PSYCHOSOCIAL LEARNING ENVIRONMENTS

IN ONLINE VERSUS BLENDED

INSTRUCTION

by

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ABSTRACT

The purpose of this study was to compare the psychosocial learning environments of fully online courses with blended courses. The goal was to explore the differences between the development of the three presences in the Community of Inquiry (CoI) theoretical framework (social, teaching, and cognitive) in the two delivery formats. The CoI framework consists of teaching, social, and cognitive presence, as well as the confluence of the three. The framework places an emphasis on collaboration and critical thinking. As such, it presents a well-defined model for measuring psychosocial learning environments, particularly in online and blended educational settings (Garrison & Anderson, 2003; Garrison & Vaughan, 2008).

While online learning is any form of learning and/or teaching that takes place via computer network, blended learning is a course that combines face-to-face instruction with a significant amount of online instruction. Online learning may take place synchronously or asynchronously, and typically has no face-to-face meetings. The inclusion of online learning in a blended course significantly reduces the time spent in classroom instruction (Bielawski & Metcalf, 2003; Lim, Morris, & Kupritz, 2007; Osguthorpe & Graham, 2003; Thorne, 2003).

The development of a positive psychosocial education environment was considered from a quantitative perspective, within the Community of Inquiry theoretical framework. Undergraduate courses offered in the College of Education at a southeastern United States research university were the context of the study. In order to quantitatively consider research specific to the CoI framework, data were gathered via an online anonymous survey using the Community of Inquiry survey instrument.

The findings revealed that there was no significant difference in the development of a community of inquiry as a whole, or in the development of teaching presence or cognitive presence with regard to the two delivery formats. Conversely, there was a statistical significance in the development of social presence between the two. The students in the blended courses felt the development of social presence more successfully than the students in the fully online courses. Specifically, the difference in the affective expression subscale within social presence was especially significant between the two delivery methods.

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CHAPTER 1

INTRODUCTION

Introduction

The rapidly growing demand for asynchronous instruction, specifically online and blended learning, is placing more emphasis on instructional design for course designers and instructors. The online learning delivery format utilizes computer-mediated communications for teaching and learning, while blended learning is the combination of traditional face-to-face instruction with online learning. The differences in these formats are fairly easy to comprehend, but the successful implementation of them is far from simple (Akyol, Garrison, & Ozden, 2009). The students' interaction and engagement with their learning environment is a predictor of their success in it (Duffy & Kirkley, 2004). Unfortunately, online and blended learning environments which do not carefully consider the critical aspect of interaction often result in ineffective educational experiences (Akyol et al., 2009).

While there exists over a decade of research comparing the differences between psychosocial learning environments, satisfaction levels, learning outcomes, and other instructional results between traditional on-campus instruction and asynchronous instructional formats, much less research exists comparing fully online and blended learning methods with regard to the same measures. In their seminal work, "Critical Inquiry in a Text-based Environment: Computer Conferencing in Higher Education," Randy Garrison, Terry Anderson, and Walter Archer introduced the Community of Inquiry (CoI) framework (2000). The CoI model was initially developed in order to better understand matters related to a new online

graduate program the authors had developed. This program was heavily reliant on computer-based discussion forums, a relatively new concept at the time. The pedagogy behind a traditional classroom discussion assumes that students are working independently. However, a theoretical model was needed to examine the online "classroom" experience since the pedagogy on which online discussion forums are based assumes that students will successfully interact in order to operate collaboratively (Swan, 2008). To this end, Garrison, Anderson, and Archer developed the Community of Inquiry theoretical framework, allowing researchers to consider the three elements of cognitive, social, and teaching presence and the confluence of the three in relation to online instruction (Garrison et al., 2000).

The Community of Inquiry framework contains the three elements essential to an educational transaction: teaching presence, social presence, and cognitive presence (Garrison et al., 2000). Anderson, Rourke, Garrison, and Archer define teaching presence as: "the design, facilitation and direction of cognitive and social processes for the purpose of realizing personally meaningful and educationally worthwhile learning outcomes" (2001, p. 5). Social presence is defined as: "the ability of participants to identify with the community (e.g., course of study), communicate purposefully in a trusting environment, and develop inter-personal relationships by way of projecting their individual personalities" (Garrison, 2009, p. 352). Lastly, cognitive presence is defined as: "the extent to which learners are able to construct and confirm meaning through sustained reflection and discourse in a critical community of inquiry" (Garrison, Anderson, & Archer, 2001, p. 11).

The successful creation of a community of inquiry in a learning environment has been shown to deliver a greater acquisition and synthesis of information. Additionally, the significance of "community" in the development of higher-order thinking has been well

accepted. Akyol and Garrison (2011), among others, offer that a community of inquiry is a necessity in order for critical thinking and deep learning to be achieved. The attributes of a community of inquiry include questioning, reasoning, connecting, deliberating, challenging, and developing problem-solving techniques (Lipman, 1991). Ramsden (1988) contends that it is essential for students to have the opportunity to negotiate meaning, identify misconceptions, and challenge accepted beliefs in such a community of inquiry in order to have deep and meaningful educational experiences.

There are also many indications that a positive connection exists between technology-mediated learning and higher-order learning objectives (Garrison et al., 2000). Advantageously, the proliferation of Internet technologies enables educators to design constructive, interactive learning environments to encourage the necessary community of inquiry. These tools allow for technological scaffolding to support the teaching, social, and cognitive presences within the entirety of the educational experience.

The number of colleges and universities implementing online or blended learning formats for the delivery of their courses, as well as the number of courses being offered with some asynchronous component, has grown significantly in the last decade. As reported by Allen and Seamen, more than 4.6 million students had enrolled in an online course by 2010 and 74% of public colleges and universities reported online instruction as a part of their principal long-term strategies (2010).

Research has shown that asynchronous instruction can be much better and also much worse than face-to-face instruction, based on a variety of desired educational outcomes. Research has also shown that some pedagogical characteristics of online and blended course design are associated with an increase in student achievement (Bernard et al., 2009).

Unfortunately, the research methodologies often used to measure these educational outcomes have been somewhat lacking. According to studies by Phipps and Merisotis (1999) and Bernard, Abrami, Lou, and Borokhovski (2004), difficulties associated with different instructional methods, technology usage, learning management systems, pedagogies, educational goals, etc. have meant that inferences are difficult to generalize from previous research findings. Therefore, this study was designed to specifically consider the Community of Inquiry and each of its presences with the delivery method as the only independent variable.

Distinguishing the elements of instruction which are successful or not-so-successful in online and blended delivery formats has become a significant research area for administrators, instructors, instructional technologists, and instructional designers. For this reason, the specific courses were chosen for this study due to the fact that they are nearly identical in pedagogy and design, with the primary difference being the format in which the courses are delivered. The study was conducted to compare the psychosocial learning environments in undergraduate online courses with those in the same courses taught in a blended format.

Statement of the Problem

While there is a fair amount of extant literature on comparisons between traditional and online courses, relatively little research compares online courses to blended courses. The existing literature has sought to perform these comparisons primarily in order to validate the educational experience in online courses relative to traditional courses. The studies concentrate predominantly on whether or not the online educational experience can deliver the same learning outcomes and perceived satisfaction as a traditional classroom setting. For example, in a meta-analysis comparing student satisfaction levels in distance and traditional classes in higher

education, Allen, Bourhis, Burrell, and Mabry (2002) found that distance education does not diminish the level of student satisfaction when compared to traditional face-to-face methods of instruction. Comparatively few studies, however, have attempted to determine the best method of achieving a constructive, interactive learning experience with the assumption of some level of asynchronous instruction (Akyol & Garrison, 2011; Lim, Morris, & Kupritz, 2007; Overbaugh & Nickel, 2011). Exploration of the existing literature also shows that research needs to be as specific as possible in order to remove the delivery format as a variable in the research (Bernard et al., 2009).

The challenge now is to determine the best uses of online and blended delivery formats instead of attempting to determine whether asynchronous instruction is capable of producing the same results as synchronous instruction. An additional challenge is focusing on and comparing narrow aspects of the asynchronous instruction in order for the instructional delivery method to be eliminated as much as possible as a variable in the research itself. An important area of focus in the next generation of instructional design research and course design needs to be how to best provide a positive psychosocial learning environment when some form of asynchronous delivery is assumed.

Theoretical Framework

Community of Inquiry

The theoretical foundation for this study is Garrison, Anderson, and Archer's Community of Inquiry, which is comprised of three elements critical to the educational experience: teaching presence, social presence, and cognitive presence (Figure 1) (2000). The rationale behind the framework is a collaborative constructivist approach to teaching and learning, with deep and

meaningful learning as the objective. Teaching presence is the design and administration of the instruction, giving meaning to the material and facilitating discussions. Social presence enables and encourages expression of opinion, establishes relationships, and encourages collaboration. Cognitive presence is the exchange of information, the connection of ideas, and application of synthesized information (Akyol & Garrison, 2011).

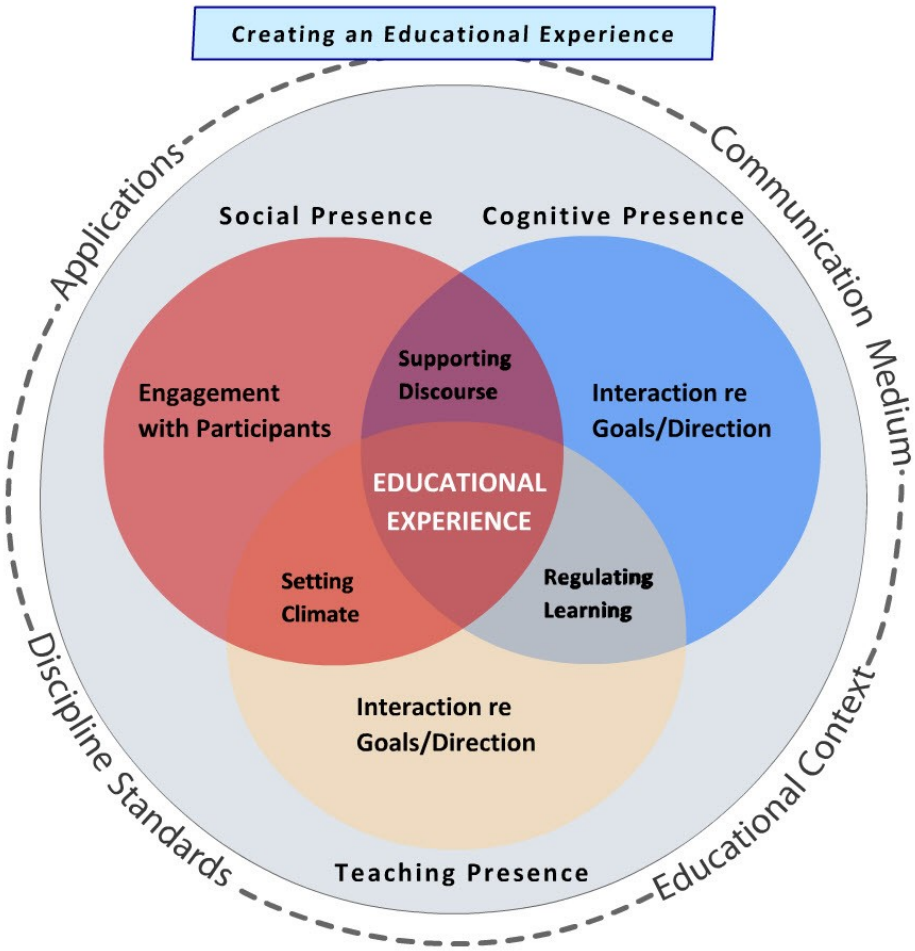

Figure 1. Elements of a Community of Inquiry ("Community of Inquiry," n.d.).

Social Presence

Social presence in asynchronous instruction is the individual's ability to represent themselves accurately through technological means. It is defined as the ability of members in a community of inquiry to present themselves, their personality, and personal characteristics into the community, exhibiting the characteristics that one might see if they were to meet in person (Garrison et al., 2000).

Teaching Presence

The first task associated with teaching presence is design of the educational experience, which involves setting curriculum and methods, and accurately portraying their meaning. This includes the selection, organization, and primary presentation of course content, as well as the design and development of learning activities and assessment. The second function of teaching presence, facilitation, is a task that may be directed by the instructor, but in a constructivist setting is most likely a shared responsibility (Garrison et al., 2000). This sharing of the facilitation function is appropriate in higher education and common when Web 2.0 technologies are being utilized. The sheer interactive nature of these technologies encourages such sharing of responsibility. Regardless of who the primary facilitator is (or even if there is one), the element of teaching presence plays a supporting role in social and cognitive presence for the purpose of realizing educational outcomes (Garrison et al., 2000).

Cognitive Presence

The most critical element of the Community of Inquiry model is cognitive presence. It is also the result of successful establishment of social and teaching presence. Cognitive presence is vital to success in higher education. In this scenario, the term is intended to mean the construction of sustained communication, the creation and application of new ideas, and impact

of the synthesis of new ideas amongst students. Cognitive presence is a fundamental component in critical thinking, and the goal of all higher education (Garrison et al., 2000). The important matter is to realize the responsibility of designing and integrating the cognitive, social, and teaching elements to achieve success in asynchronous instructional environments.

Statement of Purpose

This study was born out of a desire to understand how to deliver the best possible experience for students involved in asynchronous instruction of any kind. Thus, the purpose of this study was to compare the psychosocial educational experiences of students in online and blended undergraduate courses. Specifically, the elements of a Community of Inquiry and their confluence were considered, with the intention of determining if there were differences between two groups of students enrolled in fully online and blended delivery formats, respectively. The subscales of the Community of Inquiry instrument were examined and compared in order to establish similarities and differences in those subscales with regard to the two instructional formats.

Significance of the Study

The significance of this study is that the growth in demand for online and blended courses requires that educators stop considering asynchronous educational experiences as an auxiliary tool and instead determine how to use technology to provide the best psychosocial learning experience possible. When determining the number of studies conducted between 1985 and 2003, Bernard et al. (2004) found that 232 studies were conducted comparing distance education to traditional courses. Conversely, less than one third of that number compared online

courses to blended courses. Studies specific to blended and online instruction will help educators understand when and how to use educational technology (Cook, 2009). This study attempted to help identify the fundamental conditions relative to the development of a community of inquiry for a successful educational experience in online and blended instruction.

Research Questions

The research questions were specific to examining the Community of Inquiry framework in the two formats of instruction – fully online and blended. The chosen courses which were investigated provided an excellent opportunity to consider these psychosocial learning environments due to the method in which they are designed and delivered.

Research Question 1: Are there differences in students' teaching presence experiences in online courses and blended courses?

Research Question 2: Are there differences in students' social presence experiences in online and blended courses?

Research Question 3: Are there differences in students' cognitive presence experiences in online courses and blended courses?

Assumptions of the Study

This study was conducted at a central Alabama four-year public university. Only two courses were selected for this study due to the fact that these two courses are offered with very similar (if not identical) syllabi, assignments, discussions, assessments, and usage of a learning management system in both an online and blended delivery format. Therefore, it was assumed that the sample represented the entire population of online and blended courses offered at the

university. It was also assumed that the participants in the study interpreted each item in the survey appropriately and responded honestly.

Limitations of the Study

The intent of this study was to add to the body of work pertaining to comparisons of online and blended instruction. The study has several limitations that make any generalization of the findings somewhat provisional.

Because the study is both multi-course and multi-instructor in design, only the student perceptions of a community of inquiry within their course and with their instructor can be measured.

Since courses from only one four-year university were studied, the results may not be generalizable to other institutions. The results only represent student opinions from one four-year research university in the southeast.

Due to the desire for the target population to remain fully anonymous, there are limitations on the ability to collect data with the same participants for future studies.

Convenience sampling presents a limitation due to the dependence on participants' willingness and availability to complete the survey. Only 58 students elected to participate in the survey, therefore the sample is small.

Operational Definition of Terms

Asynchronous Instruction: In asynchronous instruction, material is presented to students regardless of time or location. There is a central medium for communication, most commonly a Learning Management System (LMS), which provides learners with all lectures, assignments,

assessments, and modes of communication. These student-student, student-instructor, and student-content interactions do not occur at the same time.

Blended Course/Learning: "Bringing together face-to-face classroom instruction with Web-based activity in which classroom time is partially replaced by the Web-based work" (Albrecht, 2006, p. 1).

Classroom Instruction: Instruction in the traditional in-class, face-to-face setting. Lectures, discussions, assignments, and assessments occur in the classroom, synchronously by all students. If technology is used, it is for auxiliary purposes only.

Learning Management System: A web-based software portal which provides learners with all lectures, assignments, assessments, and modes of communication in an asynchronous learning environment.

Distance Education: The U.S. Distance Learning Association states, "distance education refers specifically to learning activities within a K-12, higher education, or professional continuing education environment where inter-action is an integral component" (Holden & Westfall, 2006, p. 9).

Online Course/Online Learning: Any form of learning and/or teaching that takes place via computer network (Lim, Morris, & Kupritz, 2007). Online courses typically have no face-to-face meetings.

Traditional Course/Instruction: Instruction in the traditional in-class setting. Lectures, discussions, assignments, and assessments occur in the classroom, synchronously by all students. If technology is used, it is for auxiliary purposes only.

Transactional Distance: Transactional distance is a pedagogical concept which describes the relationships between teachers and students, usually when separated geographically and operating asynchronously (Moore, 1993).

Summary

This dissertation is divided into five chapters: introduction, review of the literature, research methodology, results, and discussion. Chapter 1 provides an introduction to and statement of the problem to be considered. Also included in Chapter 1 is an introduction to the theoretical framework of the study and the importance of the consideration of a psychosocial learning environment relative to online and blended instruction. Finally, there is a discussion of the process, significance, assumptions, and limitations of the study intended to be undertaken by the investigator.

Chapter 2 contains a review of the existing literature. There is a discussion of asynchronous instruction, including an introduction of online learning, blended learning, and the impact the internet has had. The history behind a community of inquiry is discussed, including John Dewey's influence and Michael Moore's theory of transactional distance. Lastly, the combination of a community of inquiry and technology is discussed.

Chapter 3 contains the research methodology being used in the study. Specifically, the setting of the study, how the participants were selected, the data which were collected and how it was analyzed. Further, there is additional detail on the Community of Inquiry survey instrument. This instrument was developed and validated in order to provide quantitative measures for consideration of a community of inquiry.

Chapter 4 describes the findings of the study and analysis of the data. Data were analyzed relative to the development of a community of inquiry in the online versus the blended courses.

Chapter 5 contains a discussion, recommendations, implications, and conclusions relative to the findings in Chapter 4. This chapter also contains a discussion of the importance of considering blended and online courses juxtaposed to one another, as well as the importance of a community of inquiry to blended and online courses.

CHAPTER 2

REVIEW OF THE LITERATURE

Introduction

There is agreement within existing literature regarding the usefulness and effectiveness of both online and blended instruction, as compared to traditional classroom instruction. Each delivery format has also been proven positive with respect to learner satisfaction and learning outcomes (Abrami et al., 2011). Further, research has validated the positive impact that interaction and satisfaction have on learning outcomes in any educational setting (Duffy & Kirkley, 2004). However, few studies have considered how learners in online and blended delivery formats are different from one another with regard to the psychosocial components of student-student, student-content, and student-instructor interaction (Overbaugh & Nickel, 2011). Additionally, few studies have been conducted to identify the differences in learners' synthesis of information and future knowledge application between online and blended learning environments. Considering the obvious necessity to examine overall learning effectiveness of online and blended instruction in both public and private sector organizations, comparing the psychosocial aspects of the two formats becomes a significant topic for researchers in education (Lim et al., 2007).

Much of the existing research literature has concentrated on comparing student interaction, satisfaction, and learning outcomes in traditional classes to online or blended environments. However, relatively little research has examined differences in the opinions of students in blended courses to those of students in fully online courses (Overbaugh & Nickel,

2011). However, online learning has evolved beyond simple comparisons with traditional classroom instruction (Abrami et al., 2011). Therefore, there is a need for research on effective instructional strategies with an asynchronous component assumed, so that there is an increase in the quality of teaching and learning (Overbaugh & Nickel, 2011).

An assessment of the existing research literature on distance education and online learning reveals an inordinately large proportion of comparisons with traditional instruction. Therefore, there are few topics left to quantify with regard to this comparison (Abrami et al., 2011). Conversely, few studies have attempted to investigate the entirety of the online versus blended learning environments with regard to interaction levels, learning outcomes, and perceived satisfaction (Akyol & Garrison, 2011).

Asynchronous Instruction

While a definition of online instruction is fairly obvious, the meaning of blended learning may not be as clear and there are a number of variables. For the purposes of this study, blended learning can be defined as "bringing together face-to-face classroom instruction with Web-based activity in which classroom time is partially replaced by the Web-based work" (Albrecht, 2006, p. 1). The U.S. Distance Learning Association provides this definition of distance education: "distance education refers specifically to learning activities within a K-12, higher education, or professional continuing education environment where interaction is an integral component" (Holden & Westfall, 2006, p. 9).

An important research area for both instructors and instructional designers has emerged from discussions regarding how the two instructional delivery formats (online and blended) are similar, different, succeed, or fail in their achievement of student learning, learner satisfaction,

and other educational objectives. These discussions are allowing researchers to address the teaching and learning benefits and drawbacks present in both delivery formats (Lim et al., 2007).

Interaction and Transactional Distance

The purpose of this study is to consider specifically the psychosocial learning environments in online and blended educational communities of inquiry, and interaction is a critical component of the psychosocial learning environment. The theories regarding interaction and transaction began with the work of John Dewey. Dewey termed these activities "procedures of knowledge" (1946, p. 505). A transaction occurs as a result of interaction in an educational setting. Therefore, in Dewey's estimation, transaction was paramount to the acquisition of knowledge (Dewey, 1946).

Interaction itself was essentially absent during much of the early history of distance education (Nipper, 1989). However, the importance of interaction is now largely supported by current research (Anderson, 2003a, 2003b; Bates, 1990; Fulford & Zhang, 1993; Lou et al., 2006; Moore, 1989; Muirhead, 2001a, 2001b; Sutton, 2001). This is due to the critical function that interaction between students, teachers, and content is posited to play in all of formal education (Garrison & Shale, 1990). Many definitions of interaction discuss the social function and processes of interaction, particularly focusing on student-student and student-instructor interaction (Beard & Harper, 2002; Crawford, 1999; Wagner, 1994). Yacci (2000) further offers that there is evidence that interactions in online instruction are the foundation for social presence and, therefore, course satisfaction, although these social aspects probably would not be easily measured with regard to educational achievement.

Moore is credited with expounding on Dewey's theories of interaction and transaction in order to define his theory of transactional distance. Transactional distance is a pedagogical

concept which describes the relationships between teachers and students, usually when separated geographically and operating asynchronously. In Moore's estimation, the lesser the transactional distance, the more interaction - and therefore - transaction, occurs (Moore, 1993).

Community of Inquiry

From Moore's theories on transactional distance, Garrison, Anderson, and Archer derived their Community of Inquiry framework which is comprised of social, teaching, and cognitive presence. The confluence of these presences of a Community of Inquiry determines the level of success of each. Research has determined that the social, teaching, and cognitive presence elements of a Community of Inquiry are related both positively and negatively to interaction, perceived satisfaction, and learning outcomes (Duffy & Kirkley, 2004; Garrison et al., 2000). Since interaction and, therefore, student satisfaction are important factors in perseverance and success in a course, as well as determining whether future online courses are taken, the focus on building a community of inquiry as a way to increase learning and satisfaction is a worthwhile endeavor.

Community of Inquiry and Technology

Mobile and internet-based communication technologies have altered the ways in which educators deliver instruction. These technologies have resulted in the advent of a variety of online and blended types of instruction as well as technology being utilized in traditional on-campus courses. Countless innovative, rapidly changing instructional methods have emerged to provide educators with options for infusing their curriculum with technology, or to move their courses partially or completely online. Of concern in implementing these new technologies is ensuring that the implementation is grounded in pedagogy and continues to achieve the stated course goals (MacDonald & McAteer, 2003). Methods of blending the pedagogical goals of

traditional instruction with technology-mediated instructional methods have been developed in an effort to achieve student satisfaction, synthesis of information, and cognition (Garrison et al., 2000).

Asynchronous Instruction

Introduction

Asynchronous (or "distance") education began to evolve in the 1980s as digital media became more commonplace, providing more communication functionality and allowing for more direct communication between students and their instructors (Bernard et al., 2009). The Internet and broadband Internet access began to affect asynchronous instruction in the 1990s, allowing the courses to become more integrated into mainstream education (Peters, 2003).

The result today is that internet-enabled courses (fully online, blended, or even technology-supported traditional courses) are increasing and thriving. Substantiation of the increasing pervasiveness of technology-enabled instruction includes the growth in dedicated virtual high schools and the swelling number of delivery format choices which colleges and universities are now routinely offering their students (Bernard et al., 2009). By 2007, approximately 50% of four-year degree-granting postsecondary institutions and over 60% of two-year institutions in the United States reported offering blended and/or online learning courses (Parsad & Lewis, 2008). As reported by Allen and Seamen, more than 4.6 million students had enrolled in an online course by 2010 and 74% of public colleges and universities reported online instruction as a part of their principal long-term strategies (2010). Evidence of student success as a result of asynchronous instruction was found in a meta-analysis conducted by the U.S. Department of Education. In the review of 99 studies which covered online or blended learning, it was revealed that students who were enrolled in courses delivered in the

online or blended delivery formats produced greater learning outcomes than those that participated only in classroom instruction (Means, Toyama, Murphy, Bakia, & Jones, 2009).

Online Learning

Introduction

Distance education (formerly "correspondence" education) served as the origin of online learning. The evolution of distance education occurred over five iterations: (a) printed instruction (correspondence courses), (b) early technology in broadcasting systems, (c) online instruction, (d) web-based teleconferencing, and (e) interactive, internet-enabled courses (Lim et al., 2007; Morabito, Sack, & Bhate, 1999). Kearsley defines online learning as "any form of learning and/or teaching that takes place via computer network" (1998). The progression of online learning is at the foundation of an educational shift in what began as correspondence courses through the U.S. Postal Service. It is contributing to an incredible growth in global educational opportunities, regardless of time and geographic location (Heinich et al., 2002). The majority of existing research now advocates for at least some use of online instruction for increased interaction, instructional effectiveness, and student satisfaction and retention (Otte & Benke, 2006). Online learning alleviates the constraints of time and place present in classroom instruction. The educational experiences are delivered to geographically-separated learners and are usually designed so students have flexibility with regard to work schedule and pacing (Lim et al., 2007). There are studies which found online students to be significantly more positive in the overall satisfaction level of their online course than in other courses they had participated in with different delivery methods (Kleinman & Entin, 2002; Paul, 2001).

Growth of Online Learning

There are many signs that online learning will continue to be a significant and long-term method of delivering courses in higher education (Parsad & Lewis, 2008). The demand from students for online learning is increasing in higher education institutions, and all indications are that online learning will become increasingly fundamental to higher education. An important factor in the success or failure of online education is student satisfaction, and satisfaction has been linked through research to the construction of a positive psychosocial learning environment. These factors have a direct impact on retention or attrition (Appleton-Knapp & Krentler, 2006; Oliver, 1999). Several studies, Appleton-Knapp and Krentler's for example, revealed an additional factor related to positive student satisfaction, namely, that if students were satisfied with their online course experience, they would recommend that course to fellow students, thus continuing the growth in popularity of online courses.

Important Issues in Online Learning

While there are many positive aspects of online learning, there are also certain difficulties which have been identified with this delivery format. The feeling of a lack of interaction, student-student interaction in particular, has been reported as a disadvantage of online instruction in the literature (Albrecht, 2006; Overbaugh & Nickel, 2011). This perceived lack of interaction has been identified as a factor which limits the ability of learners to fully engage in the educational experience unless the students were especially self-motivated and, therefore, active learners (Daniels & Moore, 2000) and were highly organized and efficient in their study habits (Oh & Lim, 2005).

The lack of a sense of community created in courses delivered in the online format was also reported in the literature. This deficiency prevents the learners from establishing shared

feelings and emotions among one another and with their instructors (Lim et al., 2007). Researchers have observed that these variables are some of the principal factors affecting learner satisfaction, educational effectiveness, course completion, and information synthesis (Sergiovanni, 1994). Further, Fontaine offers that the design and delivery of an interactive, constructivist learning experience in an online environment requires the creation of a sense of presence, a feeling of immediacy on the part of the learner and instructor, and a distinct awareness of what is required in an authentic learning atmosphere (2002).

Blended Learning

Introduction

Blended learning is related to distance education due to the fact that, by definition, some aspects of a blended course will be participated in online and asynchronously by the learners. While this relationship exists, a blended learning environment provides opportunities for different types of instructional activities to take place (Drysdale, Graham, Spring, & Halverson, 2013). Blended learning can be defined as "bringing together face-to-face classroom instruction with Web-based activity in which classroom time is partially replaced by the Web-based work" (Albrecht, 2006, p. 1). It is a course that combines face-to-face instruction with a significant amount of online instruction, which results in a reduction of time spent in classroom instruction (Bielawski & Metcalf, 2003; Lim et al., 2007; Osguthorpe & Graham, 2003; Thorne, 2003). Some examples of activities which may be included in blended instruction are: combining traditional classroom instruction time with online course activities such as discussions, quizzes, blogging, or project-based learning (Abel, 2011). Additionally, learners may participate in online synchronous activities in order to augment the classroom activities (Rasmussen, 2003).

There are a variety of definitions and variables related to blended learning. For the purposes of this study, a rather broad definition was used, in order to encapsulate the predominate components of most blended learning: a course that combines face-to-face instruction with a significant amount of online instruction, which results in a reduction of time spent in classroom instruction (Bielawski & Metcalf, 2003; Lim et al., 2007; Osguthorpe & Graham, 2003; Singh & Reed, 2001; Thorne, 2003). Additionally, Singh and Reed offer five possible combinations of content delivery to create a blended learning environment: (a) blending offline and online learning, (b) blending self-paced, live, and collaborative learning, (c) blending structured and unstructured learning, (d) blending custom content with off-the-shelf content, and (e) blending work and learning (2001).

Growth of Blended Learning

Blended learning is the deliberate integration of online and classroom instruction (Garrison & Kanuka, 2004; Graham, 2006, 2013), and the use of blended learning is increasing around the world (Drysdale et al., 2013). Colleges, universities, and corporations in the United States are increasingly implementing blended instruction as a way of providing opportunities for learning without as much demand associated with time and place as traditional instruction (Picciano, 2006). The literature reveals that blended learning is also growing in popularity in Australia, Canada, and the United Kingdom (Drysdale et al., 2013; Eklund, Kay, & Lynch, 2003; Sharpe, Benfield, Roberts, & Francis, 2006).

Reasons for choosing to implement blended learning may be the desire to add online resources to classroom instruction (Graham, 2006), the desire to add face-to-face meetings to an online course, or simply due to the desire to provide flexibility to a course in terms of resources, time, and scheduling (Dziuban, Hartman, Juge, Moskal, & Sorg, 2006). In reports by Abrecht

and Leh (2006, 2002), student satisfaction in blended learning environments was high, although neither report compared blended learning environments to fully online or traditional courses. However, when a blended course is designed in order to foster interaction and collaboration, the literature reveals that students are as satisfied or more satisfied with that course as they have been with online or traditional courses (Harker & Koutsantoni, 2005; Overbaugh & Nickel, 2011; Voos, 2003).

Important Issues in Blended Learning

A primary motivation of designers and instructors of blended learning is to alleviate perceived inadequacies of fully online learning (Lim et al., 2007). Desirable traits of blended courses which have been reported include: flexibility related to time spent in the course, the convenience of asynchronous delivery of some material, a well-designed curriculum, assignments and assessments which are practical in nature, and responsiveness of instructors (Wang, 2009). Communication is especially important in asynchronous instruction of any kind, and Willekens (2009) specifically acknowledges the desire for consistent, timely student-instructor communication, candid peer feedback, and active online discussion boards.

An awareness of students' desired characteristics does not necessarily deliver a plan for how to create a successful blended course for every educational opportunity or situation. Some instructors in colleges and universities have struggled to design and implement blended courses which strike the right balance of flexibility and structure preferred by students (Dziuban, Hartman, Cavanagh, & Moskal, 2011). Adding to the body of research specific to blended learning on topics such as design, implementation, and environment would be valuable (Drysdale et al., 2013).

Interaction

Speaking in broad terms, interaction is generally understood to describe some form of contact between individuals (Bernard et al., 2009). Wagner's definition includes mutual contact between not only the individuals (students and instructors) involved in the instruction, but also between the student and the content which is being considered. He states that interaction is: "reciprocal events that require at least two objects and two actions. Interactions occur when these objects and events mutually influence one another" (1994, p. 8). Bernard et al. (2009) investigated the existing literature from the perspective of various interactions and the results supported the importance of three types of interaction: student-student interaction, student-instructor interaction, and student-content interaction (Abrami et al., 2011).

It is important in this study to consider Michael Moore's (1989) interpretation of interaction, which he based on Dewey's theories on the same topic. Moore identified three types of interaction in distance education: (a) student-student interaction, (b) student-teacher interaction, and (c) student-content interaction. Student-student interaction refers to communication which occurs between individual students or between students working in groups. Student-teacher interaction is the opportunity the instructor has to engage, motivate, and interest the student by communicating with them either face-to-face or via technological media. Moore (1989) described student-content interaction as "the process of intellectually interacting with the content that results in changes in the learner's understanding, the learner's perspective, or the cognitive structures of the learner's mind" (p. 2). Thurmond (2003) further defines interaction as:

> The learner's engagement with the course content, other learners, the instructor, and the technological medium used in the course. True interactions with other learners, the instructor, and the technology results in a reciprocal exchange of information. The exchange of information is intended to enhance knowledge development in the learning

> environment. Depending on the nature of the course content, the reciprocal exchange may be absent - such as in the case of paper printed content. Ultimately, the goal of interaction is to increase understanding of the course content or mastery of the defined goals. (p. 4).

An important topic of discussion and research specific to interaction is that there is a difference in the interaction if the course is delivered fully online or if it is blended. Blended courses provide natural opportunities for student-student and student-teacher interaction, whereas that interaction must be thoughtfully designed into fully online courses (Bernard et al., 2009; Holden & Westfall, 2006). In fully online courses, this interaction is often absent unless it is designed into the course in the form of activities such as group projects or discussion boards. In early correspondence courses, it was quite possible for students to be unaware of other students who were taking the same course. However, as the popularity of internet usage in higher education grew, designers and instructors were better equipped to build synchronous and asynchronous interaction into their courses through the use of email, discussions, and internet-based conferencing and video conferencing (Bernard et al., 2009). With the blended delivery format, student-student and student-teacher interaction will also include face-to-face communication, providing an easier path to fostering that interaction (Overbaugh & Nickel, 2011).

The interaction of students in asynchronous learning courses is affected heavily by course design because it is necessary for distance students to rely on self-motivation to achieve success more than students in traditional classes. Traditional classroom instruction cultivates and encourages the necessary social connections which foster interaction. Therefore, designers and instructors of asynchronous instruction must be deliberate in their attempts to construct those social interactions in their online and blended courses (Martinez, 2001). Rovai, Ponton, and

Baker (2008, p.9) state more specifically that encouraging interaction and therefore a sense of community is "incumbent upon the online instructor" in asynchronous learning environments.

Transactional Distance

Transactional distance is a pedagogical concept which describes the relationships between teachers and students, usually when separated geographically and operating asynchronously. Moore derived the concept of transactional distance from Dewey's theories on transaction and interaction (Bernard et al., 2009). This separation engenders distinct actions and reactions on the part of the learners and teachers, and affects both the teaching and learning. It also creates an opportunity for miscommunication and misunderstandings that would otherwise not exist. This space is the transactional distance (Moore, 1993).

Transactional distance exists even in a traditional classroom (Moore, 1993). Specific to distance education, transactional distance occurs between individuals who are actually geographically separated. However, blended learners have some inherent advantage over fully online learners due to an absence of visual cues in online learning which a learner in a blended course would have the benefit of. Therefore, some online learners have cited difficulties such as perceptions of higher workload and less support (Lim, Morris, & Kupritz, 2007), possibly due to the lack of these visual cues (Overbaugh & Nickel, 2011). The result is that consideration of transactional distance is paramount when attempting to develop a community of inquiry (Bernard et al., 2009).

The reduction of transactional distance is most often cited as the motivation for creating a community of inquiry in asynchronous instruction (Palloff & Pratt, 2005; Rovai, 2000, 2002). Additionally, the existence of a community of inquiry has been found to be instrumental in the construction of a collaborative, constructivist learning experience (Garrison et al., 2000; Garrison

& Arbaugh, 2007; Shea, 2006). Moore (1989) urged designers and instructors of distance education to "organize programs to ensure maximum effectiveness of each type of interaction, and ensure they provide the type of interaction most suitable for various teaching tasks of different subject areas, and for learners at different stages of development" (p. 5). The reduction of transactional distance is the motivating factor for encouraging a community of inquiry in asynchronous instruction. It is this motivation that places emphasis on interactive, constructivist instructional design. Due to the fact that students require a sense of community to be successful, special attention is needed to create this sense of community in asynchronous instruction (Garrison et al., 2000).

Community of Inquiry

Introduction

The underlying premise of the CoI framework is that a collaborative, constructivist methodology to teaching is fundamental to meaningful learning (Garrison & Vaughan, 2008). With Moore's (1993) notion of transactional distance as a foundation, Garrison et al. (2000) encourage the investigation of student–student, student-instructor, and student-content interaction as impacts on student success. The existing literature is nearly unanimous in voicing the importance of interaction, and while interaction is ordinarily recognized as existing between and among individuals, the meaning here must take the course material into account (Abrami et al., 2011). The model of the Community of Inquiry assumes that learning occurs within the community through the interaction of its three core elements, social presence, teaching presence, and cognitive presence (Garrison et al., 2000).

Elements of a Community of Inquiry

Three mutually dependent and supporting elements comprise the Community of Inquiry framework: social presence, cognitive presence, and teaching presence. As shown in Figure 1, the theoretical framework illustrates that learning occurs when there is successful interaction of the three primary elements. A collaborative constructivist theory of teaching and learning is the foundational factor of this framework (Garrison & Anderson, 2003). Collaborative constructivism is the acknowledgement that interaction is critical to a community of inquiry, and that a community of inquiry is critical to meaningful learning and higher order thinking (Cleveland-Innes, Garrison, & Kinsel, 2007).

Social presence is considered the development of climate and interpersonal relationships in the CoI while cognitive presence represents the exchange of information, connecting, and applying new ideas. Lastly, teaching presence begins with the setting of curriculum and methods, focuses the discussions, and encourages collaboration (Garrison et al., 2000). All three elements work together interactively to form the whole of the educational experience. The literature supports the significance of the three types of presence, and the confluence of the three is understood to be associated with increased educational achievement, student satisfaction, and student retention, among other positive educational outcomes (Bernard et al., 2009).

Social Presence

Garrison (2009) defines social presence as "the ability of participants to identify with the community (e.g., course of study), communicate purposefully in a trusting environment, and develop inter-personal relationships by way of projecting their individual personalities" (p. 352). Interaction and collaboration are dependent upon the establishment of social presence because it enables the investigation and curiosity which can only be achieved in a community of learners

(Garrison & Anderson, 2003). There are three subcategories within social presence: affective expression, open communication, and group cohesion.

The primary function of social presence is to serve as a support for cognitive presence, enabling the synthesis of information and critical thinking participated in by the community of learners. Specific to instructional design, affective goals for the instruction make social presence especially important. For example, if participants find the interaction in the group enjoyable and personally fulfilling, attrition will be reduced as the students will tend to continue in the course until its completion and will likely recommend the course to other students. At that point, social presence is a direct contributor to the success of the educational experience (Garrison et al., 2000).

Student–student interaction refers to interaction among individual students or among students working in small groups (Moore 1993). Student-student interaction is inherent in the creation of social presence, and is, therefore, instrumental in improved educational outcomes in a constructivist learning environment (Bernard et al., 2009; Kanuka & Anderson, 1999; Salomon, 2000). Early research into technology-mediated instruction and online learning asserted that social presence could be created without face-to-face contact, provided that student-student and student-instructor interaction was carefully considered in the course design (Akyol & Garrison, 2011).

Cognitive Presence

Cognitive presence is defined as "the extent to which the participants in any particular configuration of a community of inquiry are able to construct meaning through sustained communication" (Garrison, Anderson, & Archer, 2001, p. 11). The cognitive presence element of the Community of Inquiry framework has four subcategories, based on the practical inquiry

model, which includes four phases: triggering event, exploration, integration, and resolution. The triggering event is the introduction of the inquiry process through the statement of a problem to be solved. The exploration phase follows, and is the examination of the problem and the discovery of possible solutions. The integration phase is the point at which the new information and potential solutions take on more structure. Lastly, the resolution of the problem is constructed by assimilating the meaningful information or by determining solutions to it (Garrison & Anderson, 2003).

An integral component of cognitive presence is student-content interaction. The students' interaction with the course content in order to construct meaning, associate it with existing knowledge, and apply it to future problem solving is what is known as student-content interaction (Abrami et al., 2011). Moore (1993) described student-content interaction as ''… the process of intellectually interacting with the content that results in changes in the learner's understanding, the learner's perspective, or the cognitive structures of the learner's mind'' (p. 2). The success of student-content interaction and the larger element of cognitive presence substantiates that cognitive presence in a community of inquiry is associated with perceived and actual learning outcomes. A current challenge for researchers in online and blended learning has shifted to understanding cognitive presence issues (Akyol & Garrison, 2011).

Teaching Presence

The third element of the model, teaching presence, entails two general tasks: design of the instruction and facilitation of the course. Student-instructor interaction focuses on communication between students and the instructor. According to Moore (1993), during student-instructor interaction, the instructor seeks ''to stimulate or at least maintain the student's interest in what is to be taught, to motivate the student to learn, to enhance and maintain the learner's

interest, including self-direction and self-motivation'' (p. 2). In distance learning environments, student-instructor interaction may be synchronous, using technologies such as Voice-Over-IP (VoIP) phone conversations, videoconferencing, and chats, or it may be asynchronous using such technology as discussion boards, e-mail, and Web 2.0 technologies such as blogs and wikis (Abrami et al., 2011).

Teaching presence is defined as "the design, facilitation and direction of cognitive and social processes for the purpose of realizing personally meaningful and educationally worthwhile learning outcomes" (Anderson, Rourke, Garrison, & Archer, 2001, p. 5). Teaching presence in asynchronous learning has the same role that it does in a traditional classroom. It brings "all the elements of a community of inquiry together in a balanced and functional relationship congruent with the intended outcomes and the needs and capabilities of the learners" (Garrison & Anderson, 2003, p. 29). Teaching presence also has three subcategories: design and organization, facilitating discourse, and direct instruction. The goals of these subcategories are very similar to those in a traditional classroom. The critical difference is that the term "teaching presence" is used as opposed to "teacher presence" in order to emphasize the constructivist nature of the Community of Inquiry framework, and the shared responsibilities of teaching amongst all participants in the asynchronous course (Akyol et al., 2009).

Community of Inquiry and Technology

The innovations in internet and mobile technologies have transformed the way instruction is delivered to learners, regardless of time or geography. Internet-enabled communication coupled with pioneering instructional methods has provided learning solutions to meet the diverse global needs of instructors and learners (Lim et al., 2007). Halverson et al. found that

college and university instructors and administrators anticipated that the vast majority of their courses would have some internet component by 2010. They also "envisioned the Web in the next few years more as a tool for virtual teaming or collaboration, critical thinking, and enhanced student engagement than as an opportunity for student idea generation and expression of creativity" (2012, pp. 27–28).

While the availability of these computer-mediated communications provides many positive opportunities, there are also challenges to providing the psychosocial learning environment that has proven to be critical in a successful traditional learning environment (Macdonald & McAteer, 2003). A valid concern in the transition of courses to blended or fully online is that the pedagogy remains intact, and that the technology chosen is not done so out of convenience. There also needs to be care taken in order to build interaction into the courses so that presence is developed (Lim et al., 2007). Facilities such as discussion boards, group projects, VoIP voice, and video conferencing have all been shown to enhance student-student and student-instructor interaction, thereby increasing student and teaching presence. However, these capacities must be thoughtfully built into the course by course designers and instructors (Bernard et al., 2009; Holden & Westfall, 2006). For example, in a comparison of written lectures to video lectures, students indicated a preference for being able to watch the videos to the written instruction (Allen et al., 2002).

Summary and Conclusion

All three of the elements of an educational experience are essential to a successful Community of Inquiry for educational purposes. Simply put, the elements of a Community of Inquiry can increase or impede the quality of the educational experience, perceived satisfaction,

and learning outcomes. The instructional design and how we use technology, Web 2.0 technologies in particular, to create a learning environment are paramount in achieving quality learning outcomes (Garrison et al., 2000).

The more recent educational literature has offered that a meaningful learning experience must take into consideration the attitudes, experience, and situations of each individual learner. Additionally, it has been suggested that the shared, collaborative environment of the group of learners is associated with a purposeful and structured educational environment (Abrami et al., 2011). Akyol and Garrison (2011) refer to this as a collaborative constructivist perspective in the teaching and learning transaction, with collaboration as the critical element. This view of an educational experience is considered a collaborative communication process for the purpose of constructing meaningful and worthwhile knowledge. Collaboration, from this perspective, is seen as an indispensable characteristic of cognitive development since cognition cannot be separated from the social context. Collaboration depends not only upon the ability and engagement of the user but also on the technology tools chosen by the instructor (Garrison et al., 2000). It may be that different asynchronous technology-mediated teaching methods have different potentials to address cognitive, social, and teaching presence, making the consideration of the elements of a Community of Inquiry critical as those tools are being chosen.

The challenge that educators face today on an ever-increasing basis is creating a Community of Inquiry in a virtual environment. The rapidly growing demand for online and blended instruction introduces the task of creating and supporting the three essential elements of a Community of Inquiry in an asynchronous, text-based environment (Garrison et al., 2000). Further, through specific comparisons of the outcomes of online instruction to blended instruction, educators can begin to comprehend and implement the best practices specific to each

format. An underlying change in the nature of research practices needs to occur in order for more comprehensive generalizations to be formulated about the processes and conditions under which learning is best supported in online learning and blended course designs (Abrami et al., 2011).

Bernard et al. (2009) concluded that considering interactions as a component of the course in asynchronous instruction has a positive impact on learning. Put another way, if each of the elements of a Community of Inquiry in a virtual environment is considered specifically, more meaningful learning will occur. Therefore, the next iteration of asynchronous instruction should be better designed to facilitate interactions that are more appropriate to the media, engaging, and specific (Abrami et al., 2011). Not only will educators need knowledge of Web 2.0 tools and appropriate instructional designs to do so successfully, but they will also need research specific to the many facets of the online and blended learning environments.

CHAPTER 3

RESEARCH METHODOLOGY

Introduction

The purpose of this study was to compare the psychosocial educational experiences of students in online and blended undergraduate courses. Specifically, the three presences of the Community of Inquiry theoretical framework and their confluence were considered. The researcher sought to determine whether there are differences between the opinions of students enrolled in fully online courses and those enrolled in courses being offered in blended delivery formats. Since the purpose was to specifically consider the development of a community of inquiry with only the delivery method as the independent variable, the Community of Inquiry survey instrument was also used to examine these differences.

The methodology for this study is a quantitative approach. The constructs which were measured were the students' opinions of their educational experiences in online and blended courses relative to the three elements of a Community of Inquiry – social presence, teaching presence, and cognitive presence.

Setting of the Study

The study was conducted at a central Alabama four-year public research university. The courses surveyed were CAT 200 - Computer Education Applications and CAT 250 - Computer Education Curriculum Development. Both of these courses are offered in the College of Education. These courses were both developed to teach technological skills to undergraduate

students. While neither course is restricted to education majors, the majority of the students who take both courses are education majors. The courses were delivered during the Spring 2014 semester to 125 students. There were 78 students in the blended sections and 47 in the online sections. Elements of each course included readings, assignments, and discussions. CAT 200 also included quizzes and a group project. These instructional activities were the same within the courses regardless of delivery method. There were no classroom meetings in the online sections. The blended sections each met 6-12 times during the semester, for 2 to 2.5 hours during each meeting. Each class meeting consisted of a combination of lectures, discussion and use of new instructional technologies, and group work.

The catalog description for CAT 200 is: "Introduces computer applications relating to problem solving, critical thinking, instruction, data management, and Web page development." This Computer Education Applications (CAT) course includes problem solving using hardware and software. This course is the second in the CAT sequence. In this course, students gain cognitive knowledge of advanced applications of current and emerging instructional technologies in a variety of settings and in the context of various fields of study and job environments. CAT 200 is organized into 7 learning modules; each module contains a set of assigned readings from the textbook and may contain a quiz, an assignment, and/or an activity. The module pages include information about all of the materials and assignments for that module. Each module includes multimedia lectures, readings, discussions, assignments, and/or assessments. Throughout the modules, students were asked to reflect on their beliefs about technology, participate in authentic learning tasks, develop instructional materials for classroom use, and critically examine their work. Computing proficiency is required for a passing grade in this course.

The catalog description of for CAT 250 is: "Utilizing computer technology and computer applications in instruction." This course covers application of computer technology to modules of instruction via computer-aided instruction (CAI). Course activities such as drill and practice, tutorials, simulations, and problem solving are included. CAT 250 is the cumulative course of the Computers and Applied Technology (CAT) sequence. The course content is divided into ten learning modules. Each module contains assigned readings and lectures from Web sites, articles, and videos. These modules are the main source of learning materials and content, and may contain a quiz, an assignment, and/or an activity. The module pages included information about all of the materials and assignments for that module. Each module includes multimedia lectures, readings, discussions, assignments, and/or assessments. In this course, applications of current and emerging instructional technologies are demonstrated through the creation of a technology-infused portfolio. This portfolio also provides a forum for students to demonstrate the appropriate use of technology for their audience. Important assumptions are made that students at this level have mastered basic computer use and possess a general knowledge of software applications used in this course.

Participants

The population for this study was 125 undergraduate students enrolled in two courses at a research university located in the southeastern United States. These courses both have online and blended sections, and therefore provide reliable foundations for making the intended comparisons. Among the 125 students, 47 students took the course through a fully online delivery format and 78 through a blended delivery format using classroom and online instruction. The online sections had no on-campus class meetings and all instruction was administered

through a learning management system. The blended sections held class meetings on-campus 4 – 6 times during the semester. The remaining instructional time was administered through the same learning management system as the online sections. The number of lectures, assignments, discussions, and projects are nearly identical. The learning management system, Blackboard Learn, is utilized nearly identically in the two delivery formats of each course. The identical structure of the blended and online sections of the courses which were studied provided adequate control of the variables to be measured.

Survey Instrument

The instrument used in the study was Garrison et al.'s Community of Inquiry (CoI) instrument. The Community of Inquiry has grown in use in qualitative research since its original inception. However, the Community of Inquiry instrument was developed and validated in order to consider the Community of Inquiry theoretical framework from a quantitative perspective. The Community of Inquiry questionnaire was developed and validated by a collaborative research team. The members of the team, in alphabetical order, were Ben Arbaugh, Marti Cleveland-Innes, Sebastian Diaz, D. Randy Garrison, Phil Ice, Jennifer Richardson, Peter Shea, and Karen Swan. A three-factor solution with oblique rotation was presented. All variables loaded cleanly on the expected factor/presence. The result was "a stable instrument that could be used in a variety of studies, including large scale inter-institutional or cross-disciplinary studies" ("Community of Inquiry," n.d.).

The Community of Inquiry instrument has 34 items with a Likert-type 5 point scale. The items were measured with 1 = strongly agree, 2 = agree, 3 = neutral, 4 = disagree, and 5 = strongly disagree. The survey includes 9 items specific to social presence, 13 items specific to

teaching presence, and 12 items specific to cognitive presence perception. The subscales of the social presence scale are: Design & Organization, Facilitation, and Direct Instruction. The subscales of the teaching presence scale are: Affective expression, Open communication, and Group cohesion. The subscales of the Cognitive Presence scale are: Triggering event, Exploration, Integration, and Resolution.

Research Questions

The research questions were specific to examining the Community of Inquiry framework in the two formats of instruction – fully online and blended. The courses which were investigated provided an excellent opportunity to consider these psychosocial learning environments due to the method in which they were designed and delivered.

Research Question 1: Are there differences in students' teaching presence experiences in online courses and blended courses?

RQ1 is answered by survey questions 1 – 13, specific to Design & Organization, Facilitation, and Direct Instruction within the teaching presence construct.

Research Question 2: Are there differences in students' social presence experiences in online and blended courses?

RQ2 is answered by survey questions 14 – 22, specific to Affective expression, Open communication, and Group cohesion within the social presence construct.

Research Question 3: Are there differences in students' cognitive presence experiences in online courses and blended courses?

RQ3 is answered by survey questions 23-34, specific to Triggering event, Exploration, Integration, and Resolution within the cognitive presence construct.

Data Collection

This study used an anonymous online survey for data collection. An online survey using the Community of Inquiry instrument for a three-week period was distributed to all students in both delivery formats (*n*=125). The intent was to gather experiential post-course data in order to ascertain the extent to which a community of inquiry was developed in each delivery format, and the difference between them. Permission was requested and received from the instructors in all sections for their students to participate in the study. An email (see Appendix B) explaining the purpose and focus of the study along with the Community of Inquiry instrument (see Appendix A) was sent to each instructor prior to their students receiving the survey invitation to participate.

All study participants received an email invitation to participate in the study (see Appendix C) and an informed consent letter (see Appendix D) that explained the study and offered assurances that all participation was voluntary and all responses will remain anonymous. A waiver of documented consent was requested by the researcher and granted by the University of Alabama Institutional Review Board (IRB) (Appendix E). The waiver of documented consent was put in place to eliminate any breach of confidentially since there would be no way to link the participants to the study if consent was waived.

The Qualtrics survey software was used for data collection. No individual demographics, grades, or identifying information of the participants was gathered, including I.P. addresses. No information specific to the courses was gathered, aside from participants indicating if they were in an online or blended section of their course. Responses from the survey were collected and secured using Qualtrics (www.qualtrics.com). Data were downloaded after collection was complete to a file located on a secure computer in a locked room.

Data Analysis

For the population size of N=125, a response rate of 57% was sought in order to use 80% Power to determine the effect of the sample per research question. While a 66% response rate was received for the online courses (n=31), only a 35% response rate was received for the blended courses (n=27), for a cumulative response rate of 47% (n=58). Data collected from the survey instrument was input into SPSS version 22. The SPSS database was used to calculate descriptive as well as inferential statistics. Data analysis included descriptive statistics, a two independent samples t-test, Mann-Whitney U, and ANOVA. The tests were used to determine if there were significant differences in the perceptions of students regarding the existence of a community of inquiry in online and blended courses.

CHAPTER 4

RESULTS

Introduction

Distance education began as what was termed "correspondence education." At the time, it was a method in which geographically-remote students could receive educational material via the U.S. Postal Service (Morabito, Sack, & Bhate, 1999). With the creation and commercialization of the Internet, "distance education" became synonymous with online learning and experienced tremendous growth that still continues (Allen & Seamen, 2011). Comparing the psychosocial learning environments of a traditional classroom to an online course has been a topic of research for nearly two decades. However, proportionally fewer studies have compared the psychosocial learning environments of online courses to blended courses, where there is at least some portion of the course that meets in a traditional classroom setting. Research has shown that the successful establishment of a community of inquiry provides the necessary interaction for a positive educational experience (Duffy & Kirkley, 2004; Garrison et al., 2000). Unfortunately, online and blended learning environments which do not carefully consider the critical aspect of interaction often result in ineffective educational experiences (Akyol et al., 2009). Since research has also shown that students' interaction and engagement with their learning environment is a predictor of their success, there is a need now to compare these two delivery formats to one another (Duffy & Kirkley, 2004).

The results of the statistical tests and data analysis described in this chapter address the research questions, comparing the psychosocial learning environments of fully online courses to

courses offered in the blended format. This study considered post-course data only, using the Community of Inquiry theoretical framework as well as the Community of Inquiry survey instrument. The selected courses allowed for the comparison of a sample of students in online courses (*n*=47) to the same courses being offered in a blended format (*n*=78). Four statistical tests were performed. Descriptive statistics were performed in order to determine means, standard deviation, and *t*-values. An independent samples *t*-test was performed to consider differences in the means between the two delivery formats. A Mann-Whitney U test was completed to confirm the findings of the independent samples *t*-test due to the small sample size. An ANOVA was performed in order to test the significance of the differences between the establishment of a Community of Inquiry and each of the individual presences in blended and online formats.

Organization of Data

The data in the study were organized by delivery method (blended or online) and the 34 items of the Community of Inquiry instrument. Table 1 illustrates the descriptive statistics about the two populations. The responses for each of the CoI questions range from one to five, where 1 = strongly agree, 2 = agree, 3 = neutral, 4 = disagree, and 5 = strongly disagree. The first two characters of each entry in the table represent the presence being measured: TP represents teaching presence, SP represents social presence, and CP represents cognitive presence. The next element of the entry represents a subscale of the presence. The last character of each entry represents the number within each subscale. Teaching presence is a collective construct of design and organization (TP_Design_Org1-4), facilitation (TP_Facilitation1-6), and direct instruction (TP_Dir_Instr1-3). The social presence construct is made up of affective expression (SP_Aff_Exp1), open communication (SP_Open_Comm1-3), and group cohesion

(SP_Grp_Cohesion1-3). The cognitive presence construct consists of triggering event (CP_Trig_Event1-3), exploration (CP_Exploration1-3), integration (CP_Integration1), and resolution (CP_Resolution1-3). The two sets of means provide the data to test whether the populations are significantly different. The results of this analysis are shown in Table 1.

Table 1

Comparative Means and Standard Deviations for Students in Blended and Online Courses

	Blended		Online	
CoI Item	Mean	Std. Dev.	Mean	Std. Dev.
TP_Design_Org1	1.26	0.53	1.23	0.56
TP_Design_Org2	1.26	0.53	1.26	0.63
TP_Design_Org3	1.3	0.61	1.45	0.81
TP_Design_Org4	1.22	0.51	1.35	0.95
TP_Facilitation1	1.37	0.56	1.26	0.58
TP_Facilitation2	1.26	0.53	1.35	0.75
TP_Facilitation3	1.37	0.63	1.26	0.51
TP_Facilitation4	1.3	0.54	1.29	0.59
TP_Facilitation5	1.3	0.54	1.26	0.58
TP_Facilitation6	1.33	0.62	1.32	0.65
TP_Dir_Instr1	1.37	0.56	1.34	0.71
TP_Dir_Instr2	1.33	0.62	1.32	0.6
TP_Dir_Instr3	1.7	0.99	1.26	0.51
SP_Aff_Exp1	1.48	0.8	2.19	1.33
SP_Aff_Exp2	1.52	0.89	2.23	1.33
SP_Aff_Exp3	1.48	0.8	1.45	0.77
SP_Open_Comm1	1.3	0.61	1.42	0.81
SP_Open_Comm2	1.26	0.59	1.58	0.62
SP_Open_Comm3	1.3	0.61	1.61	0.89
SP_Grp_Cohesion1	1.56	0.7	1.52	0.92
SP_Grp_Cohesion2	1.33	0.55	1.58	0.77
SP_Grp_Cohesion3	1.44	0.84	1.67	0.96
CP_Trig_Event1	1.56	0.89	1.65	0.8
CP_Trig_Event2	1.67	0.88	1.68	0.87
CP_Trig_Event3	1.63	0.84	1.52	0.85
CP_Exploration1	1.37	0.69	1.45	0.72
CP_Exploration2	1.44	0.7	1.35	0.61
CP_Exploration3	1.52	0.85	1.58	0.81
CP_Integration1	1.37	0.56	1.39	0.56
CP_Integration2	1.33	0.55	1.29	0.53
CP_Integration3	1.37	0.56	1.42	0.81
CP_Resolution1	1.33	0.55	1.42	0.76
CP_Resolution2	1.3	0.54	1.39	0.67
CP_Resolution3	1.22	0.51	1.19	0.48

The mean responses for the CoI items are similar for both populations. Figure 2 illustrates the sample means of the populations, easily displaying the near symmetry of the means of both. Figure 2 also illustrates the greater difference in means between the populations at two items within the social presence construct: those measuring affective expression. Specifically, the items measuring the ability of online participants to "develop a sense of belonging" and the ability to "form distinct impressions of some course participants" were significantly different.

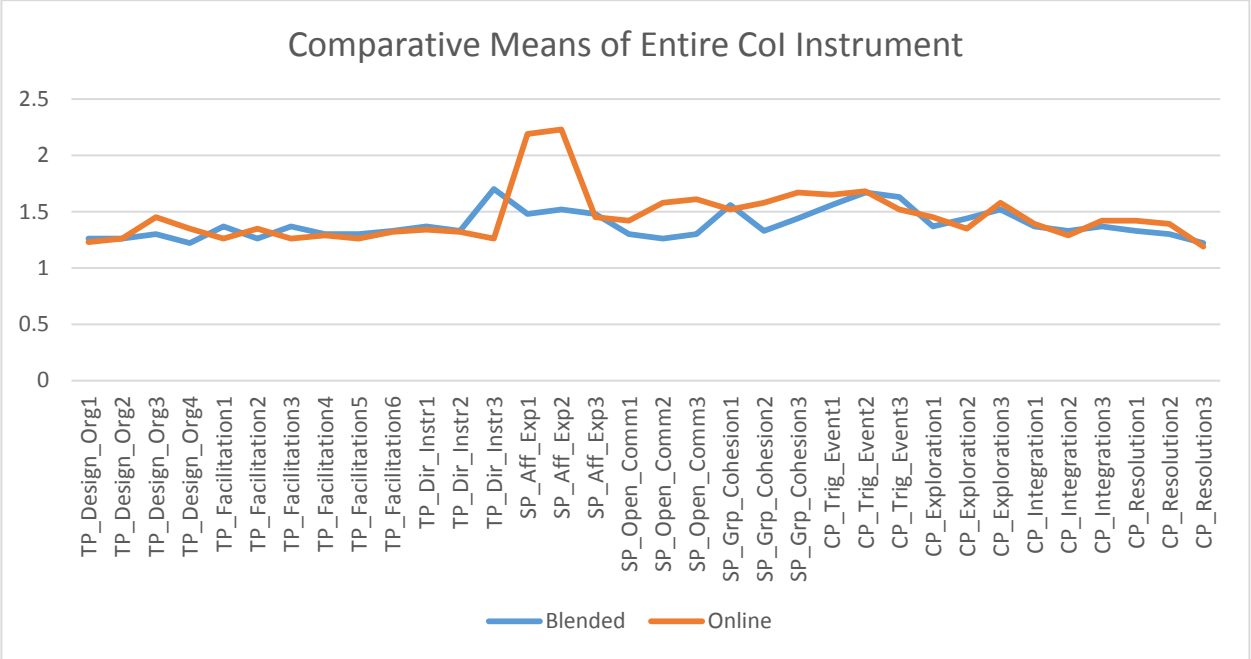

Figure 2. Comparative means of Community of Inquiry instrument in blended and online courses.

The data were analyzed using an independent samples *t*-test with equal variances assumed to compare the establishment of a community of inquiry in the two delivery formats. The first analysis was of the means of all 34 items in the Community of Inquiry instrument, then

a comparison was performed of the item means for each presence. Lastly, each subscale within each presence was compared according to delivery method.

When all 34 items were included, there was not a significant difference in the scores for blended (M=1.39, SD=.13) and online (M=1.46, SD=.23) conditions; $t(66)=1.53$), p =.131. These results suggest that the delivery format does not have an effect on the establishment, collectively, of a Community of Inquiry. The results of this analysis are shown in Table 2.

Table 2

Community of Inquiry Mean, Standard Deviation, and t-value

Delivery	Blended	Online
Mean	1.3868	1.4568
Standard deviation	0.12780	0.23454
N	34	34
t value = -1.528		

Note. degrees of freedom = 66.

A one-way between subjects ANOVA was conducted to compare the effect of delivery method (blended or online) on the establishment of a Community of Inquiry as well as on the establishment of each of the individual presences within a Community of Inquiry. There was not a significant effect of delivery method at the $p<.05$ level for the two conditions on the entire Community of Inquiry [$F(1, 66) = 2.35$, p =.131], the teaching presence [$F(1, 24) = .763$, p =.391], or the cognitive presence [$F(1, 22) = .10$, p =.754]. However, there was a significant effect of delivery method at the $p<.05$ level for the social presence condition [$F(1, 16) = 7.13$, p = .017]. The results of this analysis are shown in Table 3.

Table 3

Community of Inquiry, Teaching Presence, Social Presence, and Cognitive Presence Degrees of Freedom and *p*-values

	Degrees of Freedom		
CoI Item	Between Groups	Within Groups	Sig. Value
Community of Inquiry	1	2.335	.131
Teaching Presence	1	.763	.391
Social Presence	1	7.127	.017
Cognitive Presence	1	.101	.754

Demographic Information

The population for this study was 125 undergraduate students enrolled in two courses at a southeastern United States research university. There were four blended sections and three online sections. Every student enrolled in all seven sections in Spring 2014 was asked to participate in the study. All courses are offered in the College of Education but are not required courses for education majors, nor are they restricted to education majors. However, the majority of the students who take both courses tend to be education majors. No demographic data such as college major, age, race, or gender was recorded.

Research Question 1

Research Question 1 sought to determine if there are differences in students' teaching presence experiences between online and blended courses. This question was analyzed using the null hypothesis "There will be no significant difference in students' teaching presence experiences between online and blended courses." The establishment of teaching presence as defined by the CoI framework was measured by utilizing the teaching presence items in the

Community of Inquiry survey instrument. The data were calculated using the means within the teaching presence construct (*N*=13), comparing the scores from the blended and online sections. The results of this analysis are shown in Figure 3.

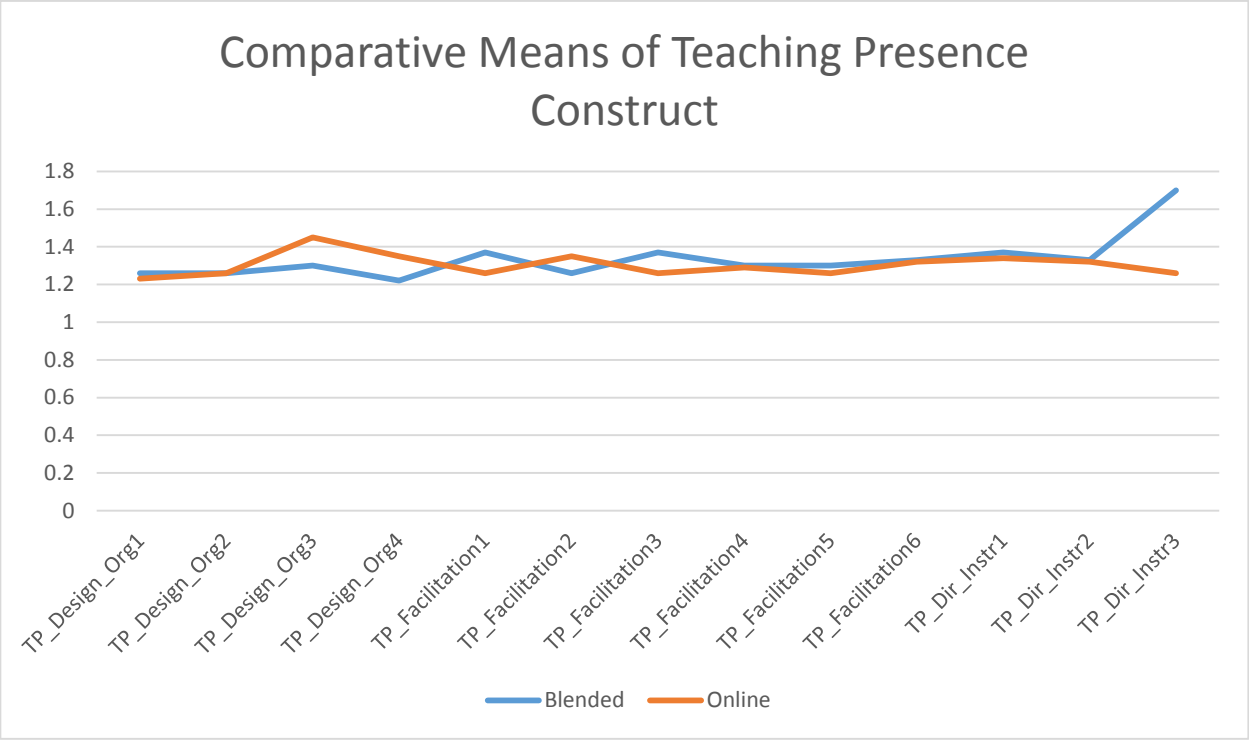

Figure 3. Comparative means of teaching presence construct.

An independent-samples *t*-test was conducted to compare whether there are differences in the establishment of teaching presence in a community of inquiry in online versus blended courses. With equal variances assumed (Sig.=.384), the data showed that there was not a significant difference in the scores for blended (*M*=1.34, *SD*=1.04) and online (*M*=1.30, *SD*=0.06) conditions; t (24)=.87, p = .391. These results suggest that the delivery method of a course does not have an effect on the establishment of teaching presence in a community of inquiry. Therefore, the null hypothesis is not rejected. The results of this analysis are shown in Table 4.

Table 4

Teaching Presence Mean, Standard Deviation, and *t*-value

Delivery	Blended	Online
Mean	1.3362	1.3038
Standard deviation	0.11927	0.05966
N	13	13
t value = .873		

Note. degrees of freedom = 24.

Due to the small sample size, a Mann-Whitney U test was also performed in order to compare the differences in means. The results of the test were consistent with the independent samples *t*-test results, producing no significant differences for teaching presence ($p = .465$) between the online and blended courses. As $p>0.05$, it was concluded that the data do not provide significant evidence of a difference in the development of teaching presence in a community of inquiry between blended and online delivery methods (Mann-Whitney U, z = -.730, P = 0.465). The results of this analysis are shown in Table 5.

Table 5

Mann-Whitney U Results for Teaching Presence

Test Statistics[a]	
Mann-Whitney U	70.500
Wilcoxon W	161.500
Z	-.730
Asymp. Sig. (2-tailed)	.465
Exact Sig. [2*(1-tailed Sig.)]	.479[b]

a. Grouping Variable: Delivery
b. Not corrected for ties.

As shown previously in Table 3, the one-way between subjects ANOVA was conducted to compare the effect of delivery method (blended or online) on the establishment of a Community of Inquiry as well as on the establishment of each of the individual presences within a Community of Inquiry. There was not a significant effect of delivery method at the $p<.05$ level for the two conditions on the teaching presence [$F(1, 24) = .76$, $p = .391$]. Therefore, it can be concluded that the differences between condition means are likely due to chance and not likely due to the independent variable (delivery method) manipulation.

Research Question 2

Research Question 2 sought to determine if there are differences in students' social presence experiences between online and blended courses. This question was analyzed using the null hypothesis "There will be no significant difference in students' social presence experiences between online and blended courses." The establishment of social presence as defined by the CoI framework was measured by utilizing the social presence items in the Community of Inquiry survey instrument. The data were calculated using the means within the social presence construct (N=9), comparing the scores from the blended and online sections. The results of this analysis are shown in Figure 4.

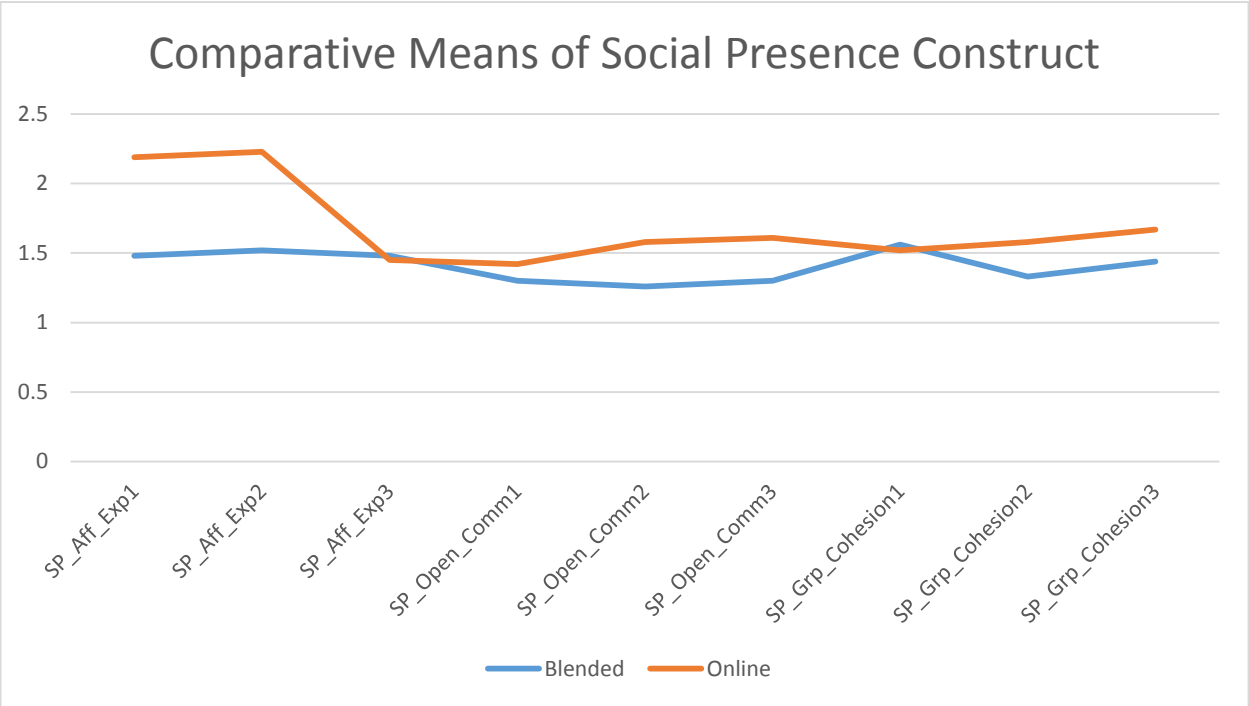

Figure 4. Comparative means of social presence construct.

An independent-samples *t*-test was conducted to compare whether there are differences in the establishment of social presence in a community of inquiry in online versus blended courses. With equal variances not assumed (Sig.=.048), the data showed that there was a significant difference in the scores for blended (M=1.41, SD=.11) and online (M=1.69, SD=0.30) conditions; t (16)= -2.670, p = .023 With a p-value of .023, we can conclude that there is a significant difference between the means of blended and online delivery methods within the social presence construct. These results suggest that the delivery method of a course does have an effect on the establishment of social presence in a community of inquiry. Therefore, the null hypothesis is rejected. The results of this analysis are shown in Table 6.

Table 6

Social Presence Mean, Standard Deviation, and *t*-value

Delivery	Blended	Online
Mean	1.4078	1.6944
Standard deviation	0.11088	0.30245
N	9	9
t value = -2.670		

Note. degrees of freedom = 16.

Due to the small sample size, a Mann-Whitney U test was also performed in order to compare the differences in means. The results of the test were consistent with the independent samples *t*-test results, producing evidence of significant differences for social presence ($p = .008$) between the online and blended courses. As $p<0.05$, it was confirmed that the data do provide significant evidence of a difference in the development of social presence in a community of inquiry between blended and online delivery methods (Mann-Whitney U, z = -2.66, P = 0.008). The results of this analysis are shown in Table 7.

Table 7

Mann-Whitney U Results for Social Presence

Test Statistics[a]	
Mann-Whitney U	10.500
Wilcoxon W	55.500
Z	-2.655
Asymp. Sig. (2-tailed)	.008
Exact Sig. [2*(1-tailed Sig.)]	.006[b]

a. Grouping Variable: Delivery
b. Not corrected for ties.

As shown previously in Table 3, the one-way between subjects ANOVA was conducted to compare the effect of delivery method (blended or online) on the establishment of a Community of Inquiry as well as on the establishment of each of the individual presences within a Community of Inquiry. There was a significant effect of delivery method at the $p<.05$ level for the social presence condition [$F(1, 16) = 7.127$, $p = .017$]. Therefore, it can be concluded that the differences between condition means are likely due to the independent variable (delivery method) manipulation. Since there were only two independent variables, no post hoc tests were performed.

Affective Expression Subscale

Due to the fact that the null hypothesis of "There will be no significant difference in students' social presence experiences between online and blended courses" was rejected, further analysis was performed on the social presence items. The Affective Expression subscale has three items, two of which were significantly different: (a) the ability of online participants to "develop a sense of belonging" and (b) the ability for participants to "form distinct impressions of some course participants." The difference in the third item within the Affective Expression subscale was not significant between the two delivery methods. This item measures the participants' opinion on the degree to which "Online or web-based communication is an excellent medium for social interaction." Figure 5 illustrates the difference in means between the populations at the three Affective Expression items within the social presence construct.

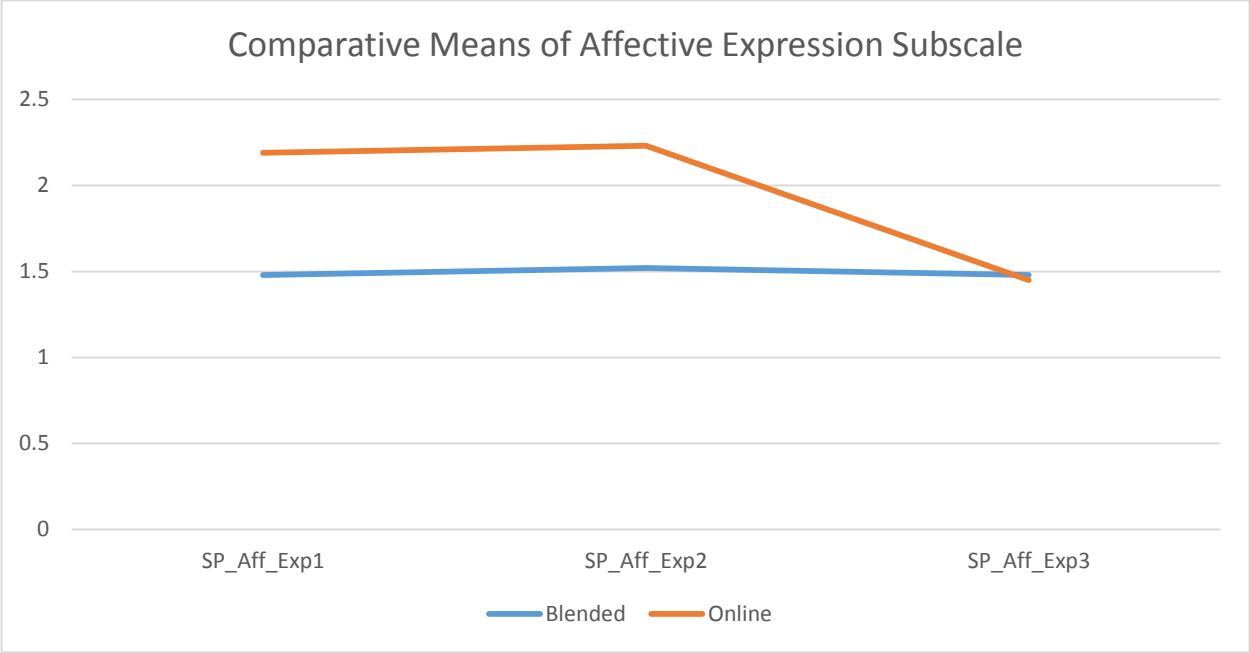

Figure 5. Comparative means of affective expression subscale.

An independent-samples *t*-test was conducted to compare the differences in SP_Aff_Exp1 and SP_Aff_Exp2 in the blended and online courses. With equal variances assumed (Sig.=1.000), it can be concluded that there is a significant difference between the two conditions. The data showed that there was a significant difference in the scores for blended (M=1.50, SD=.028) and online (M=2.21, SD=0.28) conditions; $t(2)$= -25.102, p = .002. With a p-value of .002, it can be concluded that there is a significant difference between the means of blended and online delivery methods within the two Affective Expression items. These results suggest that the delivery method of a course does have an effect on the establishment of Affective Expression in a community of inquiry. Therefore, the null hypothesis is rejected. The results of this analysis are shown in Table 8.

Table 8

SP_Aff_Exp1 and SP_Aff_Exp2 Mean, Standard Deviation, and *t*-value

Delivery	Blended	Online
Mean	1.5000	2.2100
Standard deviation	0.2828	0.2828
N	2	2
t value = -25.102		

Note. degrees of freedom = 2.

Research Question 3

Research Question 3 sought to determine if there are differences in students' cognitive presence experiences between online and blended courses. This question was analyzed using the null hypothesis "There will be no significant difference in students' cognitive presence experiences between online and blended courses." The establishment of cognitive presence as defined by the CoI framework was measured by utilizing the cognitive presence items in the Community of Inquiry survey instrument. The data were calculated using the means within the Cognitive Presence construct (*N*=13), comparing the scores from the blended and online sections. The results of this analysis are shown in Figure 6.

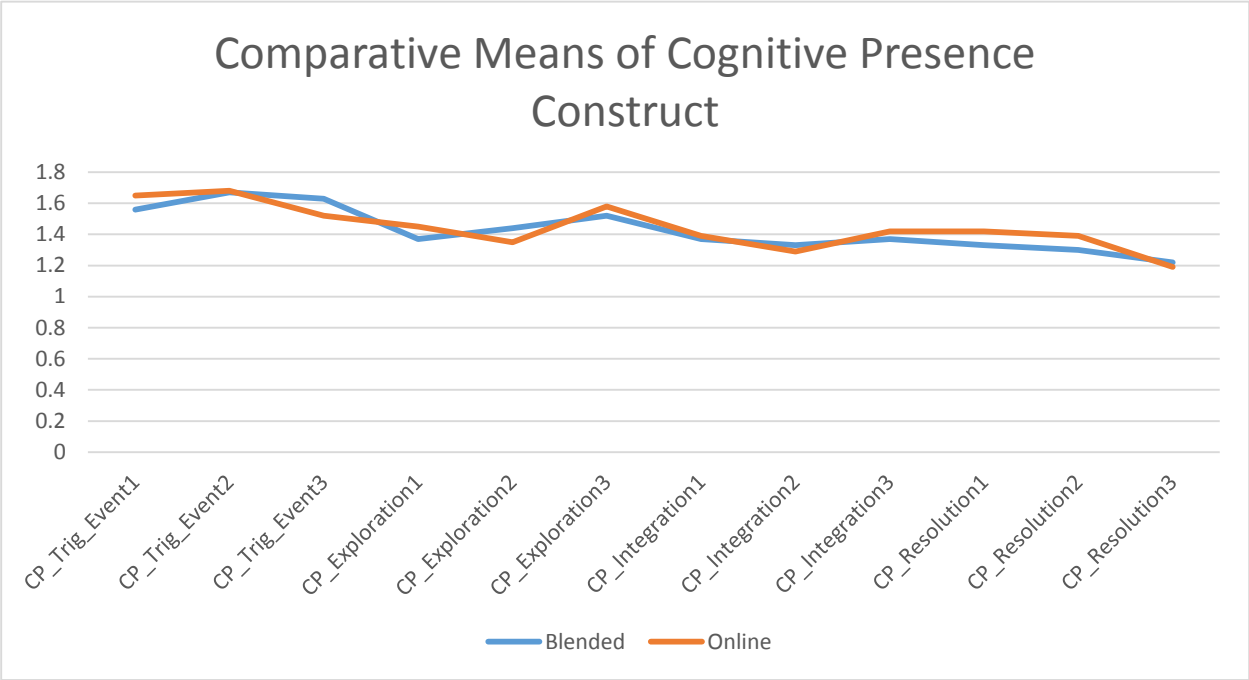

Figure 6. Comparative means of cognitive presence construct.

An independent-samples *t*-test was conducted to compare whether there are differences in the establishment of teaching presence in a community of inquiry in online versus blended courses. With equal variances assumed (Sig.=.384), the data showed that there was not a significant difference in the scores for blended (M=1.34, SD=1.04) and online (M=1.30, SD=0.06) conditions; t (24)=.873, p = .391. These results suggest that the delivery method of a course does not have an effect on the establishment of cognitive presence in a community of inquiry. Therefore, the null hypothesis is not rejected. The results of this analysis are shown in Table 9.

Table 9

Cognitive Presence Mean, Standard Deviation, and *t*-value

Delivery	Blended	Online
Mean	1.4258	1.4442
Standard deviation	0.13957	0.14349
N	12	12
t value = -.317		

Note. degrees of freedom = 22.

Due to the small sample size, a Mann-Whitney U test was also performed in order to compare the differences in means. The results of the test were consistent with the independent samples *t*-test results, producing no significant differences for cognitive presence ($p = .544$) between the online and blended courses. As $p>0.05$, it was concluded that the data do not provide significant evidence of a difference in the development of teaching presence in a community of inquiry between blended and online delivery methods (Mann-Whitney U, $z = -.607$, $p = 0.544$). The results of this analysis are shown in Table 10.

Table 10

Mann-Whitney U Results for Teaching Presence

Test Statistics[a]	
Mann-Whitney U	61.500
Wilcoxon W	139.500
Z	-.607
Asymp. Sig. (2-tailed)	.544
Exact Sig. [2*(1-tailed Sig.)]	.551[b]

a. Grouping Variable: Delivery
b. Not corrected for ties.

As shown previously in Table 3, the one-way between subjects ANOVA was conducted to compare the effect of delivery method (blended or online) on the establishment of a Community of Inquiry as well as on the establishment of each of the individual presences within a Community of Inquiry. There was not a significant effect of delivery method at the $p<.05$ level for the two conditions on the cognitive presence [$F(1, 22) = .101$, $p = .754$]. Therefore, it can be concluded that the differences between condition means are likely due to chance and not likely due to the independent variable (delivery method) manipulation.

Summary

The results of the analyses were interesting. While the establishment of a Community of Inquiry as a whole is not affected by delivery format, the social presence is, when considered alone. Specifically, the Affective Expression construct was more successfully developed in the blended sections than in the online sections. It is evident from the means that teaching presence and cognitive presence are not affected by delivery format. The cognitive presence was especially symmetrical between the two formats. The comparative means of the teaching, social, and cognitive presences are illustrated in Figure 7.

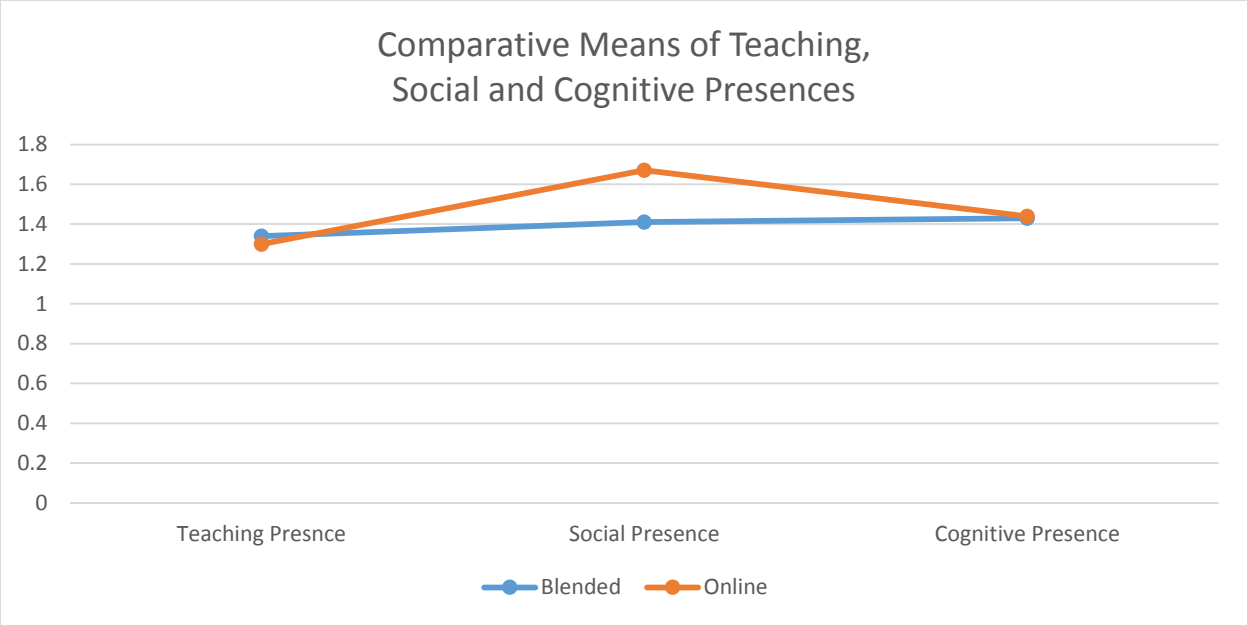

Figure 7. Comparative means of teaching, social, and cognitive presences.

CHAPTER 5

DISCUSSION, IMPLICATIONS, RECOMMENDATIONS, AND CONCLUSIONS

Summary of the Study

This study compared the psychosocial educational experiences of undergraduate students in fully online courses to students in blended courses. Specifically, the Community of Inquiry theoretical framework and the Community of Inquiry online survey instrument were utilized for the comparison. The growth in demand for online and blended instruction elevates the importance of creating and supporting a Community of Inquiry in asynchronous, technology-based instruction (Garrison et al., 2000). Through comparisons of online to blended instruction, educators can gather awareness and understanding of the nuances of each delivery format. Continuing research is recommended with the goal being more comprehensive generalizations about the processes and conditions under which learning is best supported in the two delivery formats (Abrami et al., 2011).

The three mutually dependent presences of the Community of Inquiry theoretical framework and their convergence were considered in the study. As Figure 1 illustrates, learning occurs when there is successful interaction of the teaching, social, and cognitive presences ("Community of Inquiry," n.d.). Collaborative constructivism is the acknowledgement that interaction is critical to a community of inquiry, and that a community of inquiry is critical to meaningful learning and higher order thinking (Cleveland-Innes, Garrison, & Kinsel, 2007). Therefore, a collaborative constructivist theory of teaching and learning is the foundational

factor of this framework (Garrison & Anderson, 2003). Since its development in 2000, the CoI framework had been utilized primarily for qualitative studies. However, the Community of Inquiry survey instrument was developed in 2014 in order to allow for quantitative study based on the CoI framework. Therefore, the Community of Inquiry survey instrument was employed in this study in an effort to compare differences between the two instructional formats. The constructs that were measured were the students' opinions of their educational experiences in online and blended courses relative to the three elements of a Community of Inquiry – teaching presence, social presence, and cognitive presence.

The chosen courses were offered in the Spring 2014 semester at a southeastern United States research university. The courses used in the study are offered in the College of Education, and are very similar in their design, construction, and implementation. The primary difference in these courses is their method of delivery: fully online and blended. While the majority of the students enrolled in the two courses were Education majors, this is not a requirement in order to be enrolled in them. No demographic data were recorded in this study, in order to maintain the focus strictly on the differences in delivery method. Since no demographic data were recorded for the study, exact quantities of education and non-education majors are not available.

Chapter 5 will include a summary of the findings of this study as described in Chapter 4, including discussion of the results and possible conclusions to be drawn. It will also include potential implications of this research and possible recommendations for further research.

Research Question 1

Research Question 1: Are there differences in students' teaching presence experiences in online courses and blended courses?

The first psychosocial topic analyzed by this study was the area of teaching presence within the community of inquiry. Teaching presence is defined as "the design, facilitation and direction of cognitive and social processes for the purpose of realizing personally meaningful and educationally worthwhile learning outcomes" (Anderson, Rourke, Garrison, & Archer, 2001, p. 5). Teaching presence in an asynchronous course (online or blended) serves much the same role as it does in a traditional course. It brings "all the elements of a community of inquiry together in a balanced and functional relationship congruent with the intended outcomes and the needs and capabilities of the learners" (Garrison & Anderson, 2003, p. 29). It should be noted that since the Community of Inquiry theoretical framework is a collaborative constructivist approach, the term "teaching" is used instead of "teacher." The intent is to distribute the responsibility of teaching to all participants.

There are three subscales which were measured within teaching presence: design and organization, facilitating discourse, and direct instruction. Design and organization is the overall strategy and implementation of the learning experience. Facilitating discourse is the engagement and motivation of the students. Direct instruction is dealing with the content more specifically, such as realizing and correcting misconceptions, introducing external information into the course, or facilitating discussions (Garrison & Anderson, 2003).

There was no significant difference in the means of teaching presence as a whole or in any of the three areas of teaching presence between the two delivery methods. Neither the independent samples *t*-test, the Mann-Whitney U, nor the ANOVA revealed significant

differences between the delivery methods in the overall teaching presence or any of the subscales. The respective means of 1.3362 for the blended sections and 1.3038 for the online sections indicate that teaching presence was successfully developed in both delivery formats with 1=Strongly Agree and 2=Agree. Additionally, these results indicate that there was no significant difference in the design, facilitation, and instruction of the courses between the delivery methods.

Research Question 2

Research Question 2: Are there differences in students' social presence experiences in online and blended courses?

The second research topic analyzed by this study was the area of social presence within the community of inquiry. Social presence is defined by Garrison (2009) as "the ability of participants to identify with the community (e.g., course of study), communicate purposefully in a trusting environment, and develop inter-personal relationships by way of projecting their individual personalities" (p. 352). Social presence is an important precursor to the constructive collaboration desired in a community of inquiry. It enables the community of learners to strive for the engaged discourse, synthesis of information and critical thinking necessary for the development of cognitive presence (Garrison & Anderson, 2003).

Social presence has three categories within it: affective expression, open communication, and group cohesion. Affective expression is the ability of the individual to portray their "real self" through emotion, humor, and self-disclosure. These elements of affective expression are necessary to create and support interpersonal relationships. Open and purposeful communication occurs through the interaction with others in the course through recognition, reflection, and encouragement of one another. Cohesion and group identification are accomplished when

students begin using “we” and “our” in communications, addressing other students by name, and using salutations (Garrison & Anderson, 2003).

Results of the study showed there was a significant difference in the establishment of social presence between the two delivery methods, with the students in the blended courses (*M*=1.41) feeling more of a development of social presence than the students in the online courses (*M*=1.69) with 1=Strongly Agree and 2=Agree. The subscale of affective expression in particular showed a significant difference within the social presence item. The students in the blended courses (*M*=1.50) felt confident in their ability to “develop a sense of belonging” and to “form distinct impressions of some course participants” more so than the students in the online sections (*M*=2.21). It should be noted that the third item within the affective expression subscale was not significant between the two delivery methods. This item measures the participants’ opinions of the degree to which “Online or web-based communication is an excellent medium for social interaction.” In other words, the use of internet-enabled technologies for communication was not a hindrance in the opinions of the online students. However, the design and implementation of the educational technologies in the online courses was not as successful in developing social presence with them.

One obvious explanation for the significant difference in affective expression scores may be the face-to-face meetings from which the blended courses obviously benefit. The face-to-face classes may offer a foundation on which to build the sense of belonging of the students as well as create the impressions of the instructor and fellow students. The feeling of a lack of interaction, student-student interaction in particular, has been reported as a disadvantage of online instruction in the literature (Albrecht, 2006; Overbaugh & Nickel, 2011). This perceived lack of interaction has been identified as a factor which limits the ability of learners to fully engage in the

educational experience unless the students were especially self-motivated and, therefore, active learners (Daniels & Moore, 2000) and were highly organized and efficient in their study habits (Oh & Lim, 2005).

The lack of a sense of community created in courses delivered in the online format was also reported in the literature. This deficiency prevents the learners from establishing shared feelings and emotions among one another and with their instructors (Lim et al., 2007). Researchers have observed that these variables are some of the principal factors affecting learner satisfaction, educational effectiveness, course completion, and information synthesis (Sergiovanni, 1994). Further, Fontaine offers that the design and delivery of an interactive, constructivist learning experience in an online environment requires the creation of a sense of presence, a feeling of immediacy on the part of the learner and instructor, and a distinct awareness of what is required in an authentic learning atmosphere (2002). Through the design of the course alone, the online students in this study may not have been offered enough opportunities to participate in direct involvement with others. All courses employed discussion forums and CAT 200 culminates in a group project through which the students interact with one another. There were no synchronous communications or activities in the online courses, which may have aided in the development of social presence.

Research Question 3

Research Question 3: Are there differences in students' cognitive presence experiences in online courses and blended courses?

The last psychosocial educational topic analyzed by this study was the area of cognitive presence within the community of inquiry. Results of the study showed that there was no

significant difference in the establishment of cognitive presence between the two delivery methods. This finding is certainly positive, as transitioning through each phase of cognitive presence is the desired goal of positively developed teaching and social presence.

Garrison, Anderson, and Archer (2001) define cognitive presence as "the extent to which the participants in any particular configuration of a community of inquiry are able to construct meaning through sustained communication" (p. 11). The four phases of the practical inquiry model are used to define the implementation of cognitive presence: triggering event, exploration, integration, and resolution. The first phase is the initiation of the inquiry process through the introduction of a well-designed problem. The exploration phase focuses on acquiring an understanding of the problem and searching for possible explanations. The third phase is integration, which involves a focused and structured construction of meaning. Lastly, the resolution of a problem occurs by constructing a meaningful framework or by discovering specific solutions.

There was no significant difference in the means of the cognitive presence construct as a whole, or any of the four areas of cognitive presence, between the two delivery methods. Neither the independent samples *t*-test, the Mann-Whitney U, nor the ANOVA revealed significant differences between the delivery methods in the overall cognitive presence or any of the subscales. The respective means of 1.4258 for the blended sections and 1.4442 for the online sections indicate that cognitive presence was successfully developed in both delivery formats with 1=Strongly Agree and 2=Agree. Additionally, these results indicate that there was no significant difference in the four phases of triggering event, exploration, integration, or resolution between the delivery methods. In fact, the development of cognitive presence was nearly the same in both delivery methods, which is interesting considering the significance found

in the development in social presence. Although the students in the online sections (*m*=1.6944) did not feel their social presence was as developed as the students in the blended sections (*m*=1.4078), they still felt that cognitive presence had been nearly equally as developed.

Implications for Educators

The findings of this study led to several suggestions for instructional designers, educators teaching blended and online courses, and educational administrators. The literature presented evidence of the need for a community of inquiry in the educational setting, as well as the importance of the individual teaching, social, and cognitive presences. The literature also provided data indicating the past and expected growth in online and blended courses, and a lack of research comparing the two. The combination of these is an indication of the need for continuing research on both topics.

Based on the results of this study, the majority of the students said that that a community of inquiry was developed in both delivery formats. The majority of the students also felt that each of the individual presences was adequately developed. The teaching presence and cognitive presence in particular were positively developed in both formats. Social presence was more strongly felt in the blended courses but was viewed as being developed in both. This indicates that instructional designers and educators planning to teach blended or online courses are capable of the intentional creation of a community of inquiry through technology-based educational tools. Additionally, the data indicate that the development of a community of inquiry is quite possible through asynchronous instruction with careful planning, design, and interaction.

This research can provide educational administrators with an awareness of the need for and potential of developing a community of inquiry in asynchronous instruction. They may need

to provide professional development to their faculty and designers specific to designing for asynchronous instruction. Additionally, educators may need to enlist the aid of instructional designers skilled in designing for blended or online courses. Finally, an awareness of the importance of social presence in asynchronous instruction would allow educational administrators to allocate resources for professional development specific to levels of interaction necessary to establish social presence in asynchronous instruction.

Recommendations for Future Research

There are a number of recommendations for future research based upon the review of the related literature, results, conclusions, and limitations of this study. Due to the lack of research comparing online blended and online courses, all recommendations have the existing study as their foundation.

Future research on single-instructor courses involving multiple courses would enable the findings to be more generalizable. Because the current study is both multi-course and multi-instructor in design, only the student perceptions of a community of inquiry within their course and with their instructor can be measured.

Additional research studies could be conducted on the same courses in future semesters, but with a more in-depth consideration of the development of social presence through an instructional design lens. A mixed-method approach which includes interviews and observations would provide a more comprehensive understanding of how social presence is fostered in both delivery formats. This would be beneficial to understand more fully the role of instructional design in the online portions of the course as well as the role that the face-to-face meetings play in the development of social presence.

A duplication of this study across multiple semesters or even years would be interesting. Allowing the study to span more than one semester would increase the sample size, and, therefore, bring more significant conclusions.

Lastly, due to the desire to be as specific as possible in the comparison of the development of a community of inquiry in this study, no demographics data were gathered. A future study which took demographics such as age, classifications, technology knowledge, major, etc., into consideration might be interesting.

Conclusions

The main emphasis of the Community of Inquiry framework is to create a successful psychosocial educational environment. The literature supports the significance of the three types of presence, and the confluence of the three is understood to be associated with increased educational achievement, student satisfaction, and student retention, among other positive educational outcomes (Bernard et al., 2009). It takes a constructive, collaborative approach to creating a learning community which encourages and supports higher order thinking and synthesis of information. Collaborative constructivism is the acknowledgement that interaction is critical to a community of inquiry, and that a community of inquiry is critical to meaningful learning and higher order thinking (Cleveland-Innes, Garrison, & Kinsel, 2007).

The primary motivators of beginning this study were the indications from the literature of the importance of a community of inquiry in an educational experience, the rapid growth in demand for blended and online courses, and the lack of research comparing the two. Therefore, this study investigated the differences in the development of a community of inquiry in blended and online learning environments. The results of the study indicated that a community of inquiry

was developed in both the blended and online courses. Additionally, the study showed that students felt that each presence was adequately developed in both delivery formats. However, the findings revealed differences in the development of the social presence between the two course formats. The results of the study suggest that the blended courses had a slight advantage in the development of social presence over the online courses. That advantage was minimal, however, and primarily existed in one subscale within the social presence item – affective expression. Therefore, educators and designers of fully online courses could utilize this information to alleviate the difference. By designing-in activities which specifically address the ability of online participants to "develop a sense of belonging" and to "form distinct impressions of some course participants," the social presence element could be equally developed in online courses and blended courses.

The model of the Community of Inquiry assumes that learning occurs within the community through the interaction of the three core elements of it, social presence, teaching presence and cognitive presence (Garrison et al., 2000). Overall, the literature, in combination with these findings, indicates that both blended and fully online learning environments are effective in supporting a community of inquiry. The more recent educational literature has offered that a meaningful learning experience must take into consideration the attitudes, experience and situations of each individual learner. Additionally, it has been suggested that the shared, collaborative environment of the group of learners is associated with a purposeful and structured educational environment (Abrami et al., 2011). For example, a meta-analysis of 99 studies conducted by the U.S. Department of Education revealed that students who were enrolled in courses delivered in the online or blended delivery formats produced greater learning outcomes than those that participated only in classroom instruction (Means, Toyama, Murphy,

Bakia, & Jones, 2009). Through specific comparisons of the outcomes of online instruction to blended instruction, educators can begin to comprehend and implement the best practices specific to each format (Abrami et al., 2011).

It is very important to note that generalizations of the findings must be made with caution due to the small sample size and the multi-course/multi-instructor formats of the courses. Future research studies with larger sample sizes or with single courses/single instructors but larger enrollment could be carried out to derive more generalizable results. Keeping these items in mind, the Community of Inquiry withstood the analysis as a framework worth using for effective design and implementation of asynchronous instruction.

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APPENDIX A

COMMUNITY OF INQUIRY INSTRUMENT

5 point Likert-type scale

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

Teaching Presence

Design & Organization

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

Facilitation

5. The instructor was helpful in identifying areas of agreement and disagreement on course topics that helped me to learn.
6. The instructor was helpful in guiding the class towards understanding course topics in a way that helped me clarify my thinking.
7. The instructor helped to keep course participants engaged and participating in productive dialogue.
8. The instructor helped keep the course participants on task in a way that helped me to learn.

9. The instructor encouraged course participants to explore new concepts in this course.
10. Instructor actions reinforced the development of a sense of community among course participants.

Direct Instruction

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

Social Presence

Affective expression

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

Open communication

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

Group cohesion

20. I felt comfortable disagreeing with other course participants while still maintaining a sense of trust.

21. I felt that my point of view was acknowledged by other course participants.

22. Online discussions help me to develop a sense of collaboration.

Cognitive Presence

Triggering event

23. Problems posed increased my interest in course issues.

24. Course activities piqued my curiosity.

25. I felt motivated to explore content related questions.

Exploration

26. I utilized a variety of information sources to explore problems posed in this course.

27. Brainstorming and finding relevant information helped me resolve content related questions.

28. Online discussions were valuable in helping me appreciate different perspectives.

Integration

29. Combining new information helped me answer questions raised in course activities.

30. Learning activities helped me construct explanations/solutions.

31. Reflection on course content and discussions helped me understand fundamental concepts in this class.

Resolution

32. I can describe ways to test and apply the knowledge created in this course.

33. I have developed solutions to course problems that can be applied in practice.

34. I can apply the knowledge created in this course to my work or other non-class related activities.

APPENDIX B

PERMISSION TO SURVEY CAT 200 AND CAT 250 STUDENTS

Hello everyone,

I am writing to ask permission to survey your CAT 200 and CAT 250 students for my dissertation. Dr. Rice is my Chair, and has suggested that your courses are suitable for my study.

Here are the details:

My topic is "An Examination of Psychosocial Learning Environments in Online and Blended Instruction." Specifically, I am going to compare a Community of Inquiry in online and blended courses. I would like to administer an anonymous online survey, via Blackboard, from April 6 – 27. I want to consider post-course data, therefore I would like to collect data the last three weeks of the term prior to exam week.

I will be happy to send you further information or to answer any questions that you may have, and I greatly appreciate your time.

Best Regards,
Michelle

APPENDIX C

CAT 200 AND CAT 250 SURVEY INVITATION

Dear UA Student,

You are being asked to participate in a research project to compare the development of a "Community of Inquiry" (CoI) in online and blended courses because you were enrolled in CAT 200 or CAT 250 in Spring 2014. Because the study is limited to these two courses, the population is very small and therefore your participation is very important. The results will be used to inform faculty on how they can make decisions to best structure online and blended courses. The survey has 34 questions and is fully online. This should take 15 minutes or less to complete.

Social presence is considered the development of climate and interpersonal relationships. It is the ability of the individual to portray their "real self" using technology. **Teaching presence** is exactly what you think of when you consider your teacher's presence – it is the setting of curriculum and methods, focusing discussions, and encouraging collaboration. **Cognitive presence** happens when there is successful Social and Teacher Presence. It represents the exchange of information, connecting and applying new ideas – especially being able to apply those ideas outside of the course.

This research is being conducted through the use of a Web based questionnaire. It is accessible through the attached link. The results will be analyzed according to Garrison, Anderson and Archer's Community of Inquiry Framework (2000) in order to better understand the development of a CoI in online and blended courses. ***Please respond to all questions in regard to the process of learning to teach online.*** This study is part of my dissertation research. Anyone asked to participate in this research may request a copy of the dissertation by contacting the researcher, Michelle Hale, at: mahale@crimson.ua.edu

All information gathered from the study will remain anonymous. Your identity as a participant will not be available to anyone – not even the researcher. The researcher will have

sole access to the research data, which will be kept electronically on a password protected hard drive. There will be no references to your identity in the data, research reports, or publications.

Questions concerning the research project may be directed to Michelle Hale at: mahale@crimson.ua.edu or to my dissertation chair, Dr. Margaret Rice at: mrice@bamaed.ua.edu.

If you have questions or complaints about your rights as a research participant, call Ms. Tanta Myles, the Research Compliance Officer of the University at 205-348-8461 or toll-free at 1-877-820-3066.

You may also ask questions, make a suggestion, or file complaints and concerns through the IRB Outreach Website at http://osp.ua.edu/site/PRCO_Welcome.html. After you participate, you are encouraged to complete the survey for research participants that is online there, or you may ask the researchers for a copy of it. You may also e-mail us at participantoutreach@bama.ua.edu.

Your informed consent to participation in the study is given by clicking on the link below and completing the survey. Written documentation of your consent is waived in order to maintain the anonymity of all participants. This agreement states that you have received a copy of this informed consent, which is attached to this email. Clicking on the link below indicates that you agree to participate in this study.

Click on this link or paste it into your browser:
https://universityofalabama.az1.qualtrics.com/SE/?SID=SV_0fEGpCzy4rsbvI9

Thank you!
Michelle Hale

Reference

Garrison, D. R., Anderson, T., & Archer, W. (2000). Critical inquiry in a text-based environment: Computer conferencing in higher education. *The Internet and Higher Education*, *2*(2-3), 87-105.

APPENDIX D

PARTICIPANT INFORMED CONSENT

Informed Consent

Title of Research: An Examination of Psychosocial Learning Environments in Online and Blended Instruction

Investigator: Michelle A. Hale, PhD Candidate, Instructional Technology, Policy, and Leadership Studies, College of Education, The University of Alabama

Before agreeing to participate in this research, it is important that you read the following explanation of this study. This statement describes the purpose, procedures, benefits, risks, discomforts, and precautions of the program. Also described are the alternative procedures available to you, as well as your right to withdraw from the study at any time. No guarantees or assurances can be made as to the results of the study.

Explanation of Procedures

You are being asked to participate in a research project to compare the development of a "Community of Inquiry" (CoI) in online and blended courses. This research is being conducted through the use of a Web based questionnaire. The survey is fully online and accessible through the attached link. This should take 15 minutes or less to complete. The results will be analyzed according to Garrison, Anderson and Archer's Community of Inquiry Framework (2000) in order to better understand the development of a CoI in online and blended courses. This study is part of my dissertation research. Anyone asked to participate in this research may request a copy of the dissertation by contacting the researcher, Michelle Hale, at: mahale@crimson.ua.edu.

Risks and Discomforts

You will not be at physical or psychological risk and should experience no discomfort resulting from answering the questionnaire.

Benefits

There are no direct benefits by participating in this project. However, this research is expected to yield knowledge about the transition of faculty to online teaching.

Confidentiality

All information gathered from the study will remain anonymous. Your identity as a participant will not be available to anyone – not even the researcher. The researcher will have sole access to the research data, which will be kept electronically on a password protected hard drive. There will be no references to your identity in the data, research reports, or publications.

Withdrawal of Participation

Participation in this study is voluntary; refusal to participate will involve no penalty. You are free to withdraw consent and discontinue participation in this project at any time up to the submission of the Web survey. After the survey is submitted, there will be no way to identify your data for deletion or change.

Costs and/or Payments to Subject for Participation in Research

There will be no costs for participating in the research. Also, you will not be paid to participate in this research project. The only benefit is satisfaction of contributing to a further understanding of online and blended teaching.

Questions

Any questions concerning the research project may be directed to Michelle Hale, at: mahale@crimson.ua.edu or to my committee chair, Dr. Margaret Rice at: mrice@bamaed.ua.edu.

If you have questions or complaints about your rights as a research participant, call Ms. Tanta Myles, the Research Compliance Officer of the University at 205-348-8461 or toll free at 877-820-3066.

Agreement

Your informed consent to participation in the study is given by clicking on the link and completing the survey. Written documentation of your consent is waived in order to maintain the anonymity of all participants. This agreement states that you have received a copy of this informed consent. Clicking on the link below indicates that you agree to participate in this study.

Survey link:
https://universityofalabama.az1.qualtrics.com/SE/?SID=SV_0fEGpCzy4rsbvI9

APPENDIX E

WAIVER OF INFORMED CONSENT

AAHRPP DOCUMENT # 117
THE UNIVERSITY OF ALABAMA
HUMAN RESEARCH PROTECTIONS PROGRAM

FORM: Request for Waiver of Written Documentation of Informed Consent

Directions: Address the criteria listed below and attach this form to your application.

Also, state in your application that you are requesting a waiver of written documentation of informed consent and describe what you will do to obtain consent in the procedure section of your application. The IRB often requires investigators to provide participants with a written information statement about the research when written documentation is waived; you may wish to include one in your initial application.

NOTE that the UA IRB does not allow passive consent and that waivers may not be granted for FDA-regulated research.

You are welcome to call Research Compliance staff at 205-348-8461 to discuss your need for a waiver in advance of application submission.

(1) The only record linking the subject and the research would be the consent document and the principal risk would be potential harm resulting from a breach of confidentiality; or

(2) The research presents no more than minimal risk of harm to subjects and involves no procedures for which written consent is normally required outside of the research context.

In an effort to ensure complete anonymous responses a waiver of written documentation is requested for the online submission of the survey. Therefore, removing all possibility of linking any responses to a participant.

The research presents no more than minimal risk of harm to subjects and involves no procedures for which written consent is normally required outside of the research context. All required elements of informed consent are present in the informed consent statement on the first page of the online survey; participants are instructed to print a copy of that page to keep for their records.

APPENDIX F

INSTITUTIONAL REVIEW BOARD (IRB) CERTIFICATION

April 24, 2014

Office for Research

Institutional Review Board for the Protection of Human Subjects

THE UNIVERSITY OF ALABAMA RESEARCH

Michelle A. Hale, MS
ELPTS
College of Education
The University of Alabama

Re: IRB # EX-14-CM-059 "An Examination of Psychosocial Learning Environments in Online and Blended Instruction"

Dear Ms. Hale:

The University of Alabama Institutional Review Board has granted approval for your proposed research.

Your protocol has been given exempt approval according to 45 CFR part 46.101(b)(2) as outlined below:

(2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless:
(i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and
(ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

Your application will expire on April 23, 2015. If your research will continue beyond this date, complete the relevant portions of Continuing Review and Closure From. If you wish to modify the application, complete the Modification of an Approved Protocol Form. When the study closes, complete the appropriate portions of FORM: Continuing Review and Closure.

Should you need to submit any further correspondence regarding this proposal, please include the assigned IRB application number.

Good luck with your research.

Sincerely,

[redacted]

Carpantato T. Myles, MSM, CIM, CIP
Director & Research Compliance Officer
Office for Research Compliance
The University of Alabama

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