (Boling et al, 2012, Garrison, 2016; Miller, 2014). Students from all VLCs reported perceptions of teaching presence in regards to perceptions of interaction and feedback. Results were higher among VLC 1 and VLC 3 when compared to VLC 2. Additionally, students written comments regarding concepts related to teaching presence were shared throughout this section.
Do the students participating in this research study report teaching presence in their VLCs? The answer is yes with students in VLC 1 and VLC 3 reporting higher levels of teaching presence than students in VLC 2. The average score for agreeing and/or strongly agreeing with each of the seven measures of teaching presence was 78.9% for VLC 1, 52.0% for VLC 2, and 79.3% for VLC 3.

**Social Presence**

Social presence is the ability to project one’s self and establish purposeful relationships and is considered essential for establishing relationships within the online learning community (Ryman et al., 2009). Items that are shown to have a positive influence on social presence are familiarity, trust, mutual exchanges of information, informal relationship, and a positive attitude towards communicating with technology (Tu & McIsaac, 2002). Social presence is divided into two aspects: learner-to-learner and learner-to-instructor (Yang et al., 2006). According to Tu (2002), social presence consists of three dimensions: social context, online communication and interactivity. Social context includes being comfortable with technology, familiarity with class members, and the qualities of the online environment. Online communication is the nature of language exchanged among learners in an effort to establish relationships and exchange knowledge. Interactivity is the extent to which course design supports interaction and how much of the interaction is relational in addition to being academic.

Social presence was coded to 11 items on the survey instrument. Items that were attributed to social presence included questions about perceived support, levels of trust, shared connections to other students, feeling that others within the community cared for and valued them, and levels of comfort interacting within the community. Tables 4.12, 4.13, 4.14, and 4.15
display the Likert scale responses of students from all three institutions to a representation of some of the social presence items on the survey.

Table 4.12

Response to the statement: I am able to get to know students who have similar interests

<table>
<thead>
<tr>
<th></th>
<th>VLC 1</th>
<th></th>
<th>VLC 2</th>
<th></th>
<th>VLC 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>8</td>
<td>34.8%</td>
<td>1</td>
<td>7.1%</td>
<td>10</td>
<td>34.5%</td>
</tr>
<tr>
<td>Agree</td>
<td>10</td>
<td>43.5%</td>
<td>6</td>
<td>42.9%</td>
<td>12</td>
<td>41.4%</td>
</tr>
<tr>
<td>Neither Agree or Disagree</td>
<td>1</td>
<td>4.3%</td>
<td>5</td>
<td>35.7%</td>
<td>5</td>
<td>17.2%</td>
</tr>
<tr>
<td>Disagree</td>
<td>2</td>
<td>8.7%</td>
<td>0</td>
<td>0.0%</td>
<td>2</td>
<td>6.9%</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>2</td>
<td>8.7%</td>
<td>2</td>
<td>14.3%</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>n=23 n=14 n=29</td>
<td>100.0%</td>
<td></td>
<td>100.0%</td>
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<td>100.0%</td>
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</tbody>
</table>

Familiarity with classmates and the development of informal relationships have a positive influence on the creation of social presence in a virtual environment (Tu & McIsaac, 2002). Half of the students from VLC 2 (50.0%) and the majority of students from VLC 1 (78.3%) and VLC 3 (75.9%) reported the ability to connect with students who have similar interests (see Table 4.13). A student from VLC 1 reported that VLCs are, “a great way to know more about individuals, their interests, and their roles.” Another student from VLC 1 wrote, “I think it’s a great benefit to see other students’ thoughts on the same topic.” One student from VLC 2 commented they appreciated that, “other students are participating in the same community and talking about the same information.” A student from VLC 3 commented they, “enjoyed getting to know students from all over the country who had the same interests in the subject matter.” Students from all three VLCs indicated that their peers do not take advantage of the interactions possible within a VLC and this was disappointing.
Feeling valued and cared for contributes to students’ sense of belonging and sense of community. Increased sense of belonging leads to higher motivation, increased engagement, improved retention, higher report of satisfaction with program, and increased feelings of connection (Strayhorn, 2012). Most of the students from VLC 3 (86.2%) agreed or strongly agreed that others in their community are concerned for their well-being, with 65.2% of students from VLC 1 and 35.7% of students from VLC 2 agreeing or strongly agreeing. None of the participating students commented directly to perceptions of well-being or feeling that other students cared about their well-being. Students from VLC 3 had the highest agreement of strong agreement (86.2%) for feeling students cared for their well-being. Many of the written comments from VLC 3 indicated appreciation of the cohort model for the increased ability to develop relationships with their peers.
Table 4.1

Responses to the statement: I trust other students

|                | VLC 1  |              | VLC 2  |              | VLC 3  |  
|----------------|--------|--------------|--------|--------------|--------|--------
|                | f=     | %            | f=     | %            | f=     | %
| Strongly Agree | 7      | 30.4%        | 0      | 0.0%         | 11     | 37.9%  
| Agree          | 11     | 47.8%        | 9      | 64.3%        | 17     | 58.6%  
| Neither Agree | 4      | 17.4%        | 4      | 28.6%        | 1      | 3.4%   
| Disagree       | 1      | 4.3%         | 1      | 7.1%         | 0      | 0.0%   
| Strongly Disagree | 0   | 0.0%         | 0      | 0.0%         | 0      | 0.0%   
| n              | 23     | 100.0%       | 14     | 100.0%       | 29     | 100.0% |

Trusting others was mentioned as an important aspect for motivating students to engage and interact with others in an online environment. Once students feel they are accepted and belong they develop safety and trust which creates a willingness to speak openly with fellow students (Rovai, 2002). The majority of students in from all three VLCs agree that they trust the other students in their VLC. The responses for VLC 1 (78.2%) and VLC 3 (96.5%) were higher than the responses from VLC 2 (64.3%) (see Table 4.15). Much like similar findings within this chapter, the lower agreement from VLC 2 may be contributed to the fact that they had been established more recently than the other two VLCs. One of the students from VLC 1 commented they considered the VLC to be a “safe space to ask questions or seek information.”
Table 4.15

Responses to the statement: VLC has helped me to find support for my learning

<table>
<thead>
<tr>
<th></th>
<th>VLC 1</th>
<th></th>
<th>VLC 2</th>
<th></th>
<th>VLC 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>10</td>
<td>43.5%</td>
<td>4</td>
<td>28.6%</td>
<td>15</td>
<td>51.7%</td>
</tr>
<tr>
<td>Agree</td>
<td>8</td>
<td>34.8%</td>
<td>5</td>
<td>35.7%</td>
<td>12</td>
<td>41.4%</td>
</tr>
<tr>
<td>Neither Agree or Disagree</td>
<td>3</td>
<td>13.0%</td>
<td>2</td>
<td>14.3%</td>
<td>1</td>
<td>3.4%</td>
</tr>
<tr>
<td>Disagree</td>
<td>0</td>
<td>0.0%</td>
<td>2</td>
<td>14.3%</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>2</td>
<td>8.7%</td>
<td>1</td>
<td>7.1%</td>
<td>1</td>
<td>3.4%</td>
</tr>
<tr>
<td>n=23</td>
<td>100.0%</td>
<td>n=14</td>
<td>100.0%</td>
<td>n=29</td>
<td>100.0%</td>
<td></td>
</tr>
</tbody>
</table>

A strong majority of students from VLC 3 (93.1%) and VLC 1 (78.3%) and a slight majority of students from VLC 2 (64.3%) reported being able to find support for their learning. As stated previously, students may report stronger feelings of support among their peers and within their VLC without feeling a strong sense of support from the institution. One of the students from VLC 1 stated, “Everyone is so involved. People respond all the time – they offer advice and bring the community together in a number of ways.” Another student from VLC 1 commented they appreciated “being able to ask for help at any point in time and from any location.” One student from VLC 2 reported that VLCs “foster a supportive learning environment.” A student from VLC 3 wrote, “the virtual learning community becomes like a second family, as they are going through the same things in courses that you are.” This statement supports Baumeister and Leary’s (1995) claim that people who share common experiences will form social attachments. Students who respond in strong agreement to the existence of social presence and feel supported in their learning report higher cognitive presence scores (Shea & Bidjerano, 2009).
Social Presence Summary

Items that are shown to have a positive influence on social presence are familiarity, trust, mutual exchanges of information, informal relationship, and a positive attitude towards communicating with technology (Tu & McIsaac, 2002). Social presence is divided into two aspects: learner-to-learner and learner-to-instructor (Yang et al., 2006). Students from VLC 1 and VLC 3 reported perceptions of social presence in regards to perceptions of trust, familiarity, feeling cared about, and feeling a sense of social support. Additionally, students written comments regarding concepts related to social presence were shared throughout this section.

Do the students participating in this research study report social presence in their VLCs? Students in VLC 1 and VLC 3 report perceptions of social presence within their VLCs. Students from VLC 2 reported perceptions of social presence on some measures but not on others. The average score for agreeing and/or strongly agreeing with each of the eleven measures of social presence was 72.8% for VLC 1, 41.0% for VLC 2, and 72.4% for VLC 3. The low average social presence score for VLC 2 indicates that the students in this VLC report low perceptions of social presence.

Cognitive Presence

Cognitive presence is defined as the exploration, construction, resolution and confirmation of understanding through collaboration and reflection in a community (Garrison, 2016). Collaboration is defined as a deep and meaningful approach to learning that uses critical and creative thinking through engagement with content and other learners which extends beyond the simple acquisition of information and competencies (Garrison, 2016). This collaborative learning promotes critical thinking, involves students actively in the learning process, and improves learning outcomes (Roberts, 2005). As students find their peers have different ideas
and perspectives on the content, they are forced to confront these different perspectives to develop their own understanding (Akyol & Garrison, 2011).

CoI researchers define four phases of cognitive inquiry: triggering event, exploration, integration, and resolution (Akyol & Garrison, 2011). A triggering event occurs when the issue or problem is identified and defined. Exploration is a process whereby learners explore information and ideas that might provide insight. Integration happens when learners construct meaning about their new knowledge and share within the community. Resolution occurs when learners collaboratively confirm solutions to the original problem posed. All of these phases of cognitive inquiry are part of the element of cognitive presence.

Cognitive presence was coded to 8 items on the survey instrument. Items that were attributed to cognitive presence included statements on analyzing and critically evaluating ideas; application of learned knowledge to work and life experiences; and exploration and recognition of new ideas presented by others. Tables 4.16, 4.17, 4.18, and 4.19 display the Likert scale responses of students from all three VLCs to represent the results for some of the cognitive presence items on the survey.

Table 4.16

<table>
<thead>
<tr>
<th></th>
<th>VLC 1</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>11</td>
<td>47.8%</td>
<td>5</td>
<td>35.7%</td>
</tr>
<tr>
<td>Agree</td>
<td>6</td>
<td>26.1%</td>
<td>4</td>
<td>28.6%</td>
</tr>
<tr>
<td>Neither Agree or Disagree</td>
<td>1</td>
<td>4.3%</td>
<td>3</td>
<td>21.4%</td>
</tr>
<tr>
<td>Disagree</td>
<td>2</td>
<td>8.7%</td>
<td>1</td>
<td>7.1%</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>3</td>
<td>13.0%</td>
<td>1</td>
<td>7.1%</td>
</tr>
<tr>
<td>n=23</td>
<td></td>
<td>100.0%</td>
<td>n=14</td>
<td>100.0%</td>
</tr>
<tr>
<td>n=29</td>
<td></td>
<td>100.0%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
In a constructivist learning environment, students bring their own experiences into discussions in an effort to generate understanding and new knowledge. Students in VLC 1 (73.9%), VLC 2 (64.3), and VLC 3 (96.5%) reported the ability to see connections between what they were learning and their personal experiences (see Table 4.17). A student from VLC 3 commented that, “learning about my profession while working in it made the concepts real to me and worthwhile to my learning.” Another student in VLC 3 stated, “I have used many of the things I’ve learned from this program in my profession.”

Tables 4.16 and 4.17 are related as the survey questions both ask students about their ability to see connections between their own experiences and course content. Table 4.16 relates students’ personal experiences to their learning and Table 4.17 represents students’ perceived ability to apply what they learn in the real world such as their work place. The results for VLC 2 and VLC 3 were similar in Table 4.16 and Table 4.17. Fewer students in VLC 1 reported agreement with the statement in Table 4.17 (56.5%) than they did in Table 4.17 (73.9%).

Table 4.17

<table>
<thead>
<tr>
<th></th>
<th>VLC 1</th>
<th></th>
<th>VLC 2</th>
<th></th>
<th>VLC 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>7</td>
<td>30.4%</td>
<td>5</td>
<td>35.7%</td>
<td>20</td>
<td>69.0%</td>
</tr>
<tr>
<td>Agree</td>
<td>6</td>
<td>26.1%</td>
<td>4</td>
<td>28.6%</td>
<td>7</td>
<td>24.1%</td>
</tr>
<tr>
<td>Neither Agree or Disagree</td>
<td>4</td>
<td>17.4%</td>
<td>2</td>
<td>14.3%</td>
<td>1</td>
<td>3.4%</td>
</tr>
<tr>
<td>Disagree</td>
<td>3</td>
<td>13.0%</td>
<td>2</td>
<td>14.3%</td>
<td>1</td>
<td>3.4%</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>3</td>
<td>13.0%</td>
<td>1</td>
<td>7.1%</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>n=23</td>
<td>100.0%</td>
<td>n=14</td>
<td>100.0%</td>
<td>n=29</td>
<td>100.0%</td>
<td></td>
</tr>
</tbody>
</table>
Students from all three VLCs noted they appreciated the ability to learn applicable knowledge from instructors and peers. Students appreciated the ability to interact with peers who were working in similar environments. A student from VLC 1 wrote, “I enjoy connecting with colleagues in different areas.” Ten of the fourteen students from VLC 2 commented that they were participating in this VLC in an effort to learn information that could be applied in their careers. A student from VLC 3 commented, “I appreciated the confirmation and verification that I was already using effective practices. I also learned more strategies to enhance what I was already doing in the workplace.”

Table 4.18

Responses to the statement: VLC has improved ability to analyze and critically evaluate ideas

<table>
<thead>
<tr>
<th></th>
<th>VLC 1</th>
<th></th>
<th>VLC 2</th>
<th></th>
<th>VLC 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>3</td>
<td>13.0%</td>
<td>3</td>
<td>21.4%</td>
<td>13</td>
<td>44.8%</td>
</tr>
<tr>
<td>Agree</td>
<td>10</td>
<td>43.5%</td>
<td>8</td>
<td>57.1%</td>
<td>13</td>
<td>44.8%</td>
</tr>
<tr>
<td>Neither Agree or Disagree</td>
<td>6</td>
<td>26.1%</td>
<td>0</td>
<td>0.0%</td>
<td>2</td>
<td>6.9%</td>
</tr>
<tr>
<td>Disagree</td>
<td>2</td>
<td>8.7%</td>
<td>2</td>
<td>14.3%</td>
<td>1</td>
<td>3.4%</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>2</td>
<td>8.7%</td>
<td>1</td>
<td>7.1%</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>n=23</td>
<td>100.0%</td>
<td></td>
<td>n=14</td>
<td>100.0%</td>
<td>n=29</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

The majority of students from VLC 1 (56.5%), VLC 2 (78.5%) and VLC 3 (89.6%) report being part of a learning community improved their ability to analyze and evaluate ideas. Analysis and critical evaluation of information is important for establishing cognitive presence and utilizes all four phases of cognitive inquiry established by Aykol and Garrison (2016). Students from all three VLCs commented in written responses that they saw value in experiencing ideas and beliefs different than their own. For example, a student in VLC 1 wrote, “I enjoy being able to connect and learn from so many interesting people with such diverse
backgrounds. I would not have had that opportunity outside of this VLC.” Another student from VLC commented that “reading other students learning reflections challenged my thoughts and what I was learning.”

**Table 4.19**

*Responses to statement: VLC has improved my effort to think about ideas and beliefs different from my own*

<table>
<thead>
<tr>
<th></th>
<th>VLC 1</th>
<th></th>
<th>VLC 2</th>
<th></th>
<th>VLC 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>6</td>
<td>26.1%</td>
<td>2</td>
<td>14.3%</td>
<td>13</td>
<td>44.8%</td>
</tr>
<tr>
<td>Agree</td>
<td>12</td>
<td>52.2%</td>
<td>10</td>
<td>71.4%</td>
<td>13</td>
<td>44.8%</td>
</tr>
<tr>
<td>Neither Agree or Disagree</td>
<td>2</td>
<td>8.7%</td>
<td>0</td>
<td>0.0%</td>
<td>3</td>
<td>10.3%</td>
</tr>
<tr>
<td>Disagree</td>
<td>2</td>
<td>8.7%</td>
<td>2</td>
<td>14.3%</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>1</td>
<td>4.3%</td>
<td>0</td>
<td>0.0%</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>n=23</td>
<td></td>
<td>100.0%</td>
<td>n=14</td>
<td>100.0%</td>
<td>n=29</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

A majority of students from VLC 1 (78.3%), VLC 2 (85.7%) and VLC 3 (89.6%) agreed or strongly agreed that participating in a VLC improved their efforts to think about ideas and beliefs different than their own (see Table 4.19). One student from VLC 1 commented, “different perspectives bring unexpected insights.” Additionally, students from VLC 2 stated the ability to connect with students from different backgrounds and perspectives was an important aspect of VLC, “it’s an opportunity to expand your horizons.” Another student from VLC 2 wrote his/her most satisfying aspect of participating in a VLC was, “the opportunity to engage and discuss concepts with other students who had diverse experience and expertise.” Students from VLC 3 agreed that VLC improves access to diverse ideas and beliefs. A student from VLC 3 writes, “you are able to make connections outside your current realm of knowledge. I have continuously
been able to lean on cohort members who have areas of expertise that are different than my own.”

**Summary on Cognitive Presence**

Cognitive presence is defined as the exploration, construction, resolution and confirmation of understanding through collaboration and reflection in a community (Garrison, 2016). This collaborative learning promotes critical thinking, involves students actively in the learning process, and improves learning outcomes (Roberts, 2005). As students find their peers have different ideas and perspectives on the content, they are forced to confront these different perspectives to develop their own understanding (Akyol & Garrison, 2011). Students in all three communities reported on aspects of cognitive presence in their survey responses. Additionally, students written comments regarding concepts related to cognitive presence were shared throughout this section.

Do the students participating in this research study report cognitive presence in their VLCs? The answer is yes with students from VLC 3 reporting higher perceptions of cognitive presence than student from VLC 1 and VLC 2. The average score for agreeing and/or strongly agreeing with each of the eight measures of cognitive presence was 67.0% for VLC 1, 68.6% for VLC 2, and 89.0% for VLC 3.

**Learner Presence**

Learning presence is defined as the phases of forethought, performance, and reflection associated with self-regulated learning (Shea, Hayes, & Uzner-Smith, 2014). The forethought phase includes planning, coordinating and delegating tasks to oneself. The performance phase involves checking in with classmates for understanding; identifying problems or issues; seeking and offering help; and engaging in content and discussion. The reflective phase involves
acknowledging gained information and relating it back to the group. Components of learner presence, as presented by Shea and Bidjerano (2010), include self-efficacy, effort regulation, motivation, peer interaction resulting in informal knowledge development, and active participation in the learning process.

Learner presence was coded to 12 items on the survey instrument. Items that were attributed to learner presence included statements about study habits, persistence, self-efficacy, effort regulation and perceived control of the learning process. Tables 4.20, 4.20, 4.21, and 4.22 display the Likert scale responses of students from all three VLCs to represent some of the learning presence items on the survey.

**Table 4.20**

<table>
<thead>
<tr>
<th>Responses to the statement: VLC has helped me adjust to academic challenges</th>
<th>VLC 1</th>
<th>VLC 2</th>
<th>VLC 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>f=5</td>
<td>21.7%</td>
<td>f=2</td>
</tr>
<tr>
<td>Agree</td>
<td>f=7</td>
<td>30.4%</td>
<td>f=8</td>
</tr>
<tr>
<td>Neither Agree or Disagree</td>
<td>f=5</td>
<td>21.7%</td>
<td>f=2</td>
</tr>
<tr>
<td>Disagree</td>
<td>f=4</td>
<td>17.4%</td>
<td>f=1</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>f=2</td>
<td>8.7%</td>
<td>f=1</td>
</tr>
<tr>
<td>n=23</td>
<td>n=14</td>
<td>n=29</td>
<td></td>
</tr>
</tbody>
</table>

While the majority of students from VLC 2 (71.4%) and VLC 3 (79.3%) agreed that participating in a VLC has helped with the adjustment to academic challenges, the results from VLC 1 (52.1%) are lower (see Table 4.21). A student from VLC 1 commented, “I wish I was able to be more consistent in my participation.” A student from VLC 2 wrote, “You need to have
a certain level of self-discipline to succeed in this type of learning environment.” A student from VLC 3 shared a similar comment, “You have to be self-motivated to take courses online.”

Table 4.2

<table>
<thead>
<tr>
<th>Responses to the statement: I feel in control of my learning</th>
<th>VLC 1</th>
<th>VLC 2</th>
<th>VLC 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>5</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>%</td>
<td>21.7%</td>
<td>35.7%</td>
<td>31.0%</td>
</tr>
<tr>
<td>Agree</td>
<td>13</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td>%</td>
<td>56.5%</td>
<td>28.6%</td>
<td>55.2%</td>
</tr>
<tr>
<td>Neither Agree or Disagree</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>%</td>
<td>13.0%</td>
<td>7.1%</td>
<td>6.9%</td>
</tr>
<tr>
<td>Disagree</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>%</td>
<td>8.7%</td>
<td>21.4%</td>
<td>6.9%</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>%</td>
<td>0.0%</td>
<td>7.1%</td>
<td>0.0%</td>
</tr>
<tr>
<td>n=23</td>
<td>100.0%</td>
<td>n=14</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

78.2% of students in VLC 1, 64.3% of students in VLC 2 and 86.2% of students in VLC 3 agreed or strongly agreed to feeling in control of their learning (see Table 4.21). One of the comments students made in relation to having control of their learning was the ability to participate when and where they were able. One student from VLC 1 wrote, “it allows you to participate at the level you want to, when you want to.” Another student appreciated, “not always having to be in class. I can log-in when I want.” A student from VLC 2 stated that his favorite aspect of participating in a VLC is, “the ability to participate as my schedule allows.” A student from VLC 3 commented, “I liked the ability to participate when I wanted and when I could fit it into my schedule. Some people need the structure of face-to-face classes that mandate when and where you meet but I prefer the flexibility.” Two students from VLC 3 commented on feeling more in control of their environment within the VLC than they would in a face to face class, “as
an introvert I can process my response before sharing with the large group. Also, I have the opportunity to participate equally when I would have been drowned out in a face-to-face class.”

Table 4.22

Responses to the statement: VLC has improved my ability to coordinate multiple tasks or projects

<table>
<thead>
<tr>
<th></th>
<th>VLC 1</th>
<th></th>
<th></th>
<th>VLC 2</th>
<th></th>
<th></th>
<th>VLC 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>2</td>
<td>8.7%</td>
<td>4</td>
<td>28.6%</td>
<td>12</td>
<td>41.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td>8</td>
<td>34.8%</td>
<td>4</td>
<td>28.6%</td>
<td>15</td>
<td>51.7%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neither Agree</td>
<td>6</td>
<td>26.1%</td>
<td>4</td>
<td>28.6%</td>
<td>2</td>
<td>6.9%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disagree</td>
<td>6</td>
<td>26.1%</td>
<td>2</td>
<td>14.3%</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>1</td>
<td>4.3%</td>
<td>0</td>
<td>0.0%</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>n=23</td>
<td>100.0%</td>
<td>n=14</td>
<td>100.0%</td>
<td>n=29</td>
<td>100.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Tables 4.22 and 4.23 provide results from related questions about learner presence. Both questions ask students about their ability to multi-task and how they manage their projects and time. Less than half of the students from VLC 1 (43.5%) felt that participating in a VLC improved their ability to coordinate multiple tasks or project. The result was slightly higher for VLC 2 (57.2%) and extremely high for VLC 3 (93.1%). Students from VLC 2 and VLC 3 both cited the ability to be flexible around their work schedules as a positive benefit of a VLC.

Table 4.23

Responses to the statement: VLC has improved my ability to manage my time effectively

<table>
<thead>
<tr>
<th></th>
<th>VLC 1</th>
<th></th>
<th></th>
<th>VLC 2</th>
<th></th>
<th></th>
<th>VLC 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>1</td>
<td>4.3%</td>
<td>3</td>
<td>21.4%</td>
<td>13</td>
<td>44.8%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td>6</td>
<td>26.1%</td>
<td>5</td>
<td>35.7%</td>
<td>13</td>
<td>44.8%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neither Agree</td>
<td>8</td>
<td>34.8%</td>
<td>4</td>
<td>28.6%</td>
<td>2</td>
<td>6.9%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disagree</td>
<td>7</td>
<td>30.4%</td>
<td>2</td>
<td>14.3%</td>
<td>1</td>
<td>3.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>1</td>
<td>4.3%</td>
<td>0</td>
<td>0.0%</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>n=23</td>
<td>100.0%</td>
<td>n=14</td>
<td>100.0%</td>
<td>n=29</td>
<td>100.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Students from VLC 1 perceived time management (30.4%) in Table 4.24 lower than they reported their ability to multi-task (43.5) in Table 4.23. Perceptions among VLC 2 (57.1%) and VLC 3 (89.6) for their ability to manage time were similar to their perceptions about multi-tasking. Two students from VLC 2 commented that incorporating calendars and schedules into the LMS can help students manage their time. Additionally, a student from VLC 3 noted, “it’s difficult to work with peers on group projects when you need to coordinate around different schedules and time zones.”

One student from VLC 1 and VLC 2 both expressed that involvement in the VLC took valuable time and energy. The student from VLC 1 commented that participating in a VLC provided, “little added benefit for the amount of time you are required to spend.” The student from VLC 2 stated, “I joined this program for the information and to improve my job skills. Interactions with other students and group projects are needless busy work and a waste of my time.”

*Summary of Learning Presence*

Learning presence is defined as the phases of forethought, performance, and reflection associated with self-regulated learning (Shea, Hayes, & Uzner-Smith, 2014. Components of learner presence include self-efficacy, effort regulation, motivation, peer interaction resulting in informal knowledge development, and active participation in the learning process (Shea & Bidjerano, 2010). Survey items that were attributed to learning presence were discussed. Additionally, students written comments regarding concepts related to learning presence were shared throughout this section.

Do the students participating in this research study report learning presence in their VLCs? The answer is yes with students from VLC 3 reporting higher perceptions of learning
presence than student from VLC 1 and VLC 2. The average score for agreeing and/or strongly agreeing with each of the twelve measures of learning presence was 55.7% for VLC 1, 67.1% for VLC 2, and 89.0% for VLC 3.

Summary

This section explored to what extent do graduate students who participate in a virtual learning community report instances of the four presences reported as necessary by the Community of Inquiry framework: teaching presence, social presence, cognitive presence, and learning presence. Survey results and written responses were presented as examples of how students perceive each of the presences within their own communities. VLC 1 and VLC 3 reported all four presences as existing within their VLC. VLC 2 reported teaching presence, cognitive presence and learning presence but did not report social presence. Various research studies have explored the each of the presences individually, but some researchers feel that all of the presences must be reported for a true formation of a virtual community of inquiry (Garrison & Cleveland-Innes, 2005).

Two items of note from the findings related to research question three should be discussed. The first is an analysis of the responses from VLC 2. Shea and Bidjerano (2009, 2012) discovered a strong correlation between social presence and cognitive presence. Their first study in 2009 involved 2,159 online students and their second study in 2012 involved 3,165 students. These studies both demonstrated that students who reported high social presence were also significantly more likely to report high cognitive presence. The results from VLC 2 do not reflect this correlation. Social presence is the lowest score from VLC 2 while cognitive presence is the highest. While there are many possibilities that might explain this occurrence, one explanation from Tu and McIssac (2010) is that high participation (frequency of participation)
does not always correlate to positive reports of social presence. It is possible to frequently interact within a VLC without developing a social connection to others.

As reported earlier, the existence of all CoI presences is considered critical for establishing community in a virtual environment (Garrison & Cleveland-Innes, 2005). The findings from research question three showed that VLC 1 and VLC 3 reported the existence of all presences while VLC 2 did not. If we return to the results from question one, we will see that VLC 1 and VLC 3 both reported feeling a sense of belonging with the college community and other students while students from VLC 2 did not. This confirms statements from the literature that the CoI framework focuses on the intentional development of virtual learning community which; with the existence of teaching, social, cognitive, and learning presences, can increase a students’ perceived sense of belonging (Garrison & Cleveland-Innes, 2005; Garrison, 2016; Shea & Bidjerano, 2009; Shea et al., 2012).

**Overarching Research Question**

The guiding research question for this study was whether graduate students indicate positive experiences with their educational experience after participating in a virtual learning community as part of their graduate program. The three previous sections reported the findings for the three sub-research questions. This section presents the findings related to students’ overall satisfaction with their respective VLC and their educational experience from participating in a VLC. Students were asked two Likert-scale questions about their overall experience and satisfaction with their VLC. Additionally, one of the open-ended questions asked students to identify the most satisfying aspect of participating in a VLC. Table 4.24 represents student responses to addressing their perceived overall experience. Table 4.25 displays students’ responses related to their overall satisfaction with participating in a VLC. The Likert-scale for
the question of overall satisfaction with the online learning experience was: extremely satisfied, somewhat satisfied, neither satisfied nor dissatisfied, somewhat dissatisfied, and extremely dissatisfied.

**Table 4.24**

*Responses to the statement: VLC contributed to the quality of my overall experience*

<table>
<thead>
<tr>
<th></th>
<th>VLC 1</th>
<th></th>
<th>VLC 2</th>
<th></th>
<th>VLC 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>7</td>
<td>30.4%</td>
<td>3</td>
<td>21.4%</td>
<td>14</td>
<td>48.3%</td>
</tr>
<tr>
<td>Agree</td>
<td>9</td>
<td>39.1%</td>
<td>5</td>
<td>35.7%</td>
<td>11</td>
<td>37.9%</td>
</tr>
<tr>
<td>Neither agree</td>
<td>3</td>
<td>13.0%</td>
<td>4</td>
<td>28.6%</td>
<td>2</td>
<td>6.9%</td>
</tr>
<tr>
<td>Disagree</td>
<td>2</td>
<td>8.7%</td>
<td>1</td>
<td>7.1%</td>
<td>2</td>
<td>6.9%</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>2</td>
<td>8.7%</td>
<td>1</td>
<td>7.1%</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>n=23</td>
<td>100.0%</td>
<td>n=14</td>
<td>100.0%</td>
<td>n=29</td>
<td>100.0%</td>
<td></td>
</tr>
</tbody>
</table>

69% of the students from VLC 1, 57% of students from VLC 2 and 86% of students from VLC 3 agree or strongly agree that participating in a VLC contributed to the quality of their educational experience. Students perceived sense of community in VLC is important to students’ overall learning experience (Sadera, Robertson, Song & Midon, 2009).

**Table 4.25**

*Responses to the statement: My Participation in an online learning community best describes my overall satisfaction with my online learning experience*

<table>
<thead>
<tr>
<th></th>
<th>VLC 1</th>
<th></th>
<th>VLC 2</th>
<th></th>
<th>VLC 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
<td>f=</td>
<td>%</td>
</tr>
<tr>
<td>Extremely Satisfied</td>
<td>9</td>
<td>39.1%</td>
<td>5</td>
<td>35.7%</td>
<td>20</td>
<td>69.0%</td>
</tr>
<tr>
<td>Somewhat Satisfied</td>
<td>9</td>
<td>39.1%</td>
<td>8</td>
<td>57.1%</td>
<td>9</td>
<td>31.0%</td>
</tr>
<tr>
<td>Neither satisfied</td>
<td>3</td>
<td>13.0%</td>
<td>0</td>
<td>0.0%</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Somewhat dissatisfied</td>
<td>2</td>
<td>8.7%</td>
<td>1</td>
<td>7.1%</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Extremely dissatisfied</td>
<td>0</td>
<td>0.0%</td>
<td>0</td>
<td>0.0%</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>n=23</td>
<td>100.0%</td>
<td>n=14</td>
<td>100.0%</td>
<td>n=29</td>
<td>100.0%</td>
<td></td>
</tr>
</tbody>
</table>
39.1% of the students from VLC 1, 35.7% of students from VLC 2 and 69.0% of students from VLC 3 report that they are extremely satisfied with their VLC experience. 39.1% of the students from VLC 1, 57.1% of the students from VLC 2, and 31.0% of the students from VLC 3 report being somewhat satisfied with their VLC experience. There is evidence of a significant relationship between sense of community and student satisfaction (Liu et al., 2007). Students from VLC 1 and VLC 3 had positive results for many of the Likert-scale items from this study. Additionally, both VLC 1 and VLC 3 reported feeling a sense of belonging within their community and among peers. Although students from VLC 2 reported a lower sense of belonging and social presence, they still reported being satisfied with their overall learning experience and a slight majority felt that the VLC contributed to their overall educational experience. As VLC 2 had only been in existence for six months at the time of survey, it would be interesting to re-survey them to find out if they develop social presence and sense of belonging over time.

In addition to the two Likert-scale questions asking students to reflect on their overall educational and experience, one of the open-ended questions asked students to identify the most satisfying aspect of participating in a virtual learning community. Student comments to this question have been shared throughout the chapter as they related to various research questions. The collective responses to this question are shared below.

Twenty-one students from VLC 1 shared responses to this question. Two students indicated that their most satisfying aspect was the level of flexibility with participating in the community, while four students cited elements of cognitive presence such as diverse ideas, similarities and differences of thought, and being challenged to think more deeply. One student wrote, “Being able to hear everyone else’s opinions, in very great detail.” Ten students cited
elements of social presence such as feeling connected to their classmates, being able to connect with others in their field, and feeling they were in a “safe space” to ask questions. One student stated, “the connectedness I feel with my classmates,” is the most satisfying aspect of participating in a VLC. Three students indicated elements of teaching presence such as appreciating feedback, design and organization of the community, and the availability of information and resources. For example, one student wrote, “there is such a vast amount of available information and the ability to reach out to others and quickly get answers.” Two students cited elements of learner presence such as the ability to seek help and reflect.

Eleven of the 14 students in VLC 2 wrote responses to this question. Four students cited flexibility within the VLC and the ability to participate when they were able was the most satisfying aspect of participating in online community. Two students cited elements of teaching presence such as community design, access to resources, and faculty expertise and participation. One student wrote, “it makes it easy to interact with faculty and students as well as share documents.” Two students cited elements of cognitive presence such as diverse ideas and information exchange with fellow students. One student stated, “the opportunity to engage and discuss concepts with other students.” Three students cited elements of social presence such as increased interaction, sense of community, and connection to other students.

Twenty-eight of the 29 students in VLC 3 shared responses to this question. Three students indicated that their most satisfying aspect was the level of flexibility to participate in the community. One student wrote, “being able to learn and complete coursework when it was most convenient for me.” Four students cited elements of cognitive presence such as diverse ideas, similarities and differences of thought, and being challenged to think more deeply. A student commented that, “networking with other professionals and getting different perspectives,” was
the most satisfying aspect of participating in a VLC. Several (14) students cited elements of social presence such as feeling connected to their classmates, being able to connect with others in their field, and feeling a “sense of community.” Comments on connection and community included:

- “I was with the same group of students for three years so was able to develop closer relationships with them.”
- “My favorite part is the closeness of the community, especially since we were a cohort that stayed together for three years.”
- “I interacted more with other students than if we were in a face-to-face program.”
- “Sense of community built among cohort members.”
- “Being in a cohort because it’s easier to learn and work with people you know.”
- “I think the work with the instructors and cohort members to build a sense of community.”

Four students indicated elements of teaching presence such as appreciating feedback, design and organization of the community and courses, the availability to information and resources, and instructor credentials. One student wrote, “I enjoyed the set-up of our courses and the level of instruction received.” Three students cited elements of learner presence such as the ability to seek help and reflect.

*What is the most disappointing aspect of your online community?*

All 23 students in VLC 1 responded to this question. Six students commented there were no disappointing aspects. Although students had the option to skip any question some students wrote things such as, “can’t think of anything,” or “NA,” in response. Five students indicated they would appreciate higher levels of participation from classmates and faculty. Three students
dislike the lack of face-to-face interaction. One student wrote, “I miss the authentic and real experience of face-to-face interaction.” Nine students indicated that the technology was difficult to navigate. When asked if students had suggestions or comments for improving the community experience, eight students wrote “no.” Three students commented about the loss of the community manager. One student wrote, “Continue with the active full-time management of the software.” Additional items recommended as suggestions for improvement were to organize content, provide instruction guides for how to use the community technology, and prompting students with questions to help facilitate conversation.

Eleven of the 14 students in VLC 2 responded to this question. Six of the students cited a lack of participation among fellow students and faculty. One student commented, “lack of interaction with students and instructors.” Another student wrote, “students don’t always take advantage of opportunities to interact.” The remaining students expressed frustration with organization of resources and instructors’ technology skills. One student wrote, “Instructors need more support or training on how to use technology. Faculty need to work more to find out what works and what doesn’t online.” Another student commented, “Some courses are not set-up well and do not use the technology well. Information is organized poorly and difficult to find.” Suggestions for improvement included requests for increased participation by faculty, training for faculty on the available tools for teaching online, and providing instruction guides for using the community. One student wrote, “I don’t have any suggestions. There is nothing you can do online that will compare to being physically on campus.”

Twenty-eight of the 29 students in VLC 3 responded to this question. Four students indicated that they did not have any disappointments with the community. Eight students indicated that they would appreciate higher levels of participation from classmates and faculty.
One student wrote, “all of us are busy and sometimes it’s difficult to respond to discussions when nothing is posted until after you are able to log-in.” Three students disliked the lack of face-to-face interaction. Eight students expressed frustrations with individual teachers and specific courses. One student commented, “Some courses were not very well organized.” Another student commented, “A couple of the instructors weren’t really trained will enough to teach online.” Five students indicated frustrations with technology used. One student wrote, “I did not enjoy technology that refused to work making it almost impossible to work on assignments.” When asked if students had suggestions or comments for improving the VLC experience, several students indicated they would like to have the community extended beyond the program. Some of these students mentioned the creation of an informal Facebook group that allows them to stay connected with their cohort members. Fifteen of the students wrote “no” or “NA.” Five students responded that overall it was an enjoyable experience with no suggested changes. One student wrote, “I think it was one of the best groups of people I’ve ever worked with.” Another student commented, “I loved having the cohort model with an online community so you could stay with the same people throughout the program.” Additional suggestions included training for instructors who are teaching online, organizing resources for ease of access, and encouraging increased participation.

The guiding research question for this study was whether graduate perceive their experiences after participating in a virtual learning community as part of their graduate program. This section presented the findings related to students’ overall satisfaction with their respective VLC and their educational experience from participating in a VLC. A majority of students from all three VLCs agreed or strongly agreed that participating in a VLC contributed to their overall educational experience. Students were also asked to share the most satisfying and most
disappointing aspects to participating in a VLC. Student responses to the question of most satisfying aspect include opportunity to socialize, access to resources, learning from the different perspectives of other students, ability to create connections, and the ability to work around family and work schedules. Students responses to the question of most disappointing aspect of participating in a VLC include frustrations with technology, lack of interaction with students and faculty, organization and availability of resources, and a desire for faculty to receive more training before teaching online.

Auxiliary Findings

Three additional themes emerged in the survey results beyond the scope of the research questions. The three additional themes were career, technology and flexibility. Findings related to these three themes are included below.

Career

The survey instrument contained Likert-scale statements about careers. Responses to these statements are displayed in Tables 4.27 and 4.28. Also, students written comments to the open-ended questions related to careers are shared. Students from VLC 1 (65.2%) and VLC 3 (89.6%) agreed or strongly agreed that participating in a VLC helped develop connections with professionals from their career area (see Table 4.27). Less than half (42.8%) of the students for VLC 2 agreed or strongly agreed with this statement. A student from VLC 1 recommends joining a VLC because of the ability to, “connect with professionals in your field across the nation or even world, which gives you a wider range of knowledge.” One student from VLC 2 noted that “the opportunity to connect with others in my field and discuss concepts” was the most satisfying aspect of participating in a VLC. A student from VLC 3 commented the most satisfying aspect of participating in a VLC was, “the professional colleague network I was able to create.”
Students from all three VLCs believed participating in a VLC helped improved skills that are needed for their career, 69.6% VLC 1, 78.6% VLC 2, and 96.6% VLC 3. Ten of the fourteen students in VLC 2 wrote they selected to participate in a VLC because of hopes to advance their career. A student from VLC 3 noted the most satisfying aspect of participating in a VLC was, “learning more strategies to enhance my career.” Another student from VLC 3 commented they, “learning about the things I was using in my job made the concepts real to me and worth learning.”

Overall, students in this study report that they were able to connect with others in their career field and learn additional skills needed for their career. Students who select online graduate programs to advance their careers may be motivated to join a virtual learning community if they feel this will also benefit their careers. Career benefits was one of the three additional themes discovered in the findings. The second theme discovered was discussion of technology.

**Technology**

Another auxiliary finding that emerged from the written comments in regards to instructors was the instructors’ expertise with technology. Some students felt instructors lacked
the knowledge and skills with technology. Three students from VLC 1 reported frustrations with the technology used. One student commented, “I think this technology is very difficult to navigate. The VLC would be perfect if the tech was easier to use.” Five students from VLC 2 reported frustrations with instructor’s lack of technical skills. One student from VLC 2 wrote, “I think faculty should work with each other more to find out what does and doesn’t work inside the LMS. For example, using the tools available, such as the calendar and assignment management. They need more training in how to use it.” Another student from VLC 2 commented, “some of my courses are set up well and use the technology available while other don’t. I wish there was consistency among instructors.” Five students from VLC 3 reported frustrations with instructors’ lack of technical skills. Students commented the most disappointing aspect of their VLC was that some, “instructors were not equipped with the skills it takes to create an online learning environment.” Another student from VLC 3 when asked for suggestions to improve the VLC commented, “make sure all the instructors that are teaching online have the technical skills to do so.”

Students have extremely low tolerance for technology that works poorly, is difficult to navigate, or is superfluous to their learning needs and goals (Miller, 2014). This is also true when instructors are not utilizing the technology available. Frequent technical issues can result in learners feeling less connected with the VLC (Gallagher-Lepak et al., 2009). The main issues discussed by students who participated in this study were lack of instructors’ skills with technology, need for training on how to use the technology, and dislike for the technology used. Institutions who are teaching online may wish to offer tutorials for instructors and students on how best to use the technology being utilized.
Flexibility

The number one reason cited by students for selecting online courses and programs is flexibility (Miller, 2010; Selingo, 2013). Half of the students in VLC 1 reported through their written comments that flexibility was a motivating factor for participating in a VLC. One student wrote, “It allows you to participate on your own time, when you are able, with many people.” Another student from VLC 1 commented, “VLCs are great because you can access them whenever you want for however long you want. It’s a great way to connect with others. Somehow it just feels like a more unique way to connect.”

Nine of the fourteen respondents from VLC 2 reported flexibility as a motivating factor for participating in a VLC and five out of fourteen stated it was the most satisfying aspect of participating in a VLC. One student from VLC 2 commented, “I can work on assignments and participate as my schedule allows.” Another student stated, “this VLC allows me to work on my degree while keeping my career and family commitments.” Additional comments included a desire to attend this institution without relocating or changing careers. One student from VLC 2 wrote, “I wanted to earn a master’s degree in this field of study. This institution has the program I wanted and faculty expertise, but I didn’t want to leave my career or move my family.

18 of the 29 respondents from VLC 3 reported flexibility as a motivating factor for participating in a VLC. One student from VLC 3 commented, “the most satisfying aspect of my VLC was being able to learn when it was most convenient for me.” Additional comments included working around career and family commitments, desire to attend this institution and program but no desire to move, and a preference for learning asynchronously in an online environment. One student from VLC 3 wrote, “I liked the idea of learning from home on my
own time while sitting in my pajamas and eating ice cream. Also, it was the only way to keep my career while attending the institution I wanted to receive my degree from.” Another student from VLC 3 commented, “I wanted to continue my education, I wanted to attend this specific institution, and I had to make it work while working 130 miles from the school I wanted to attend.”

**Summary**

The guiding research question for this study was how graduate students perceive their experiences after participating in a virtual learning community as part of their graduate program. Overall, the majority of students who participated in this study reported positive perceptions of their overall educational experience. Students were also asked to share the most satisfying and most disappointing aspects to participating in a VLC. Student responses to the question of most satisfying aspect include opportunity to socialize, access to resources, learning from the different perspectives of other students, ability to create connections, and the ability to work around family and work schedules. Students responses to the question of most disappointing aspect of participating in a VLC include frustrations with technology, lack of interaction with students and faculty, organization and availability of resources, and a desire for faculty to receive more training before teaching online.

The first research sub-question asked how participation in a virtual learning community impacts graduate students’ perceptions of sense of belonging; sense of community? Students from VLC 1 and VLC 3 reported high perceptions of sense of belonging and sense of community both with the college and their fellow students. Students from VLC 2 were more varied in their perceptions with less than half of the students reporting a sense of belonging within the college community and among other students. Both VLC 1 and VLC 3 have been in existence for several
years. VLC 2 had been established only six months prior to administration of the survey. It is possible that students in VLC 2 are less inclined to perceive a sense of belonging because of the short time frame their VLC has been in place. Sense of community is established over time, and, as many online courses last only a few weeks or months, it is arguable whether enough time elapses for online identities to be built and sense of community to develop (Oztok, 2012).

The second research sub-question asked how does participation in a virtual learning community impact graduate students’ perceptions of their access to resources, faculty, peers and support? The literature discussed that online students’ perceptions of access to resources, faculty, peers and support can reduce feelings of isolation and improve overall reported satisfaction with an online program (Palloff & Pratt, 2007; Rovai, 2002). While many of the findings in this section show that participation in a VLC can reduce feelings of isolation and increase access to resources, faculty, peers, and support there were also gaps in how all students perceived the level of access. Students in VLC 1 and VLC 2 noted that an orientation or guide would be beneficial to online students participating in a VLC.

The third research sub-question asked to what extent do graduate students who participate in a virtual learning community report instances of the four presences reported as necessary by the Community of Inquiry framework: teaching presence, social presence, cognitive presence, and learner presence? The extent that VLC students reported teaching presence was 78.9% for VLC 1, 52.0% for VLC 2, and 79.3% for VLC 3. The extent that VLC students reported social presence was 72.8% for VLC 1, 41.0% for VLC 2, and 72.4% for VLC 3. The extent that VLC students reported cognitive presence was 67.0% for VLC 1, 68.6% for VLC 2, and 89.0% for VLC 3. The extent that VLC students reported learning presence was 55.7% for VLC 1, 67.1% for VLC 2, and 89.0% for VLC 3.
VLC 1 and VLC 3 reported all four presences as existing within their VLC. VLC 2 reported teaching presence, cognitive presence and learning presence but did not report social presence. Various research studies have explored the each of the presences individually, but some researchers feel that all of the presences must be reported for a true formation of a virtual community of inquiry (Garrison & Cleveland-Innes, 2005).

The findings from research question three showed that VLC 1 and VLC 3 reported the existence of all presences while VLC 2 did not. If we return to the results from question one, we will see that VLC 1 and VLC 3 both reported feeling a sense of belonging with the college community and other students while students from VLC 2 did not. This confirms statements from the literature that the CoI framework focuses on the intentional development of virtual learning community which; with the existence of teaching, social, cognitive, and learning presences, can increase a students’ perceived sense of belonging (Garrison & Cleveland-Innes, 2005; Garrison, 2016; Shea & Bidjerano, 2009; Shea et al., 2012).

Overall the findings displayed in chapter 4 show support for implementing virtual learning communities in online graduate programs. Students who participated in the research noted several benefits from participating in a virtual learning community. Students also noted challenges and suggestions for improvement based on their experiences. Chapter 5 will discuss the findings and implications.
CHAPTER 5: SUMMARY AND CONCLUSIONS

The purpose of this descriptive study was to explore, understand, and describe the perceptions of students participating in virtual learning communities as part of their graduate program. This research examined students’ perceptions of a virtual learning community’s (VLCs) ability to create peer networks, develop knowledge, support each other, share resources, and develop relationships with fellow program students, faculty and staff outside of a physical classroom environment. Students within each VLC self-reported on their perceptions and experiences within the community utilizing a survey instrument with Likert-scale and open-ended questions.

This multiple case study had goal of describing a particular phenomenon. In this case, the phenomenon was graduate students’ experiences in a virtual learning community. As stated in chapter 3, the primary purpose of descriptive research is to provide an accurate description of a situation or phenomenon. The focus is not on cause-and-effect relationships shown through statistical analysis of variables, but rather a description of the phenomenon. Descriptive research is often conducted to learn about the attitudes, opinions, beliefs, and perceptions of a particular population. The Community of Inquiry (CoI) model served as a framework for analysis of virtual learning community within this study.

This study examined virtual learning community development within three graduate programs in the United States. Comparison of these three programs is difficult given the different organization, technology, length of time since implementation, and management of the communities. However, differences in results can be influenced by many factors and it is impossible to make inferences about one community or another based on just survey data.
- Virtual Learning Community (VLC) 1 is a private Midwest university offering bachelors and master’s degrees. The participants from this institution are graduate students in a hybrid program. This hybrid program was designed for working adults. Course work is completed online with a two-day face-to-face experience every 10-week quarter. Students may begin the program in either the first quarter of the fall or spring semester. The university uses an enterprise social networking platform as their LMS and virtual learning community.

- Virtual Learning Community (VLC) 2 was a public Midwest university offering bachelors, masters, and doctoral degrees. The participants from this institution were online graduate students. This program is offered fully online with no face-to-face participation. This program has rolling admissions allowing students to begin in any semester. This program utilized Blackboard for both its LMS and virtual learning community.

- Virtual Learning Community (VLC) 3 is a public Midwest university offering bachelors, masters, and doctoral degrees. The participants in this program were considered online graduate students. This program offers a three-year cohort model for graduate students. Each cohort starts in the summer and students in cohorts take courses together over a three-year period. This program utilized Blackboard and Moodle for their LMS. Each cohort created a locked Facebook group comprised only of student cohort members.

Results of the three program level communities in this study show positive benefits to students who participate in virtual learning communities. Students in all three virtual learning communities (VLCs) reported satisfaction with their participation. The findings have shown how students perceive their participation in an online learning community helps them to create peer
networks, develop knowledge, receive support from fellow students, develop social relationships, and create career connections outside of a physical classroom environment.

**Summary**

The guiding research question for this study was how graduate students perceive their experiences after participating in a virtual learning community as part of their graduate program. Overall, the majority of students who participated in this study reported positive perceptions of their overall educational experience. Students were also asked to share the most satisfying and most disappointing aspects to participating in a VLC. Student responses to the question of most satisfying aspect include opportunity to socialize, access to resources, learning from the different perspectives of other students, ability to create connections, and the ability to work around family and work schedules. Students responses to the question of most disappointing aspect of participating in a VLC include frustrations with technology, lack of interaction with students and faculty, organization and availability of resources, and a desire for faculty to receive more training before teaching online.

The first research sub-question asked how participation in a virtual learning community impacts graduate students’ perceptions of sense of belonging; sense of community? Students from VLC 1 and VLC 3 reported high perceptions of sense of belonging and sense of community both with the college and their fellow students. Students from VLC 2 were more varied in their perceptions with less than half of the students reporting a sense of belonging within the college community and among other students. Both VLC 1 and VLC 3 have been in existence for several years. VLC 2 had been established only six months prior to administration of the survey. It is possible that students in VLC 2 are less inclined to perceive a sense of belonging because of the short time frame their VLC has been in place. Sense of community is established over time, and,
as many online courses last only a few weeks or months, it is arguable whether enough time elapses for online identities to be built and sense of community to develop (Oztok, 2012).

Additionally, rolling admissions in VLC 2 allow students to start the program during any course and any semester. This can decrease the likelihood that program students would share several classes together over the course of a couple of years. VLC 1 and VLC 3 require students to start together and VLC 3 utilizes a cohort model which recommends that students take all of their courses together. Further research is necessary to determine if the cohort model in online learning allows students to form stronger sense of community than other programmatic forms.

There is little literature about the online cohort learning experience (Tisdell, Strohschen, Carver, Corriga, Nash, Nelson, Royer, Strom-Mackey, & O’Connor, 2004). However, what literature does exist shows positive benefits for the cohort model and their ability to establish community and sense of belonging among students (Conrad, 2002; Conrad, 2005; Tisdell et al., 2004). One student from VLC 3 stated, “I was with the same group of students for three years so I was able to develop closer relationships with them when compared to stand alone online courses.” Another student from VLC 3 also commented positively about the cohort model, “I love having the cohort model in my online courses so I could stay with the same people throughout the program.” Additionally, a third student from VLC 3 commented, “the most satisfying part of the VLC was being in a cohort. It’s helpful and easier to learn and work with people you know well.”

Another interesting difference between VLC 1, VLC 2, and VLC 3, is that VLC 2 is the only community with no face-to-face interaction during their program. Conrad (2005) discovered during two separate studies of hybrid programs that learners indicated the ability to meet faculty and students face-to-face enhanced their ability to create community in an online environment.
Both of the programs she studied required a face-to-face two-day orientation before the start of the program. Students in a different study acknowledged that meeting other program students and faculty face-to-face made subsequent online communication easier and more familiar (Tisdell et al., 2004). It is possible that the higher results reported for sense of belonging within VLC 1 and VLC 3 are the result of their required face-to-face components.

The second research sub-question asked how does participation in a virtual learning community impact graduate students’ perceptions of their access to resources, faculty, peers and support? The literature discussed that online students’ perceptions of access to resources, faculty, peers and support can reduce feelings of isolation and improve overall reported satisfaction with an online program (Palloff & Pratt, 2007; Rovai, 2002). While many of the findings in this section show that participation in a VLC can reduce feelings of isolation and increase access to resources, faculty, peers, and support there were also gaps in how all students perceived the level of access. Students in VLC 1 and VLC 2 noted that an orientation or guide would be beneficial to online students participating in a VLC.

The third research sub-question asked to what extent do graduate students who participate in a virtual learning community report instances of the four presences reported as necessary by the Community of Inquiry framework: teaching presence, social presence, cognitive presence, and learner presence? The extent that VLC students reported teaching presence was 78.9% for VLC 1, 52.0% for VLC 2, and 79.3% for VLC 3. The extent that VLC students reported social presence was 72.8% for VLC 1, 41.0% for VLC 2, and 72.4% for VLC 3. The extent that VLC students reported cognitive presence was 67.0% for VLC 1, 68.6% for VLC 2, and 89.0% for VLC 3. The extent that VLC students reported learning presence was 55.7% for VLC 1, 67.1% for VLC 2, and 89.0% for VLC 3.
VLC 1 and VLC 3 reported all four presences as existing within their VLC. VLC 2 reported teaching presence, cognitive presence and learning presence but did not report social presence. Various research studies have explored the each of the presences individually, but some researchers feel that all of the presences must be reported for a true formation of a virtual community of inquiry (Garrison & Cleveland-Innes, 2005).

The findings from research question three showed that VLC 1 and VLC 3 reported the existence of all presences while VLC 2 did not. If we return to the results from question one, we will see that VLC 1 and VLC 3 both reported feeling a sense of belonging with the college community and other students while students from VLC 2 did not. This confirms statements from the literature that the CoI framework focuses on the intentional development of virtual learning community which; with the existence of teaching, social, cognitive, and learning presences, can increase a students’ perceived sense of belonging (Garrison & Cleveland-Innes, 2005; Garrison, 2016; Shea & Bidjerano, 2009; Shea et al., 2012).

Community of Inquiry Framework

This study utilized the Community of Inquiry (CoI) framework which was has been used to research online learning for over a decade (Scott et al., 2016). The original framework is based on collaborative interaction that supports a sense of community using three forms of presence: teaching, social, and cognitive (Garrison et al., 2000) (See Figure 1). In 2010, Shea and Bidjerano introduced a fourth presence: learning presence. (See Figure 2). Shea and Bidjerano (2010) argued that while teaching and social presences are key indicators of a learner’s ability to attain cognitive presence, each students’ individual differences could not be ignored. Learning presence has not been formally accepted into the CoI framework; however, studies have been including the expanded framework (Means et al., 2009; Scott et al, 2016; Shea et al., 2014).
Components of learner presence include self-efficacy, effort regulation, motivation, peer interaction resulting in informal knowledge development, and active participation in the learning process. This construct of self-regulation has been found essential to online learning but has yet to be well-integrated into the currently available theoretical frameworks that study online learning (Shea et al., 2014).

This study utilized the expanded CoI framework as envisioned by Shea and Bidjerano (2010). Findings from this research study support the inclusion of learning presence within the CoI framework. Students from all three VLCs commented on the importance of self-regulation, time management, motivation to participate, resource sharing, and help-seeking that researchers have begun to associate with learning presence (Shea et al., 2014). For example, a student from VLC 2 wrote, “You need to have a certain level of self-discipline to succeed in this type of learning environment.” A student from VLC 3 shared a similar comment, “You have to be self-motivated to take courses online.” Learner presence was coded to 12 items on the survey instrument utilized in this study. The average score for agreeing and/or strongly agreeing with each of the twelve measures of learning presence was 55.7% for VLC 1, 67.1% for VLC 2, and 89.0% for VLC 3.

**Implications for Practice**

The proposed recommendations for practice were created from the findings of the research questions addressed in this study. These recommendations are likely to be most applicable to the three VLCs who participated in the study and other similar programs. However, it is not unreasonable to assume that these recommendations might apply to many other types of programs and institutions in higher education interested in establishing a virtual learning community.
1. The creation of learning community in a virtual environment adds extra considerations for development such as choice of technology, privacy issues and the technological skills of students and faculty (Palloff & Pratt, 2007; Schwier, 2007). The needs, desires, and technical competencies of faculty, staff and students should be determined during the design phase of the virtual learning community. This includes the decision of platform which will be utilized to house the community. These needs and competencies may vary by institution. Additionally, the time, technology, resources, staffing, and funding required to implement virtual learning communities should be considered. All three VLCs in this study had a staff member actively working with the technology and management of the community. VLC 1 removed this community manager when they believed the community was established; however, several student comments from VLC 1 indicated that students perceived the community manager as an important component of the VLC.

2. Training manuals, tutorials, and community orientations are beneficial to students and faculty. Online orientations reduce the need for technical support and increase student retention and satisfaction (Shelton & Saltsman, 2005). One of the largest complaints among students in this study was the perception that faculty were incapable of using technology. Some students also suggested they would have benefited from some form of orientation or training for using the technology. Additionally, Brown (2001) noted that additional time spent navigating unfamiliar technology delays the amount of time it takes for students to develop a sense of community with their peers.

3. Integrate a face-to-face component into all online programs. Students within all three VLCs commented they missed face-to-face connections with their peers. There are a
variety of ways in which this can be accomplished. Additionally, there are multiple technologies available which allow students to see each other face-to-face via video even though they are physically separated. Several of the students who participated in this study offered suggestions for connecting with other students. One suggestion is a two-day face-to-face orientation as the start of a program. Another suggestion is incorporating face-to-face meetings throughout a program of study. One student in VLC 2 suggested incorporating video conferencing stating other students were “faceless voices which are easily forgotten.” VLC 1 and VLC 3 incorporated face-to-face meetings throughout the program. Online learners who have the opportunity to meet face-to-face, even once, report an increase in connectedness and satisfaction with the program. (Conrad, 2002; Conrad, 2005).

4. Utilize the cohort model for online learning and establishing VLC. In this study, VLC 3 operated under a cohort model. In cohort based degree programs, students begin a program together and take the same sequence of courses (O’Connor, 2004). Students in VLC 3 reported the highest positive benefits to participating in a VLC. In written comments, many of the students attributed those positive experiences and their ability to establish a strong sense of community was directly related to their participation in a cohort based program.

Recommendations for Future Research

As Creswell (2013) noted, descriptive case studies are starting points that lead to further studies. This descriptive, multiple case study provides a foundation for examining in greater detail, the effects of participating in virtual learning communities on online students. Future
research might focus on: (a) investigating experiences of undergraduate online students in virtual learning communities, (b) evaluating various technologies used to create VLC, (c) examining student and faculty experiences in various technologies, (d) creating technology tutorials and orientation experiences to facilitate the development of sense of community in a VLC, (e) investigating faculty perceptions of virtual learning communities, and (f) examining the potential of virtual learning communities to supplement and enhance traditional on-campus learning communities.

Another aspect of study would be to examine virtual learning communities as a part of a longitudinal study in an effort to discover the rate at which students establish sense of community during a program. Additionally, the potential examination of social presence, group dynamics, creation of trust, development of networks, and whether connectedness continues beyond completion of a program. Another fascinating aspect of a longitudinal study would be to examine how alumni could be used as mentors and sources of information for incoming program students. Another area of research would be to examine the cohort model in online education. Other areas of research can examine how students’ self-efficacy correlates with development of sense of community in a VLC. Few students noted their own inability to manage time affected their ability to reap all the benefits of participating in a VLC.

Studies that examine the discussion board postings in a virtual learning community in addition to students self-reporting on a survey could provide additional information in how students share information, the rate at which they develop trust and sense of community, and the examination of the various presences associated with the Community of Inquiry framework. Furthermore, large scale quantitative studies which determine the correlation between various factors of virtual learning community and their influence on students perceived satisfaction could
be beneficial for further development of the literature and research on virtual learning communities.

Closing Comments

The findings in this study generally support the inclusion of a virtual learning community for students in enrolled in hybrid and online graduate programs. This conclusion is supported by the literature, which states that an increased sense of community can reduce feelings of isolation among online learners and increase retention and perceived satisfaction with their experience (Rovai, 2001). The study findings and the literature on Community of Inquiry in online courses and programs all support the conclusion that the creation of a virtual learning community can be a positive and rewarding experience for students. This conclusion does not imply that the use of virtual learning communities will alleviate all issues of retention and student discord in online programs. The creation of a virtual learning community for an online program should be carefully planned and executed.

The results from this study are important for a variety of reasons. First, institutions of higher education and faculty should be aware that virtual learning communities are an available resource to supplement online programs. It can be reasonably concluded that virtual learning communities can be a positive asset in an institutions’ effort to increase student satisfaction and sense of community. Satisfaction and sense of community were noted as crucial factors for promoting retention, higher academic performance, improved social experiences, skill development, and overall satisfaction with the student experience.
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APPENDIX A: SURVEY QUESTIONNAIRE

Survey Questions: Online Learning Communities

You are currently enrolled in an online learning community. I am in the process of collecting research for my doctoral program and I am interested in your views and experiences in an online learning community. This survey is voluntary. Its purpose is to conduct research in order to help improve teaching and learning. Your honest responses to each item will help us achieve this purpose. It will not be used to evaluate faculty. Taking or not taking this survey will have no effect on your grades.

The survey included in this email should take you approximately 15 minutes to complete.

The survey includes a number of statements with each statement followed by a Likert response. Please select the answer that best represents your feelings about the statement.

There are a few statements that allow you to type in comments about your experiences. Sharing these comments is optional. Please refrain from including any identifying information in your comments.

Please indicate your satisfaction with your online learning community experience
(Very Dissatisfied, Somewhat Dissatisfied, Somewhat Satisfied, Strongly Satisfied)
  1. Overall satisfaction with your online learning community experience.
  2. Satisfaction with the social activities in your online learning community.

Please answer the following question using the scale below.
(Strongly Discourage, Somewhat Discourage, Somewhat Encourage, Strongly Encourage)
  3. Would you recommend joining an Online Learning Community to a friend or prospective student?

Open-ended (optional)
  4. Please explain why you would or would not recommend joining an online learning community?

University Experience
My participation in an online learning community best describes:
(Strongly Disagree, Somewhat Disagree, Somewhat Agree, Strongly Agree)
  1. my sense of belonging in the university community.
  2. my opportunity to interact with university faculty and staff.
  3. my sense of social support at the university.
  4. my interest in continuing my education.
  5. my adjustment to academic challenges.
  6. the quality of my overall experiences.
  7. my awareness of resources available to online students.
8. my ability to get to know students who have similar interests.
9. my communication with my class instructor.
10. my participation in study groups.
11. my understanding of diverse cultures and values.
12. my knowledge of issues and problems facing the world.

Learning Experiences

*My involvement in an online learning community has helped me to:*

(Strongly Disagree, Somewhat Disagree, Somewhat Agree, Strongly Agree)

1. see connections among my classes (e.g., learning in one class supported or expanded on what I learned in another class).
2. see connections between my personal experiences and class learning.
3. better understand the nature of my anticipated major.
4. apply what I learn in class to real world problems.
5. practice the skills I am learning or have learned.
6. find support for helping my learning.
7. improve my study skills.

Personal Experiences:

*My involvement in an online learning community has had the following effect:*

(Strongly Disagree, Somewhat Disagree, Somewhat Agree, Strongly Agree)

1. I feel excited about my courses.
2. I feel that others are concerned about my well-being.
3. I feel that there is not much interaction with faculty.
4. I feel that this community is learner-centered.
5. I trust other students.
6. I feel that I am encouraged to participate.
7. I feel that I am learning useful skills.
8. I feel a sense of community with other students.
9. I feel that I learn a lot from other students.
10. I do not feel in control of my learning process.
11. I feel that I receive valuable feedback.
12. I feel that our discussions promote learning.
13. I feel uneasy exposing gaps in my understanding.
14. I feel reluctant to speak openly.
15. I feel isolated from the university.
16. I feel isolated from faculty.
17. I feel isolated from other students.
18. I feel that this community does not benefit my education.
General Open-ended (respond with typed comment or NA)
1. Why did you choose to join an online learning community?
2. What was the most satisfying aspect of your online learning community?
3. What was the most disappointing aspect of your online learning community?
4. Do you have any comments and suggestions for your online learning community?

Oral Communication
*My online learning community experience improved my*: (Strongly Disagree, Somewhat Disagree, Somewhat Agree, Strongly Agree)
1. ability to make formal class presentations.
2. confidence in participating in class discussions.
3. comfort with asking questions in class discussions and forums.

Critical Thinking
*My online learning community experience improved my*: (Strongly Disagree, Somewhat Disagree, Somewhat Agree, Strongly Agree)
1. ability to analyze and critically evaluate ideas.
2. ability to apply academic knowledge and reason to current problems.
3. ability to think of different ways to solve problems.
4. effort to think about ideas and beliefs different from my own.

Teamwork
*My online learning community experience improved my*: (Strongly Disagree, Somewhat Disagree, Somewhat Agree, Strongly Agree)
1. ability to work cooperatively and productively with others.
2. ability to interact with others and contribute to group discussions.
3. ability to put team goals above my own personal goals.

Time Management
*My online learning community experience improved my*: (Strongly Disagree, Somewhat Disagree, Somewhat Agree, Strongly Agree)
1. ability to manage my time effectively.
2. ability to prioritize tasks to be performed for a project.
3. ability to coordinate multiple tasks or projects.

Career
*My online learning community experience*: (Strongly Disagree, Somewhat Disagree, Somewhat Agree, Strongly Agree)
1. helped me develop connections with professionals from my career area of interest.
2. helped me improve skills that are needed for my future career.
3. enhanced my knowledge of career choices and options in my anticipated discipline or field of study.
APPENDIX B: IRB Approval

Date: 11/4/2015
To: Amy Pilcher
0004 Curtiss Hall

From: Office for Responsible Research

Subject: Study on Online Learning Communities

Date: 11/4/2015

The project referenced above has been declared exempt from the requirements of the human subject protections regulations as described in 45 CFR 46.101(b) because it meets the following federal requirements for exemption:

- (2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey or interview procedures with adults or observation of public behavior where
- Information obtained is recorded in such a manner that human subjects cannot be identified directly or through identifiers linked to the subjects; or
- Any disclosure of the human subjects' responses outside the research could not reasonably place the subject at risk of criminal or civil liability or be damaging to their financial standing, employability, or reputation.

The determination of exemption means that:

You do not need to submit an application for annual continuing review.

You must carry out the research as described in the IRB application. Review by IRB staff is required prior to implementing modifications that may change the exempt status of the research. In general, review is required for any modifications to the research procedures (e.g., method of data collection, nature or scope of information to be collected, changes in confidentiality measures, etc.), modifications that result in the inclusion of participants from vulnerable populations, and/or any change that may increase the risk or discomfort to participants. Changes to key personnel must also be approved. The purpose of review is to determine if the project still meets the federal criteria for exemption.

Non-exempt research is subject to many regulatory requirements that must be addressed prior to implementation of the study. Conducting non-exempt research without IRB review and approval may constitute non-compliance with federal regulations and/or academic misconduct according to ISU policy.

Detailed information about requirements for submission of modifications can be found on the Exempt Study Modification Form. A Personnel Change Form may be submitted when the only modification involves changes in study staff. If it is determined that exemption is no longer warranted, then an Application for Approval of Research involving Humans Form will need to be submitted and approved before proceeding with data collection.

Please note that you must submit all research involving human participants for review. Only the IRB or designee may make the determination of exemption, even if you conduct a study in the future that is exactly like this study.

Please be aware that approval from other entities may also be needed. For example, access to data from private records (e.g. student, medical, or employment records, etc.) that are protected by FERPA, HIPAA, or other confidentiality policies requires permission from the holders of these records. Similarly, for research conducted in institutions other than ISU (e.g., schools, other colleges or universities, medical facilities, companies, etc.), investigators must obtain permission from the institution(s) as required by their policies. An IRB determination of exemption in no way implies or guarantees that permission from these other entities will be granted.

Please don't hesitate to contact us if you have questions or concerns at 515-294-4566 or IRB@iastate.edu.