NONTRADITIONAL STUDENT PARTICIPATION IN ASYNCHRONOUS ONLINE DISCUSSIONS

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Dedication

I dedicate this dissertation to my Dad. Your love of knowledge will stay with me forever.

Abstract

Success in higher education is a concept that has been researched for years and is especially critical in relation to the shift to online higher education. Online learning is inevitably a part of the future landscape of higher education, but success rates in online courses are often lower than in traditional courses. To contribute to the existing literature, this research explores the nature of participation in asynchronous online discussions of nontraditional students in online courses. The research has an overarching constructivist framework in order to maintain the focus on the social nature of learning, in addition to framing it with the theory of capital and the principles of andragogy. The methodology used is quantitative, including ANOVA, linear regression, and chi squares, to analyze differences across course levels and post types. The categories used are based on an established framework for content analysis. Differences in types of presence were found across course level, predictive relationships were found among the types of presence, and differences in the more detailed categories of types of presence were found across course level and post type. Such findings point to the importance of discussion prompts and teaching behaviors within the curriculum in online courses that will best serve nontraditional students.

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Chapter 1: Introduction

Online courses are becoming increasingly popular (Shaw, 2011), but success rates in online courses are lower than traditional courses (Boston & Ice, 2011), a finding that points to the critical nature of research in this area. While there has been this significant increase in desire from students for online options and increased research in this area, the literature still shows mixed results regarding "whether online education has improved learning outcomes or increased equity of opportunity" (Office of Educational Technology, 2017, p. 70). Achieving success in at least one online course is more likely to lead to continuing education toward a degree (DesJardins, Ahlburg, & McCall, 2006; Whalen & Shelley, 2010). One of the most basic components for success in a technological society is access to technology and the capacity to use it. Access to and use of these tools is divergent across socioeconomic status (SES), indicating the existence of a digital divide, which will deter some individuals from gaining the technological skills necessary in modern society, both academically and subsequently in the career world (Ntiri, 2001; Warschauer & Matuchniak, 2010). Plus, for students in a lower SES, fear of debt was related to choice of institution, taking into consideration living costs and employment opportunities (Callender & Jackson, 2008), showing these students are more aware of financial concerns and their ultimate debt. The authors conclude these students may view education costs in terms of debt rather than investment. The demographics of students who participate in online courses are important to consider in determining how to most effectively teach and engage them. According to a survey of over 84,000 online learners from 97 institutions across the U.S. and spanning all institution types, a large

majority of students enrolled in primarily online courses are female (69%) and over the age of 25 (81%) (Noel-Levitz, 2010), thus, nontraditional students are an important focus in this research area.

Degree completion in higher education has been shown to yield economic consequences for individuals, institutions, and the country as a whole. With successful completion of a degree, the individual develops a more positive career outlook, leading to greater potential lifelong earnings and higher quality of life (Hu & Wolniak, 2013). Economic issues involving higher education also extend to the institution and government. Since maintaining current students is less costly than recruiting new ones (Ackerman & Schibrowsky, 2007), implementing strategies to increase the success of current students will benefit the institution's finances. In addition, because students who do not complete their degrees are more likely to default on their federal financial loans (Flint, 1997), the federal government also has a compelling reason to improve success in higher education courses. Using these ideas as the background for higher education in general, the discussion and research on success in higher education courses must continue to adapt and include online learning and how best to address the modern, technological aspects of higher education, specifically in relation to online courses and nontraditional students.

Definitions

Before moving further into the background for this study, definitions of several key terms are provided. Many of these terms are related to how students interact with one another, the faculty, and the content in an online course, and how this leads to success

and commitment in the courses and the program. In addition, there is a detailed explanation of types of higher education institutions in Appendix A. This is relevant because different types of higher education institutions approach the design, implementation, and offering of online courses in different ways, including the role of teacher or instructor in such courses. Nontraditional students are defined in this research as students who are 25 years of age or older. Other means have been used to classify these students in different studies, such as selected background characteristics or presence of risk factors (Gilardi & Guglielmetti, 2011), but age will be the primary defining factor in this study, although SES, race/ethnicity, and marital status are also detailed in the sample. As already demonstrated, and despite being less successful at completion, nontraditional students are participating in online learning at an increasing rate (Noel-Levitz, 2010).

While online learning has many variations and thus can be difficult to define in a precise way, in this context it will refer to courses that are fully online, with no face-to-face interaction between students or faculty, allowing students to work whenever and wherever they are able, but with a requirement to complete courses within a specific time frame. Structure and guidance to the student comes from the instructor and curriculum materials themselves. Most of the course interaction is conducted via a text-based environment, although there is some potential for video to be used and students and instructors to communicate voice-to-voice on some occasions. This type of online learning wherein there is no specific time when students are required to log into the online classroom is considered asynchronous. Asynchronous online discussions (AODs)

are defined by Hew, Cheung, and Ng (2010) as text-based, computer mediated learning activities that allow learners to interact with one another and discuss course content without being limited by time and place. This is the type of online learning and discussions explored in this research. Success in this context has been defined as completing online courses with a passing grade. Successful completion of a single course is the basis for continuing success and retention, thus, it is an appropriate consideration for this study.

Additionally, since this study will ultimately look at different levels of courses at a specific institution, these levels will be defined as courses that are prerequisites for one another. A prerequisite is a course that must be completed before moving onto the next level course in a sequence because the information in the subsequent course is designed to build on what was learned in the prerequisite course. For example, a course that is usually taken in the first quarter by new students is followed by a course that has this basic level course as a prerequisite. The upper level course cannot be accessed by students until they complete the lower level courses. The content in the first course that will be examined in this study is general material about success strategies, being a college student, etc., and is a course that all students enroll in during their first semester. The subsequent three courses are business or management related and the material builds more directly from one another. However, the content in these prerequisites do not build directly on one another, as they would, for example, in an Algebra 1 to Algebra 2 course. The idea in the current study is that the courses represent less experienced versus more experienced students because, while the content in the course is not relevant to the study,

the level of the course and the students able to enroll in each course is the difference in question in this study.

Several terms are relevant in relation to the interaction of students with one another, with faculty, and with content in online courses. First, the basic level of communication in the classroom is interaction, which is defined as the sequential exchange between two or more different parties involved in the course (Dennen & Wieland, 2007). Such parties are typically one or more students and one or more instructors. Interaction serves as the basis for additional integration and engagement in the online classroom. Without it, discussion forums simply act as a bulletin board, with no two-way communication (Nandi, Hamilton, & Harland, 2012).

Integration is defined by Tinto (1975) as having two parts; social and academic integration. Social integration is interaction with the peer group and faculty outside of the classroom, whereas academic integration is achieved through avenues such as the grades they achieve or what they learn intellectually in a course. Much research on integration has been completed in a campus based environment with traditional students, however, more recently there have been differences revealed in how nontraditional students integrate in a unique manner, such that social participation is intertwined with an academic purpose (Deil-Amen, 2011). Further information on how nontraditional and online students integrate is important and is explained in additional detail in a subsequent section. These different forms of integration are important in building a sense of belonging, and influence the level of engagement of students in individual courses.

Engagement is defined by Kuh (2009) as the time and effort students devote to

activities that are linked to success and what institutions do to encourage these activities. The focus in this review will be on asynchronous discussions and whether they can be used to promote increased interaction and subsequently increased engagement. Integration and engagement are closely related and are both topics of interest in research focusing on increasing success for students. In this context, integration is considered a broader term in that it generally refers to social and academic interaction outside the classroom, including the feeling of a sense of belonging, whereas engagement is focused on specific course interactions that the individual student generates and how these behaviors can lead to additional success in a particular course. Interactions outside the online classroom are not measured in this study; however, it is an important concept because nontraditional students may enact integration in a manner divergent from how it is defined in the literature examining traditional courses.

But while one can be engaged in a particular course and topic through interaction, this engagement alone does not necessarily lead to community in the classroom. This study seeks to illuminate whether discussions contribute to building community in these courses. In the context of this study, community is "a social community of learners who share knowledge, values, and goals" (Rovai, 2002, p. 322). Barab, MaKinster, and Scheckler (2004) elaborate further with their definition, adding that community is a persistent, sustained network where individuals also develop together a "knowledge base, beliefs, values, history and experiences focused on a common practice and/or mutual enterprise" (p. 23). It is important to emphasize that community develops these shared experiences together with a common focus. Engagement with other students, faculty, and

the content is important, but if it is not quality engagement and individuals are not demonstrating some level of presence in the classroom, community will not be developed.

Garrison, Anderson, and Archer (2000) argue that three types of presence work together to create community: cognitive presence in online courses entails constructing meaning through communication, social presence entails projecting oneself as a real person, and teaching presence entails designing and facilitating the educational experience. Garrison et al. (2000) posit that a combination of these three create a community of inquiry in online discussions. Community is demonstrated in the following behaviors: when students feel connected to each other and the instructor, share common interests and values, trust and help each other, actively engage in two-way communications, and pursue learning objectives (Rovai, 2002). Intuitively, one can see how these behaviors will lead to more interaction and continue this cycle. In fully online courses, communication is most commonly achieved through asynchronous online discussions (Rovai, Wighting, & Liu, 2005). Differences have been found in the expression of community between traditional and nontraditional students (Rovai et al., 2005), thus accentuating the importance of further investigating the role of online discussions with nontraditional students. Figure 1 shows how cognitive, social, and teaching presence overlap and work together to create an educational experience and is a demonstration of the overarching framework used in this study.

Figure 1. Elements of an educational experience (from Garrison et al., 2000). This figure demonstrates how the three types of presence interact to create community in an online educational setting.

Research Questions

- Does the nature of nontraditional student participation in asynchronous online discussions differ between levels of courses?
- Do cognitive, social, and teaching presence vary between course levels?
- Do cognitive, social, and teaching presence vary between levels of post?

Summary of Dissertation

Research related to success in the increasingly popular online course format has important implications for students and institutions. More specifically for nontraditional students who are more likely to enroll in these courses due to the increased flexibility

which allows them to maintain their other responsibilities. However, success is an issue in these courses and it is critical to discover how to best support students in these courses and help them be successful. Therefore, this study will explore how interaction and engagement in online discussions differ across levels of courses in nontraditional students at a specific institution. This will be explored through a framework of community in online courses and ultimately help better understand how to facilitate discussions in all levels of courses. In Chapter 2, a foundation is built for the study through a thorough literature review of success in online learning, nontraditional students in online learning, and the use of discussions in online learning. Relevant underlying theory that relates to each of these areas is presented. These three areas of literature demonstrate the need for further research, due to the general increased difficulty of success in online courses, but more specifically for nontraditional students who have to balance other responsibilities. In addition, online discussions are an important way in which to facilitate community in online courses, but researchers are still working to determine the best way in which to implement them.

Next, in Chapter 3, the methodology used to answer the research questions in this study is described, including a detailed explanation of the research site with demographic characteristics for the university population. The design of the study is outlined, including the sampling strategy for the courses. The Community of Inquiry (CoI) coding framework is explained, including how it was applied to the discussions in this research.

In Chapter 4, the results of the analysis are presented, including a detailed description of the sample and how it compares to the population. In addition, the

variables used in the analysis are described, including course level, post type, and types and categories of presence. The quantitative analyses are detailed, focusing first on course level and type of presence, then potential predictions, then course level and category of presence, and finally, post type and category of presence. Last, in Chapter 5, there is a discussion of the results, their importance, and how they fit into the current literature. Further, theoretical implications, practical implications, limitations and delimitations, and recommendations for future research are discussed.

Chapter 2: Literature Review and Theoretical Foundation

This chapter covers a thorough literature review in order to gain a deeper understanding of the relevant areas: success in online learning, nontraditional students in online learning, and the use of discussions in online learning. This chapter demonstrates how these areas fit into the higher education landscape and why they matter to students and institutions. It also delves more deeply into the issues and characteristics regarding the extant literature, including the relevant theories that help undergird the current research, what is already understood about the variables that influence discussions in online courses, and aspects of nontraditional learners that influence how they behave in online discussions.

This research has an overarching constructivist framework because of the focus on the social nature of learning and importance of discussions in online courses to create this social and academic interaction in an asynchronous, distance format. Additionally, due to the focus on nontraditional students, the theory of capital will help guide and interpret the results in relation to this particular population and the differing characteristics and background experiences they bring with them in contrast to traditional, undergraduate students. Finally, at a pedagogical level, since the focus is on nontraditional, adult students, the theories and methods of andragogy will be used to keep in mind the best manner in which to work with and engage adult students in these online discussions.

Success in Online Learning

Online learning can be a valuable option for nontraditional students; however,

their success rate is lower in online courses than in traditional courses (Boston & Ice, 2011; Hachey, Wladis, & Conway, 2012; Verhoeven & Wakeling, 2011; Xu & Jaggars, 2014). Therefore, researchers need to determine the best approaches to building curriculum for this population of students; how can these students be supported so they can complete the courses they begin? Success in online courses has thus far proven to be more elusive than in campus-based courses, especially for fully online students. Online courses require more from the student in certain ways, such as more independent learning. Without face-to-face meetings where a student can ask questions and get responses in real-time and clarify requirements verbally, responses to emails or discussions in online courses sometimes require a longer timeframe. While in online courses all the requirements may be posted and there may be a significant amount of structure, the student still needs to navigate on their own, organize all areas of the course so it makes sense to them, and interpret requirements. This is different from campus-based courses where the instructor verbally synthesizes the course and requirements for the students. On the other hand, online courses also represent more flexibility for individuals who already handle multiple responsibilities in their lives (e.g., jobs, families, caretaking of family members, etc.). In an increasingly technological society with multiple higher education choices, learning how to best support student success in online courses is important. Success in higher education has been researched for years from a multitude of perspectives. There are many decades of research focused on traditional students in a traditional bricks and mortar setting (Pascarella & Terenzini, 2005), but in the past several years there has been an increased focus on orienting this research base to

various types of online learning experiences (Allen & Seaman, 2007; Allen & Seaman, 2012; Allen, Seaman, Poulin, & Straut, 2015). Online courses in some version are and will continue to be relevant in the future and therefore institutions need to maximize their potential for student success.

Online students are by definition remote from their institution, which can make them feel disconnected, thus support for online students is integral to their success, especially considering the typical demographic of students currently enrolling in online courses, that is, nontraditional students who have multiple, additional responsibilities. This feeling of being disconnected can be addressed through structural support from the institution, such as detailed orientation, effective advising, and faculty behaviors. But similar to technical skills, there are multiple barriers that can be perceived in online courses; the following variables are significantly related to support: social interaction, academic skills, learner motivation, and time and support for studies (Muilenburg & Berge, 2005). In order to feel supported, the online institution must either have a support system in place or develop one. For example, encouraging social interaction can provide students with someone to talk to who is going through a similar experience. Another example would be providing support for academic skills, such as time management or study skills, which helps show students the practical side of how to be successful in their courses.

This remoteness of the online learner brings to the fore one of the theories that underlies this research. Social learning is the term used here to encompass sociocultural theory, social constructionism, and constructivism. Brief descriptions of all three are

provided, in addition to what the differences are and how they relate to the topic and research at hand. Generally, sociocultural theory is the foundation of social construction and constructivism, focusing primarily on the constant influence culture has on interactions and learning. The difference between social construction and constructivism is more difficult to parse out, and the terms are sometimes used interchangeably in the literature. However, social construction focuses more on the background of methodological and ideological systems, which oversee the process behind learning and change in the person. In contrast, constructivism is focused more on the actual process and activities that bring about change in the individual through social interaction.

Sociocultural theory originated with Lev Vygotsky through his study of learning in children (Vygotsky, 1980). In the literature included here, there are three components that are critical to this theory of learning, including co-construction of knowledge, community building, and multicultural viewpoints. In this view, learners work together, using their experiences, to co-construct meaning from the content of the course. This interaction is reviewed in the current research by looking at community using the CoI framework and demonstrating how cognitive, social, and teaching presence are demonstrated in the courses studied. Sociocultural theory studies how knowledge is internalized, appropriated, transmitted, or transformed within the learning environment (John-Steiner & Mahn, 1996). This component of working together demonstrates the importance of social participation in learning (Packer & Goicoechea, 2000), which surfaces frequently in the literature on success in higher education and online discussions. Last is the emphasis on culture and how differing views brought to the learning

environment affect the co-construction of knowledge. This view brings to light how learning and learning theory can inherently favor some and marginalize others (Alfred, 2002), demonstrating the importance of meeting the nontraditional student where they are and taking into consideration their background and experiences. All learning takes place in a cultural context and is mediated by individual understandings and experience, and so is best understood when keeping these differences in mind (John-Steiner & Mahn, 1996).

Social construction as the background and overarching theory behind the process of learning contributes to the broader understanding of how learning occurs and how knowledge is constructed in the classroom. Patton (2002) explains social construction as focusing on the collective generation of meaning and emphasizes how our culture shapes the way in which we see things. This is related to capital and how the experiences one brings to the learning environment affects what one takes away from the content and how we contribute to the co-construction of knowledge. Diverse cultures and different types of capital will bring varying ideas and understandings to the discussion, therefore the knowledge that is constructed in a particular course can vary depending on the individuals in the course. This is a great benefit of learning from others and being able to see and understand other viewpoints, but it also points to the necessity of faculty in the discussions to ensure the content is interpreted accurately, whether it is an in person discussion or through text alone in an online discussion.

In contrast to social construction, constructivism focuses more specifically on the process and change in the individual learner that occurs as knowledge is co-constructed around the content of the course. Further, constructivism focuses on the meaning making

within the individual mind and suggests that how any one person makes sense of the world is as valid as any other (Patton, 2002). John-Steiner and Mahn (1996) reiterate this point by explaining that social constructivist frameworks focus more on the possibility for change within the individual, which is not necessarily in contradiction with sociocultural theory that focuses more on the educational system. This demonstrates that in addition to the explanation of sociocultural theory wherein different knowledge can be co-constructed as a group, in relation to constructivism, people can also come away from the course with different individual meanings and applicability to their lives. Again, this is influenced by individual culture and background and the capital brought by different learners to the course.

Implications of Social Learning Theories for Online Courses

There is a distinct difficulty related to providing social learning opportunities for nontraditional students because the reason many students enroll in online courses is the same reason that can lead to lack of success (Kuh, Kinzie, Buckley, Bridges, & Hayek, 2006; Warschauer & Matuchniak, 2010). That is, many students choose online courses to begin with due to these courses offering the convenience and flexibility they desire (Pastore & Carr-Chellman, 2009); however, the external responsibilities and time constraints that lead students to choose online courses are also factors that contribute to lack of success (Sahin & Shelley, 2008; Smith Jaggars, 2011). The importance of culture and background in social learning leads to the discussion of several issues relating this theory to success in online learning, including support, SES, and technical concerns. Effective support in online courses encourages interaction with other students, SES

influences the experiences and understandings one brings to the course, and technical access and ability is related to SES and can influence comfort level in the online environment, all of which can lead to more or less social learning in the online classroom.

Lack of support is cited in many studies as a factor in attrition for online, higher education students (e.g., Ekstrand, 2013; Ludwig-Hardman & Dunlap, 2003); although it may be available, part of the struggle is to effectively communicate the availability of services. Ensuring that students know about and use these services, as well as providing support in more than just an academic arena is essential, especially in light of the necessity of technology literacy required for success in online courses. Ultimately, in the online environment, student services should be student-centered, personalized, customized, and convenient (Shea, 2005). These factors are possible in an online environment, considering the technology capability, for example, of recognizing a student is available online and sending a message or providing constant access to tutoring. While there are many challenges faced by online students, for example, a sense of isolation and a lack of support (Smith Jaggars, 2011), and lack of self-direction and management (Ludwig-Hardman & Dunlap, 2003), with the new focus on online courses and need to develop support structures in this environment, coupled with huge technological advances, overcoming these challenges should be a manageable task.

Another factor that continually emerges in the literature is SES, which is a measure of a family's income and position in relation to others. Socioeconomic status has been linked with academic success in multiple studies (Callender & Jackson, 2008; Dwyer, McCloud, & Hodson, 2012; Tinto, 1975), and has been found to be a predictor of

belonging, which led to social and academic adjustment, quality of experience, and academic performance in higher education (Ostrove & Long, 2007). This research shows that students from a higher SES are more likely to feel as though they belong, which may be an extension of feeling a greater sense of belonging throughout their lives. Thus, it may be that online learning settings are not as beneficial for students who are low-income or underprepared (Smith Jaggars, 2011), such that these students may need additional support within these online courses. Several issues emerged in a literature review conducted by Smith Jaggars (2011) on online courses, including concerns regarding low-income and underprepared students access and lower completion rates, which may be influenced by technical difficulties, social distance, lack of structure, and lack of support. In addition to more research, the major recommendation included providing students with low cost computers and high speed internet (Smith Jaggars, 2011), thereby overcoming some barriers initially by providing the hardware basics for success in online courses. Students whose parents have a college degree are likely to have a higher SES because college education is a predictor of future earnings (Hu & Wolniak, 2013), and subsequently these continuing generation students are more likely to receive additional support from their parents in the college-going process, from admissions to financial aid to studying. The additional support that continuing generation students receive from parents who have been through the higher education process themselves can lead to increased precollege readiness factors, such as enrollment choices, academic preparation, and motivation to learn, all of which are factors in student success (Kuh et al., 2006).

Access to and subsequent familiarity with the technological tools necessary to be

successful in online courses can also vary along the socioeconomic continuum. Families at a lower SES and first generation families are less likely to have constant access to technology at home, such as computers, internet, etc., which leads to less literacy and understanding of how to navigate unfamiliar online environments (Ntiri, 2001). A more recent review shows while access to computers and the internet are more equitable across SES, there is still a divide in home and flexible access, therefore use and outcomes of technology are still variable across SES (Warschauer & Matuchniak, 2010). Sahin and Shelley (2008) found as long as students have technical skills to navigate the classroom, then online learning is perceived as useful and flexible. Without this technical expertise, online learning can seem unmanageable and overwhelming, coupled with a sense of isolation and lack of support, it can too easily lead to frustration and failure. This lack of technical expertise is one aspect of being academically underprepared, rendering online learning into a potential hindrance to success (Smith Jaggars, 2011). There is a balance that must be sought and maintained between the convenience and flexibility of online learning and the appropriateness and manageability for any particular potential online student.

If a student chooses to enroll in an online course, this implies some level of confidence on their part that they have a level of comfort with technology and either possess the technical skills needed or can quickly acquire them. The focus on technical expertise is critical in the examination of online courses, but also in the larger context of higher education in an increasingly technology driven society and higher education environment. Even if a student is not taking online courses, some technical expertise and

computer knowledge is necessary in campus-based learning. In online courses, an absence of understanding on the technical side of the course could be expected to easily exacerbate feelings of isolation, lack of structure, and lack of support. Such deficits can be ameliorated through effective structural support, such as online course orientation and thorough advising, but Muilenburg and Berge (2005) point out there are multiple remaining potential barriers related to technology, such as level of technical skills, cost of and access to the internet, and technical problems. In research using categories of barriers, technical barriers were perceived most often, including connection, bandwidth, and insufficient infrastructure, followed by sociological, psychological, and cognitive barriers (Gutiérrez-Santiuste, Gámiz-Sánchez, & Gutiérrez-Pérez, 2015). Cognitive barriers included preparation and ability to handle virtual tools, therefore, in comparison to the work by Muilenburg and Berge, student technical skills may have increased, but there are still issues with efficient, reliable access. This mirrors the pattern of work from Ntiri (2001) to Warschauer and Matuchniak (2010) on the digital divide in that technology is accessible and students possess basic skills, but access is not necessarily efficient and flexible.

The National Academic Advising Association (NACADA) has laid out specific guidelines for advising and supporting distance learners. These guidelines are integral to fully supporting and encouraging success and social learning in the online population of students. To relate the current research and institutional setting to these guidelines, a few guidelines are reviewed here that address the preparation of faculty at the institution used in the current research to teach online and support distance learners in an effective

manner.

The first guideline includes employing a myriad of technologies in the delivery of distance education and related services (NACADA, 2010). Faculty members are trained in the use of various technologies the institution uses, including Desire2Learn, which is the learning management system. Online courses are housed in Desire2Learn and faculty members are trained from both their perspective and a student perspective. Desire2Learn is also used to facilitate blended courses offered in a campus-based setting, and can be used for tracking grades and housing supplemental materials for campus-based courses. AdobeConnect is an online meeting software that faculty can use to meet with students in their courses. They are encouraged to use multimedia resources, including YouTube, websites, social media, etc., to add to the course shell and syllabus that are ready-made for online courses. They can communicate in multiple manners in the course, including emails, an announcement board on the course home page, and discussion boards. In this research, there was a discussion prompt which included a YouTube video that generated a lot of discussion, demonstrating the potential utility of these additional resources.

The next guideline entails providing appropriate student support services for distance learners just as they are provided for students on campus (NACADA, 2010). Faculty members who teach online are expected to demonstrate the same professionalism as campus-based faculty. Campus-based students are usually able to get immediate answers in a face-to-face environment. To try to provide this for online students in spite of the inevitability of longer response times, faculty members are expected to respond to emails within 24 hours at this particular institution. If it is over the weekend, they are

allowed up to 48 hours. Instructor responses are important in online learning for building community and developing learner autonomy (Andrade, 2015), including responses in order to avoid feelings of isolation (Smith Jaggars, 2011) or feeling a lack of support (Ekstrand, 2013). Since online exchanges take longer than face-to-face exchanges, students must also plan ahead and ask questions early enough to get a response prior to due dates, which could be more difficult for nontraditional students who have more external time constraints.

The last guideline reviewed here includes creating opportunities for connection and community with the institution, faculty, staff, and other students (NACADA, 2010). An important point for the current research is the opportunity for community, especially in an online environment. Quick response times are one aspect of this, in addition to the discussions in online classrooms, wherein the faculty member is encouraged to be a part of the conversation, provide guidance where needed, and allow learning and critical thinking to happen as it occurs. There is a balance between giving the answer too soon and too late that the online faculty member needs to work on implementing. Some opportunities for faculty to encourage community is to have students work in groups or create discussions where students are in small groups for the discussion and take turns providing a summary. Instructors are encouraged to be active participants in the online discussions to help guide learning, point out areas of agreement/disagreement, ask additional questions, correct as needed, and provide a summary. This is relevant in the current research because it is important in all discussions, but specifically because there was very little teaching presence found in these discussions.

Nontraditional Students in Online Learning

This section demonstrates the need to focus on nontraditional students in relation to online courses. Since there is a higher likelihood that nontraditional students will enroll in only online courses (Patterson & McFadden, 2009), the increased difficulty of successfully completing an online course and the additional responsibilities of nontraditional students lead to a need for additional research in this area. In order to gain a better understanding of nontraditional students, this section first looks at who nontraditional students are and why they choose online courses.

In early research on attrition of nontraditional students, Bean and Metzner (1985) defined them as students who are older, enrolled part-time, and commute to their educational institutions. These factors are part of the portrayal of nontraditional students; however, as more research has been conducted the definition has become more detailed and nuanced. The U.S. Department of Education (1995) conducted an extensive study on higher education students and recognized seven traits to define nontraditional students: 1) first generation status, 2) delayed entry, 3) part-time attendance, 4) off-campus employment, 5) financial independence, 6) dependents/single parenthood, and 7) absence of high school diploma. The presence of any one of these indicates a nontraditional student, but the more traits a student possesses, the more nontraditional they are on a continuum (U.S. Department of Education, 1995). These have remained as useful factors in the research since then. For example, Cavote and Kopera-Frye (2007) used these factors to place nontraditional students into categories based on number of risk factors present, rating them as traditional, minimally nontraditional, moderately nontraditional,

and highly nontraditional. This may be a worthwhile categorization scheme to help narrow down what factors are more or less related to success in online courses. Additionally, while age has been used as a defining factor for nontraditional students (Gilardi & Guglielmetti, 2011), more recently there is research showing that age is not as useful, but a life-changing event (e.g., having a child) may better identify the distinction between traditional and nontraditional students (Jinkens, 2009). Furthermore, while it is necessary at times to categorize students, especially in research to determine outcomes, there are always within group differences (Jones & Lau, 2010). For nontraditional students, it must be acknowledged and remembered throughout the research that there is much overlap between these nontraditional categories and racial or ethnic minorities (Brock, 2010). However, to delve into this area of literature is a significant undertaking and therefore this proposed research will treat nontraditional students as a single unit, defined primarily based on age.

With the additional risk factors associated with being a nontraditional student, compounded by taking online courses where there may be less contact with an instructor, why is it that so many of these nontraditional students are choosing to enroll in online courses? The logical reason is that online courses offer the additional flexibility that nontraditional students with additional responsibilities require in order to be able to fit higher education into an already busy life. Therefore, while higher education options have expanded due to the availability of online learning, the next critical step is to ensure that success is not sacrificed for the sake of flexibility. Despite the many factors that potentially work against these nontraditional students in online courses, the potential

benefits must outweigh the possibility of not being successful. Some of the benefits of enrolling in online courses include increased flexibility, ability to manage time more efficiently, and the convenience of studying from anywhere at anytime (Pastore & Carr-Chellman, 2009). Additionally, the more anonymous nature of online courses can be an attractive factor for students who are not comfortable contributing in a face-to-face setting; they may feel more comfortable expressing themselves and this may promote a richer dialogue and encourage more students to be involved. Plus, without meeting one another in person, there are fewer status cues and the power of the faculty member as an authority figure changes (Knightley, 2007), which is especially relevant for nontraditional learners as many of them are adults and may feel more like an equal to the faculty member. Melkun (2012) states, "there is some evidence to suggest that visual anonymity lessens apprehension and creates an egalitarian environment" (p. 37). Increasing the comfort level of nontraditional students who may be apprehensive about participating in higher education due to their lack of experience, amount of time away from education, or lack of social and cultural capital is another significant benefit.

Ultimately, choosing an online course as opposed to a campus-based course comes down to the potential benefits of the former and whether such benefits outweigh the difficulties to be overcome. The bulk of research confirms that in the type of online courses being investigated here, they are finished successfully at a much lower rate than campus-based courses (Boston & Ice, 2011; Hachey et al., 2012; Verhoeven & Wakeling, 2011; Xu & Jaggars, 2014). The foundational research with students of higher education and nontraditional students in a campus-based setting, plus the work that has already been

done in an online environment, is a starting point for further inquiries regarding nontraditional and online students in more specific contexts, such as for-profit institutions.

The Role of Capital

Nontraditional students typically have less capital than traditional students (Bourdieu, 1986), which can make the path to success more complicated. This problem is accentuated with the increasingly popular option to take online courses (Shaw, 2011), where the success rate is generally lower (Boston & Ice, 2011). Boston and Ice (2011) used data from a for-profit, online university with a sample size of over 20,000 and found lower success rates in online courses as compared to previous research in a campus-based environment, which is relevant to the current research context. With these lower success rates in this sector, it is even more difficult for nontraditional students since they already face additional responsibilities pulling them in other directions from their coursework. There are many reasons why building capital is an important part of being successful in higher education.

The defining characteristics of nontraditional students, their enrollment in online courses, and their relative lack of capital leads to the inclusion of Bourdieu's theory of capital as an underlying foundation for this research. Capital is an important concept which can be applied to many fields as this theory of social domination and reproduction attempts to explain how social class and social hierarchies are perpetuated through the manner in which the system itself functions. Pierre Bourdieu was a sociologist who applied economics to the development and exchange of more intangible forms of capital.

Bourdieu (1986) first theorized on this subject upon observing the divergent scholastic achievement of children across social classes. In theory there should be equal proportions of each class who excel in differing areas (academic, athletics, etc.), however, this is not the case in our social world.

Therefore, Bourdieu speculated that something characteristic in the more privileged classes contributed to the success of those children in their academic endeavors, hence the advancement of the idea of cultural capital. Part of the basis of this philosophy is that society is not a simple game of chance, which allows for everyone to have the possibility of getting ahead economically (Bourdieu, 1986). What this indicates is that life is not chance and much of what one is able to achieve or gain access to is predetermined through constructs such as cultural and social capital. Economic capital is the basis and original foundation for the other types of capital. It is capital in the traditional sense of the word - it is directly convertible into money and recognized as such (Bourdieu, 1986). Cultural capital can be converted into economic capital, but represents things such as habitus of customs and understandings, cultural goods, and the products of these factors, such as an academic qualification (Bourdieu, 1986). Finally, social capital is less tangible, in that it incorporates the potential resources one possesses in the network of mutual acquaintance and recognition, or membership in a group (Bourdieu, 1986).

There are different manners in which cultural capital can exist: embodied, objectified, and institutionalized. Cultural capital in the embodied state is essentially what is considered culture and is assimilated over time and transmitted through the family

(Bourdieu, 1986). The time needed to invest in the development of cultural capital makes it more difficult, if not impossible, for higher education institutions to increase the cultural capital of individual students. The next way that cultural capital can be expressed is in an objectified state, signifying material objects that represent culture, such as paintings, monuments, writings, etc. (Bourdieu, 1986). Owning cultural goods materially signifies economic capital, whereas knowing how to use them effectively signifies cultural capital (Bourdieu, 1986). Lastly, cultural capital in the institutionalized state is akin to an academic qualification, which conveys cultural competence on its bearer that is recognized as legitimate cultural value (Bourdieu, 1986). While it does not bring one to the level of an individual who already had cultural capital and has added to it with an academic qualification, it is beneficial in the work world where these credentials are required in order to gain entrance into an economically profitable career.

The next type of capital, that of social capital, recognizes the importance of possessing a network of relationships of mutual acquaintance and recognition (Bourdieu, 1986). This aspect of the theory represents the importance of who one knows in the social world and in the work world as far as obtaining a position in a desired career. Relating this to cultural capital and the acquisition of an academic credential, one will be more able to find a job that is more beneficial the more people one knows and can reach out to for entrance into a business or sector. Much of this type of capital is intangible and based upon exchanges between different members of the group, leading to feelings of gratitude, respect, friendship, etc. (Bourdieu, 1986). These interactions between group members serve to reinforce the group and allow members to maintain and control the boundaries of

the group, which leads to much homogeneity and little ability for new members to gain access (Bourdieu, 1986). Again, despite overcoming obstacles to begin and complete higher education, this creates more difficulty for students to gain access to these networks if they are not already a part of them and subsequently able to use their academic credential to its full potential.

This interpretation of Bourdieu's theory is sufficient to demonstrate its applicability to nontraditional students and the importance of capital to success in higher education, especially when considering online courses where success rates are lower. This theory is relevant to the background of this study because nontraditional students enter the higher education system with less capital and therefore may encounter more barriers to their success. While capital itself is not measured in this research, the experiences that nontraditional students bring with them does influence how they participate and engage in discussions on their courses. This theory adds to the conceptual background for this study and serves to aid in the contextualization of the results in the larger environment of the field of higher education.

Within the higher education landscape, an example of economic capital is the ability to own a computer and have access internet services, whereas cultural capital is the capability to use the computer and find information online in a way that uses these resources to their full potential and realizes their capacity to increase capital. The time needed to build cultural capital is afforded to some individuals through the amount of free time their family can provide (Bourdieu, 1986), which creates difficulty for those students attending higher education who must work in order to support their studies

and/or their families, allowing them very little free time to amass additional capital. Therefore, nontraditional students not only start out with less cultural capital, but are less likely to be able to accumulate more because of the additional financial responsibilities on top of studying.

The different forms of capital build upon each other, with those possessing the most economic capital in its original sense able to pay for tuition to a prestigious higher education institution, which is translated into an academic credential that holds more value than one from other institutions. These individuals are able to accumulate the most cultural capital through time and family, and ultimately social capital allows them to find better jobs through their connections. All of this enhances the ability of students who are born into this type of capital to get ahead in the world, while for others (e.g., many nontraditional students), all these same ideas compound to make it more difficult. Not only within one lifespan does capital increase, but it also continues generation after generation to allow those with the capital and power to maintain that position.

Capital and the Nontraditional Student in Higher Education

Capital is a support system for many aspects of success, including the admissions process, understanding financial aid, choosing a program, and understanding how to study and go to college. An important factor of success in higher education includes not only their academic potential, but also their ability to navigate institutional structures (Office of Educational Technology, 2017). If a college student does not have a model or background for what successful college behavior looks like, it is far more difficult to understand the time needed and the study habits that will help them be successful. This

broadening of internal and external resources can enhance the learning and subjective experiences of being a student (Chao & Good, 2004), which is especially important for nontraditional students who typically have fewer resources. An avenue for building capital can be through interaction with other students; in online courses this collaboration can lead to fewer feelings of isolation and feeling more a part of a learning community (Knightley, 2007). Ultimately, adult learners participating in higher education can experience a growth in confidence, increased opportunities for their future, a sense of achievement, and increased possibility for generational change in participation in higher education (Stone, 2008). This last finding is especially important in building a stronger future and providing more opportunities for the next generation, who will then be continuing generation students and hold more social and cultural capital, thereby making the process smoother for them.

Faculty can play an important role in encouraging students to fully engage in online courses. One aspect of this is the need to be aware of how the potential student needs to balance multiple responsibilities and encourage students to be comfortable addressing these issues with faculty. Miller and Lu (2003) discuss the need to meet nontraditional students where they are and be able and willing to accommodate additional responsibilities. Another aspect of meeting these students where they are is that part of learning and being open to new understanding requires students to feel comfortable exploring ideas in a communal setting and possibly needing to be corrected in one's understanding of the material; this comfort level will need to be developed and maintained by the faculty member. This is especially applicable for nontraditional

students who may not have attended higher education previously and may feel much less bold about sharing their opinions. This is where the anonymity of online courses is a potential benefit for these students who may be uncomfortable about going back to school at an older age, as Melkun (2012) states it can also create a more egalitarian environment. The need to meet students where they are can also be highlighted in a different set of students, for example, working professionals who are also nontraditional students, but are very comfortable with themselves and sharing their work expertise in relation to the course content. Considering this wide array of potential participants in an online course (Chou & Tsai, 2002), it can be difficult to build connections among all participants, but creating community within the online classroom is a vital component in student and course success.

An aspect of supporting nontraditional students in online learning is to discover the manner in which they are most likely to participate and engage. With the established differences of nontraditional learners from traditional learners, their preference for integration and community may also be different. Nontraditional students do not have as much time to devote to out of class educational activities, therefore the social side of their experience is more likely to be practiced within the online classroom. Price and Baker (2012) determined that adult students may integrate socially and academically through curricular classroom experiences instead of separately. Specifically with nontraditional students, academic and social integration appear more tightly interconnected, where academic integration takes a more social form and social integration is often characterized by academic utility (Deil-Amen, 2011). One example would be forming a

study group with others in the course, as opposed to meeting for a purely social purpose. This leads Deil-Amen (2011) to conclude that for nontraditional students, a form of socio-academic integration is more likely to be relevant, such as in-classroom interactions between students, and one-on-one communication and assistance in class from the instructor. Social integration is still a factor; but is more likely to revolve around coursework, study groups, and the utility of the relationship to course content, rather than outside of class social gatherings.

Integration may not be a critical part of the typical nontraditional student educational experience, partly because they have different motivations for pursuing and persisting in higher education (Carnoy, Rabling, Castano-Munoz, Montoliu, & Sancho-Vinuesa, 2012), thus social integration may not be as important, but community does seem to be an important factor in reducing feelings of isolation online (Knightley, 2007). This is a paradox in online learning that needs to be reconciled, lack of time for social integration, but desire for community, and maintaining the flexibility of online learning while still creating a feeling of community and support. This is a particular concern for students in the current study as they are nontraditional students who may need additional support to bolster their success, but also have to balance that with other responsibilities in their lives. Some of the students never come to campus, which means they do not meet administrators, faculty, or other students face-to-face. This can take away some of the support that is inherent in a personal relationship and is more difficult to build without the interchange and nonverbal cues that occur in person (Slagter van Tyron & Bishop, 2009). This can lead to additional feelings of isolation that can influence success

(Knightley, 2007; Smith Jaggars, 2011). Since this research includes students who may never physically go to campus, there is a constant discussion both at the campus and university level on how to better engage students and help them feel like they are a part of a community.

Integration has long been considered an important contributor to success for higher education students; however, it must be considered from a different lens for nontraditional students. While social aspects of education are part of the foundation for building identification with the role of a university student (Gilardi & Guglielmetti, 2011), how this socialness is enacted can vary between traditional and nontraditional students. Kang and Yang (2016) found time, resources, and skills were negative predictors of learner-instructor interaction and resources and skills were negative predictors of learner-content interaction. This finding gives additional background on how learners interact in an online community and what factors predict those interactions, giving a direction for how to encourage additional interaction and create community. For example, if adult learners enter the online classroom with low technical skills, additional outreach and training could be completed prior to starting online courses and increased instructor outreach could help increase interaction and thereby increase the potential for the creation of community.

Both academic and social interaction are important components of the online classroom. Moore and Fetzner (2009) found students who experience effective social interactions in an online course are more likely to persist. Effective social interactions can be defined in multiple ways, depending on the needs and desires of different students, as

well as the format of the online course. If discussions are required in the online course, the students may feel they are simply completing the discussions to get credit, but the key is for instructors to create questions that are interesting and can be applied to students' daily lives, which can promote more lively dialogue and increased connections between students. However, it should be noted this social presence is not inherently related to learning, and neither is motivation, but both are present when social learning occurs (Dennen & Wieland, 2007).

A critical factor in the transition from campus-based to online courses is the lack of face-to-face interaction and conversation. Therefore, many online courses have implemented a discussion component in an attempt to replicate the learning process that happens through discussion in the traditional classroom. This is a critical component of social constructivism, which posits that meaning and understanding are created as a social process between participants in the learning environment (Lambropolous, Faulkner, & Culwin, 2012). This interaction between student and teacher or among students has been found to be an important aspect of online courses; students appreciate the opportunity to interact and collaborate with other students because it can help them feel less isolated and more a part of a learning community (Knightley, 2007). Since isolation and lack of support are frequently cited challenges for online learners (Smith Jaggars, 2011), finding methods to overcome them could be critical to increasing success in online courses, and discussions are one of these potential methods.

To increase the utility of online discussions it is critical for instructors to set high expectations to encourage interaction and engagement in online courses, and help

students see the utility of online discussions not only for learning, but also for the socio-academic integration referenced by Deil-Amen (2011). In online courses with nontraditional learners, the primary opportunity for social integration is typically in the discussion boards, which is why social presence is included in the framework for community used in this research. This connection between social integration and discussion boards also demonstrates the purpose for looking at nontraditional students to see how they are enacting socialness in the online classroom and how it differs from other populations or course delivery modes. These interactions in the online discussions can be a potential contributing factor to the engagement of students at a deeper level with the courses and institutional community, and while discussion boards are only one manner in which interaction can occur, it is the focus in this research. The method of integration demonstrated by nontraditional students points to the importance of establishing the most effective manner in which to implement online discussions.

Discussions in Online Learning

The last area to take into consideration as justification for the necessity and relevance of research in this area is whether or not online discussions are actually an important key to success in online courses. The explanation for the utility of discussions in online learning derives from social constructivism and the prerequisite of some level of social interaction to build and construct meaning together from the course content (Lambropolous et al., 2012). Since this interaction occurs face-to-face in the traditional classroom, scholars examining online learning have focused on how to replicate this social learning when students do not interact face-to-face. Potentially the most effective

method thus far has been the asynchronous, online, text-based, threaded discussion, which maintains the flexibility for students who need online courses for the additional convenience, but also creates discussion and interaction around the course content.

This importance of online discussions points again to the foundation of social constructivism in online discussions due to the necessity of social presence, or the ability to present oneself as a real person through the projection of personal characteristics in discussions (Garrison et al., 2000). Social constructivism is demonstrated here through the promotion of social interaction *through* academic interaction, which leads to support of both the social and learning aspects of social constructivism. Since social integration and subsequent commitment to the institution have also long been considered important factors in a traditional environment (Pascarella, Terenzini, & Wolfle, 1986), applying some of the research from the traditional university environment to the online environment is practical. The twofold manner in which nontraditional students are more likely to engage with the institution, faculty, other learners, and content, for example social interaction through academic utility (Deil-Amen, 2011), shows how creating effective discussion questions to incorporate both types of interaction can be beneficial for nontraditional students. The current research will look further into how students at a particular institution interact on the online discussion boards and aims to find additional opportunities to encourage interaction based on the findings.

Online discussion boards are an important part of communication in online courses, helping to build interaction and group cohesiveness in student-student and student-instructor interaction (Gaytan & McEwen, 2007). In the context of this research,

most of the communication and opportunity for building community is through this forum, in addition to the use of course emails, which are not included in this study. The focus on discussion boards is based on their standing as the primary arena for interaction in these courses. However, it is a common conception that courses with this type of interaction lead to very little instructor-student interaction, and consequently little student-student interaction (Hull & Saxon, 2009). There are multiple methods by which to increase or encourage discussion interaction, for example, relevant discussion questions, group discussion questions, and collaboration. This prevalence of discussion boards, but remaining questions about how to best use them demonstrates the research foundation for asynchronous online discussions in online courses because students can create meaning through discussions, which ultimately leads to learning and shared construction of knowledge. This is the premise in this research for using social constructivism as the theory that best supports the utility of engagement through discussions in online courses. Lambropolous et al. (2012) state it is a "central tenet of social constructivist learning theories that meaning and understanding are negotiated through discussions" (p. 296), which demonstrates their utility in this context.

Despite being physically separated from the institution, classroom, instructor, and classmates, interaction in online courses has shown to be important in success, specifically in the quality and focus of discussions within the online classroom. Interaction is defined in online courses as any discussion between participants (e.g., student-student or student-faculty), including questions or posting comments regarding course or non-course subject matter (Yukselturk & Yildirim, 2008), which can ultimately

influence community in the classroom. Interaction is a key aspect of further engagement in the online discussions and material needed for learning and success. In this particular research context, interaction in discussions in online courses is the primary method students use to engage in the classroom and the amount of interaction is largely dependent on them.

Engagement is a construct that underlies much of the research examining success in online courses. This concept is especially important to review here because engagement is vital to success in online courses, but is more difficult to facilitate than in traditional courses (Yorke, 2004) and has generated a significant amount of research (Aykol & Garrison, 2011; Ioannou, Demetriou, & Mama, 2014). Engagement refers to the time and effort students devote to activities that are linked to success in a course and what institutions do to encourage these activities (Kuh, 2009). This definition is applicable in this context because it is an overarching definition that helps demonstrate the importance of engagement, but not too detailed because this study will not be measuring student engagement directly. Student engagement is important in this discussion because it does not rely solely on factors the students bring with them to the institution, but rather factors the institution and faculty (as well as the student) can influence. For example, one cannot change the age of a student attending courses, but research can shed light on how to better engage different students with different characteristics or how to use varying practices to best facilitate engagement and success across a diverse student body. Historically in the higher education retention and success literature on traditional and nontraditional students, high levels of student engagement are

related to persistence and educational attainment (Astin, 1993; Bean & Metzner, 1985; Tinto, 1975), thus determining how to engage students effectively in online courses is critical. In reality, engagement can be measured in many ways, but the greatest amount of interaction in the online classroom is through discussions, therefore the focus in this review will be on asynchronous discussions and how to use them to promote increased interaction.

A sense of community in online courses is critical, but can be difficult to develop and maintain, hence the need to expand research on how to provide additional support to build community in the online environment. First of all, the importance of classroom community, defined as "a social community of learners who share knowledge, values, and goals", is critical in many respects, for example in its relationship to perceived cognitive learning (Rovai, 2002, p. 322). This greater sense of community will potentially lead to a greater support system in the online course, which decreases the sense of isolation many online students feel, ultimately leading to a better experience in online courses and a higher success rate. As students feel supported and not isolated, they are better able to focus their efforts on the coursework and learning, rather than trying to garner the support they need. In addition, the continuing research on community in online discussions will help us figure out the best possible ways in which to create curriculum and facilitate online discussions. There are multiple methods of content analysis existing in the literature. Gunnawardena, Lowe, and Anderson (1998) developed an early framework for content analysis based on online communication, but it was not focused specifically on an educational context. Additionally, Zhu (2006) used another method of

content analysis in online discussions using social network analysis along with a framework for cognitive engagement, but didn't include a content analysis scheme for social or teaching input in online discussions. Therefore, for the current research, the CoI framework is used due to its focus on community and including cognitive, social, and teaching constructs, and due to its development specifically in an online environment supporting educational activities (Garrison et al., 2000). These developments in this research area have provided a rich background and methodology from which to continue building knowledge and a better understanding of its constructs, their relationships, and applicability in other populations.

Community of Inquiry Theory

Community in online discussions in relation to social learning leads to a theory of community relevant to the current topic regarding learning together in online courses. It is clear collaboration is important and can help learning and success, and this collaboration necessitates some level of interaction. Interaction with students, with faculty, with the content, and with the institution is critical, but it may not produce the anticipated results if the quality of the interaction is lacking and therefore a sense of community in the classroom is not developed. Community can help facilitate learning and increase a sense of belonging that can be helpful in success and retention. This leads to the necessity of research surrounding quality interaction and how it can be facilitated in an online classroom in order to develop community.

While community is difficult to create and measure online, a model has emerged in online learning which attempts to explain community and engagement through

different types of 'presence' found in the online classroom. The CoI model was developed by Garrison et al. (2000) "under the premise that to encourage active participation and to foster cognitive manipulation of content, a sense of community must be developed in an online learning environment" (p. 152). In the original model there are three constructs, cognitive, social, and teaching presence, which when taken together create a framework to understand how communities of inquiry are established in online environments and how they foster collaborative learning and engagement in online courses (Putman, Ford, & Tancock, 2012). This model was chosen for this research for multiple reasons, including its development in an online forum supporting an educational context, the inclusion of various constructs that occur in the online environment, and its established status in the literature (Garrison, Anderson, & Archer, 2010). The CoI is used in this research by coding discussion forums from online courses based on the framework, using all three types of presence: cognitive, social, and teaching presence. These are reviewed to see how they are demonstrated and how they interact in this research context of online, nontraditional students in a for-profit higher education institution. Their interplay is reviewed through quantitative analysis and examples of how each category of presence is expressed in these discussion forums.

Cognitive presence (CP) is "the extent to which the participants in any particular configuration of a community of inquiry are able to construct meaning through sustained communication" (Garrison et al., 2000, p. 89). This creation of meaning is demonstrated in the theory of social constructivism, which states that learning happens through social interaction around the content, often with others who are more knowledgeable about the

topic (Hetherington & Parke, 2003). Much of the research around cognitive presence is related to critical thinking, considering this is a goal of most learning and higher education coursework. Garrison et al. (2000) state cognitive presence is a vital element in critical thinking. While higher levels of cognitive presence are indicative of significant learning in the CoI model, course grades were not necessarily directly correlated with cognitive presence (Shea et al., 2012). Cognitive presence is the least researched aspect of CoI, while what has been completed has maintained a focus on critical thinking (Garrison & Arbaugh, 2007).

Garrison, Anderson, and Archer (2001) focused on cognitive presence through practical inquiry, which is based on Dewey's work with critical thinking. The operationalization of critical thinking through practical inquiry includes four stages, although it is not this neat in practice: triggering event, exploration, integration, and resolution (Garrison & Arbaugh, 2007). These concepts are moved through in online discussions in order to learn and understand the content of the course together, although moving through to resolution is difficult and must be encouraged at times by the instructor. This difficulty points to the continued importance of the instructor in online discussions (Brescia, Miller, Ibrahima, & Murry, 2004; Lambropolous et al., 2012) and the need to encourage online learners to collaborate, rather than working independently as they often do by default (Angelino, Williams, & Natvig, 2007).

Social presence (SP) is "the ability of participants in a Community of Inquiry to project their personal characteristics into the community, thereby presenting themselves to the other participants as 'real people' " (Garrison et al., 2000, p. 89). Social presence is

likely one of the most difficult aspects of community to develop in an online classroom, without having face-to-face interaction it is difficult to feel a real connection with the words on the screen. Therefore this must be strategically encouraged by the instructor in order for it to have a significant influence in the online classroom. In the online discussion forum it consists of emotional expression, open communication, and group cohesion (Garrison et al., 2000). It is the most researched aspect of CoI (Garrison, Anderson, & Archer, 2010), as it is the primary factor a course loses when moving to an online environment. But based on the fact that students have a common purpose, Garrison & Arbaugh (2007) state social presence is not necessary for an effective community of inquiry. However, development of social presence is beneficial and does require instructors and students working together (Shea et al., 2010). This potential lack of importance calls into question the long running focus on social integration (e.g., Tinto, 1975), which indicates the more populations other than traditional, undergraduate students are studied, the less the focus is on social integration, as shown above in community college students who did integrate socially, but primarily when it had an academic purpose (Deil-Amen, 2011).

The third type of presence in the CoI model is teaching presence (TP), which has two functions, the design of the educational experience and facilitation, which can be shared among the teacher and other participants (Garrison et al., 2000). The way this is demonstrated in the online discussion is through design and organization, facilitating discussion, and direct instruction (Garrison et al., 2000). Further research has revealed the difficulty of moving through the phases of practical inquiry in the online classroom,

which may have a lot to do with online teaching presence (Garrison & Arbaugh, 2007). This makes sense because if there is a lot of conjecture and ideas by the students in the discussion forums, but a lack of presence by the instructor to help these ideas through to resolution, ensure accurate understanding, and proper application, higher level critical thinking may never be reached. Two interesting aspects of teaching presence are that, first, it is needed to bring cognitive and social presence together and, second, it can be performed by the teacher or a student in the classroom (Garrison & Arbaugh, 2007). These aspects are a further demonstration of Vygotsky's theory of social constructivism in that any more knowledgeable individual can help create learning in any particular context.

Community in Online Discussions

Community occurs when learners enact the following behaviors: feel connected to each other and the instructor, share common interests and values, trust and help each other, actively engage in two-way communications, and pursue learning objectives (Rovai, 2002). Bangert (2008) also demonstrated that using meaningful peer interaction, facilitated discourse, and direct instruction lead to collaborative learning and deeper understanding of content. In relation to CoI, when cognitive, social, and teaching presence exist in the online discussion, there is more likely to be effective learning and community in the classroom (Garrison et al., 2000). This increased learning and community with all types of presence is related to social constructivism and the necessity for students to work together in a social manner incorporating the course content to create new meaning and understanding. Additionally, building community in online courses can

increase social capital, which is critical for nontraditional students to help make up for the capital they may lack coming into the higher education community. One method that can be used to build community is when the instructor pays careful attention to when to begin and intervene in discussions, being careful to use "an approach that posits meaningful questions that prompt higher-order cognitive processing by the group" (Hull & Saxon, 2009, p. 637). Intervening too early can cut off the critical processing of students by giving them the answer before they are able to think through it themselves, and waiting too long can mean the moment for learning and further critical thinking and application of the content has passed.

Online involvement and outcomes can be mediated by students' perceptions of the availability of and connectedness with their educational institution (Shin & Chan, 2004). Thus the support provided by the institution and faculty is critical in encouraging students to become involved and increase the interaction they have in the courses. Also, faculty support is related to this involvement and interaction in online discussions because faculty members play an essential role in facilitating and encouraging participation in online discussions. It is beneficial for all these areas to come together to provide the student with additional and encompassing support. Not only are the interactions themselves important, but the quality and quantity of interaction with the instructor and peers are important for cultivating self-rated student satisfaction (Yukselturk & Yildirim, 2008). To increase student satisfaction, Yukselturk and Yildirim (2008) suggest facilitating interaction among students through well-structured activities and guidance from the instructor throughout them. Effective support throughout the

discussions in this manner will help the student feel supported by the faculty and better understand the content, as well as increase their feelings of connectedness with other students through these activities.

While online courses often require students to be more proactive than a traditional classroom, the instructor's role in online discussions is equally important. The students need to be given the opportunity to develop relationships within the online course and while they may expect to work independently, with the initiation of the instructor they will learn to work collaboratively (Angelino et al., 2007). Even in online discussion forums, the instructor's input is critical in maintaining a high-level discussion and ensuring that concepts are correctly interpreted and applied. Lambropolous et al. (2012) reinforce the importance of the leader's role in facilitating and supporting students toward effective engagement in online classroom discussions. Encouragement and leadership from faculty is imperative in creating a comfortable classroom discussion wherein students feel free to share and question ideas. Lambropoulos et al.'s work demonstrates that social awareness, as measured by social network analysis and survey, may be present, but is more prevalent when it is encouraged by the facilitator or instructor.

Engagement is important to learning and to achieving success and requires effective interaction between students, faculty, content, and the institution, but it may not produce the anticipated results if the quality of the interaction is lacking. If interaction is poor quality, a sense of community in the classroom may not develop. Discussions in online courses can contribute to creating more interaction and thus better engaging students in this type of course offering. Effective interaction, engagement, and

community in an online course does not come easily; it must be intentionally structured into the course, involve requirements for the students, and be facilitated by the instructor. For example, the practical applicability of course material and discussions is key to a commitment to success and understanding the content in the course, especially in nontraditional learners (Kenner & Weinerman, 2011).

Faculty members play an important role in this quality of interaction, with many studies showing the need for faculty facilitation to create meaningful discussions. Some strategies faculty can use in facilitating online discussions include motivating participation, maintaining social presence, asking probing questions, dealing with domineering behaviors, encouraging equitable communication, attending sensitively to demographic differences, and providing closure in discussions (Ming & Baumer, 2011). All of these behaviors are typical in a traditional classroom, and are likely to be just as beneficial in online discussions, although potentially more difficult to maintain due to the asynchronous nature and need to check in throughout the time of the discussion. The length of single posts by instructors was not related to higher quality discussions; however, the frequency and timing of instructor post were related in this research at an online, for-profit, higher education setting (Ming & Baumer, 2011). This finding demonstrates the importance of checking in throughout the discussion in order to keep students on track and provide feedback at relevant times. To further corroborate the importance of faculty facilitation, in a study using fully online, higher education courses Nandi et al. (2012) found students depend highly on instructor feedback in a study looking at quality of interaction in online discussions.

Additional research is required regarding how to build community in online courses for nontraditional students who are participating in higher education for different reasons and desirous of a different experience than traditional students (Carnoy et al., 2012). Starting the course with common ground can encourage more discussion and ultimately community through this sense of belonging that is fostered through a common identity (Dennen & Wieland, 2007; Guldberg & Pilkington, 2006). Additionally, the quality of original postings can influence the subsequent discussion and interaction, with a low quality original post leading to far less interaction and resolution (Ioannou et al., 2014). For example, in many online courses there are often introduction posts at the beginning of a course so students can start to get to know one another, wherein some common ground can be encouraged to hopefully lead to more feelings of community. According to Garrison, Anderson, and Archer (2010) the difference in asynchronous online discussions as opposed to face-to-face discussions must be considered in measuring the aspects of a meaningful educational experience. Thus, using these ideas related to how to begin discussions can encourage social integration and the creation of community in nontraditional students online. The CoI framework used in the current research has been developed in the context of computer conferencing (Garrison, Anderson, & Archer, 2010); therefore it is a good candidate for the application of the ideas above with nontraditional students.

Creating community around the course content is an important component of this research. The CoI theory aligns with the topics reviewed here, including the need for teaching presence, the importance of some social interaction, and cognitive presence,

which is most closely related to learning and critical thinking. Typically, nontraditional students are attending school for specific reasons, not because they just graduated from high school and their parents expect it, but rather, to further their careers or quickly gain a credential. Many of them are working adults and/or have significant experiences in the work world and thus are capable of contributing to discussions and collaborative learning in the classroom. In addition, according to the theory of andragogy by Knowles (1978), adults want to be able to see how they can apply their classroom learning to the real world so they can begin using knowledge gained in the classroom immediately. This is where the efficacy of online discussions is demonstrated for all learners, and is reviewed specifically in nontraditional learners in this research, because according to recent data, enrollment in higher education continues to grow for all age groups and enrollment in online learning continues to grow (Snyder, de Brey, & Dillow, 2016).

Adult Learning Theory

The important role of faculty in facilitating effective online discussions for nontraditional students leads to the next underlying theory in this research. Andragogy as a term has been around for nearly two hundred years; however, Malcolm Knowles popularized it in the United States more recently. Andragogy is a theory that is in contrast to pedagogy and attempts to explain "the how" behind adult learning (Knowles, 1978). Pedagogy, on the other hand, is "the art and science of leading children" (Knowles, 1978, p. 10). There are a few key assumptions Knowles (1978) takes from the literature in relation to the foundation of andragogy: 1) adults are motivated to learn, 2) adult learning is life-centered, 3) experience is the primary resource for adult learning, 4) adults need to

be self-directing, and 5) individual differences must be taken into consideration in adult learning. Each of these points can be further explained by relating them to both nontraditional students and online discussions.

First, adults are motivated to learn (Knowles, 1978), which demonstrates the different place in life adults are as opposed to children. Some reasons adults return to higher education include gaining a credential for a particular career or taking a course to gain specific content knowledge (Carnoy et al., 2012). These motivating factors are different from children learning and being required to attend primary and secondary school. This requirement for children does not necessarily mean they are not motivated to learn at all, but the sources for this motivation do originate from slightly different places. In addition, adults generally have many other responsibilities in their lives that children do not have contending for their time. Therefore, adult motivation and legitimate reason for learning must be clear or it will be less likely to be a priority among their multiple responsibilities.

The second assumption in andragogy is that adult learning is life-centered (Knowles, 1978). This idea surfaced repeatedly in the literature (e.g., Kenner & Weinerman, 2011), that is, the curriculum for nontraditional learners must meet them where they are and take into consideration student background characteristics. Adult learners have to be able to apply what they are learning to their lives, whether it is their current career, previous job, or family life. This application allows adult learners to understand why they are learning something and see the immediate applicability of it, thereby demonstrating its worth in taking their time. This need for application can also

mean allowing some negotiation and individualization for course requirements to give nontraditional learners the flexibility they require and which represents a primary reason they have enrolled in the online course. Both of these reasons, applicability and individualization, are related to the two subsequent points in andragogy.

Next is the assumption that experience is the best resource for adult learning (Knowles, 1978). This assumption is relation to the second point in adult learning theory, which argues that it must meet students where they are and develop applicable curriculum they can relate to their personal experiences. Adults returning to higher education after some interval are older than traditional college age students and therefore have more life experience to relate to their learning and to share with others in order help others learn, which relates to both constructivism and capital. Constructivism requires that learners work together to build new knowledge and understanding of the course content, with the wealth of experience adult learners bring to the table, discussing different views and ways to apply the content to different experiences can help all students in the courses better understand the material. Additionally, in relation to capital, students who come to higher education with more capital have a different experience than those who have less capital. For example, continuing generation students have more capital in relation to the higher education landscape than first generation students, therefore their experiences brought to the course will be different. The curriculum for discussions in online courses can be developed to include content and prompts that allow students to use their lives and personal experiences to relate to the question and demonstrate to others where they are coming from, thereby allowing all students to gain a

broader understanding of others and how the content can be applied.

Fourth, adults need to be self-directing (Knowles, 1978). This aspect of andragogy is also related to the second point regarding individualized learning. As Rossman (2000) points out, individually designed course projects can be created by the instructor and student to adequately reflect both the course content and individual interests and needs. This individualization allows adult learners to fully apply course content to their lives, potentially be able to use some of the work in their career or personal life, and have some input in their education. This is a critical point as the relationship between the adult learner and the instructor is sometimes quite different from the traditional student. Lindeman states adult education is "a cooperative venture in non-authoritarian, informal learning, the chief purpose of which is to discover the meaning of experience" (in Knowles, 1978, p. 11). Thereby explicating the need for adult learners and instructors to work together and construct knowledge from the content through shared experiences and experiences brought to the course from their personal lives.

Finally, individual differences must be taken into consideration in adult learning (Knowles, 1978). This point reiterates the ideas above which include meeting the learners where they are and allowing for personal experiences to contribute to the learning in the course. Again, this aspect of andragogy can be tied to the theory of capital and understanding that students bring diverse experiences into the classroom. Specifically in online courses and discussions, students with more capital are likely to have a better understanding of and more access to the technology needed to be successful in these courses. Therefore it is critical to provide support for students who may be coming into

the course with less capital and less understanding of the technical skills required to be successful.

Gaps in Literature

In reviewing the literature surrounding success in online courses for nontraditional students, it is clear there are many factors that must be taken into consideration when focusing on this area. As there has not been a simple answer to success in traditional classrooms, there is not a simple answer to success in online classrooms. However, the extant literature is narrowing in on relevant factors and specific methods institutions and faculty can integrate into their curriculum in order to increase community and engagement in online courses. Over the past several years, there has been an increase in research related to online learning, but there is a lack of focus on completely online students, rather looking more at campus-based students who are taking an online course. It has been shown in this literature review that nontraditional students possess many of the factors that can impede success in online courses, such as juggling multiple responsibilities, technical difficulties, and feelings of isolation. Consequently, it is imperative to extend research on nontraditional students, including a focus on fully online students. In the current research this entails using sections of courses wherein at least 80% of the students enrolled were only taking online courses during the term from which the data were gathered, and all students in the course sections had taken at least 50% of their previous courses online. With this online focus, support is an important factor, both institutional and faculty support as well as external, familial support (Ekstrand, 2013; Ludwig-Hardman & Dunlap, 2003). While external support cannot

necessarily be changed, institutions and faculty can continue to look for additional ways nontraditional, online students can be supported more effectively internally.

Further, there has been a wealth of research on background characteristics and institutional support measures for online students, primarily focused on nontraditional students, which makes sense because these students often have less support or capital and are often first generation students. The next step is to see how support can be integrated at the course and instructor level, specifically in relation to asynchronous online discussions and how interaction and engagement is enacted in this environment. Additionally, using adult learning theory as a frame for how to further understand student interaction, engagement, and success, one can attempt to learn how tailoring discussions to online students through andragogy techniques can help. Therefore, the gap related to this area focuses not only on nontraditional students in online courses, but fully online students, who are likely to be a slightly different population even from those nontraditional students who are in both types of courses. This research will focus on a for-profit institution with undergraduate level students. In addition, the literature review did not reveal any research in relation to differences across grade or course levels (i.e., freshman versus sophomore or lower versus upper level courses), which is a substantial gap in the literature because students who are at a higher course level may have figured out a way to be successful and continue on in their studies. Therefore the primary focus of this research will relate to possible differences across course levels in online courses.

Another gap in the literature that would be helpful to address is closely related to the first, wherein the focus is on fully online, nontraditional students as opposed to

students, traditional or nontraditional, who are taking both on campus and online courses. There has been research completed in relation to interaction in online courses to some extent, trying to determine what types of questions in discussions lead to greater interaction, how much faculty interaction is important, different aspects of critical thinking and how to create it, among others. Therefore, the importance of interaction itself is well-established in online courses, but there is a current focus in this literature to determine how interaction can lead to deeper engagement, critical thinking, and, ultimately, learning. So again, an important aspect of what additional research could be done is investigating participation and development of community across course levels and comparing how different levels of participation in discussions is potentially related to success based on varying course levels. This particular gap is closely related to the theories discussed above, as the constructivist framework is critical in considering the interaction in courses, which leads to the importance of capital and what students bring with them to the course as far as interpretation of the world and understandings of academic communication. This can also be related to the nontraditional student experience through the additional comfort level allowed in online courses due to the inherent anonymity and ability to think through discussions before actually responding. For these reasons, online courses and discussions may be more beneficial for some populations, which is another reason for the importance of continuing to learn more about how to support student success in them.

Overall, the gaps in this literature and the projects that could potentially help address them relate to online and nontraditional students and differences across course

levels. By looking at this population of students and determining differences between students who have continued on to higher course levels, we can continue to understand the bigger picture of interaction and success in higher education for these students. Since discussions in online courses are a critical part of the curriculum and help fulfill the need for participation and interaction in constructing new knowledge with classmates and learning the content, there is a clear need to continue learning how they can be best implemented. All of these ideas are developed under the larger frame of better understanding what promotes success for nontraditional students in online courses, and potentially the acquisition of an academic credential.

Chapter 3: Methodology

This chapter outlines the methodology used in the study, explains the design of the study, methods, research instrument, and details how the data were accessed and collected. Given the gaps in research regarding nontraditional, online students and potential differences across course levels in discussion participation, this study will examine the relationships between types of participation in online discussion forums where participants are nontraditional, online students at a specific for-profit, higher education institution. The research questions are grounded in the principles of social learning theory and how it manifests in nontraditional students. The focus on this population pertains to the theories of capital and andragogy, since many nontraditional students come to higher education as adult learners and with less capital.

The research questions are as follows:

- Does the nature of nontraditional student participation in asynchronous online discussions differ between levels of courses?
- Do cognitive, social, and teaching presence vary between course levels?
- Do cognitive, social, and teaching presence vary between levels of post?

Research Site

Data were collected from a for-profit institution that offers primarily online programs and courses and serves primarily nontraditional students. It is important at this juncture to locate the researcher within the study and address any potential biases that may arise. The researcher's interest in online learning derives from her experience of employment at an online institution, as well as her personal experience as an online (and

distance education) learner in higher education. Both of these experiences give her a unique perspective and understanding of what online students experience, but also may have led to certain biases due to her close involvement at this particular institution. It was critical to be mindful of these factors during data collection and analysis in order to ensure the most objective interpretation possible. This study focused on one institution, belonging to a particular category of higher education institution, so the analysis and interpretation will be primarily useful for this institution or ones very similar. While it could lead to the demonstration of a need for further research in this area in other institutions, the researcher was mindful in the analysis and interpretation phases to avoid overgeneralization of her findings to other institutions.

The University. A detailed description of the university from which the data in this research were obtained is necessary, and will hereafter be referred to as "The University". It falls in the category of a for-profit institution, offering Associate's, Bachelor's, and selected graduate programs, focused on business, information technology, accounting, allied health, paralegal, and criminal justice. The University has been offering programs in the online learning format since 1998, with over half of its enrollments consisting of online courses, but also offering campus-based courses and some blended learning courses. The institution has 37 campuses across 11 states, and serves approximately 9,500 students. Since 1985, The University has been accredited by the Higher Learning Commission (HLC), a regional institutional accrediting body, in addition to numerous program specific accreditations.

The primary student audience of The University is the adult learner who has a

goal to advance their education for personal and career-related goals; therefore, most students are working adults and/or nontraditional students, the average age of which is approximately 36 years. Of the total enrollment, 62.3% are enrolled in online courses, 22.9% are enrolled in campus-based courses, and 14.8% are enrolled in blended courses. To further demonstrate how The University's enrollment is distributed, 91.1% of the student population is enrolled in undergraduate degrees or diplomas, 2.7% in graduate degrees, 0.8% in the doctoral degree, and 5.5% in continuing education courses. While a large amount of demographic information is available, a synopsis of characteristics of the undergraduate student population is as follows: 43.5% are enrolled in business degrees, 49.9% are enrolled in Associate's degrees, 48.7% have a 3.0 GPA or higher, 47.3% attend three-quarter time, 56.9% are single, 67.1% are between the ages of 20 and 39, 68.9% are female, 46.3% are White and 28.4% are Black or African American, and 73.5% receive a Pell grant. The Pell grant is a federal financial aid award appropriated to students with low income. A typical profile of a student at The University is: she is enrolled in an Associate's business degree, attends three-quarter time, is single, is between 20 and 29 years old, is female, white or black/African American, and is low income. Additional detail is provided in Appendix B. The overall 6-year graduation rate at this institution for a baccalaureate degree for those students who are first-time, full-time only, according to College Navigator is 22% (National Center for Education Statistics, n.d.). Note that this percentage does not include most of The University's nontraditional population because this statistic is typically tracked for traditional undergraduates, and also does not include those campuses that have opened within the

last 5 years of geographical expansion and do not yet have graduates from a bachelor's program.

Courses at The University are offered in the quarter format, with each quarter approximately 11 weeks in length with four quarters in the calendar year. There is also an interim start date each quarter for new students, which begins approximately four weeks after the regular start and finishes at the same time as the regular quarter. This interim start date allows for additional students to enroll in courses, with four more opportunities throughout the year to enroll. Courses are typically set up with weekly learning plans, of which there are typically 11 throughout the quarter; students must complete homework assignments each week and complete the entire course by the end of the quarter. Average class size is usually between 10 and 20 depending on the program, but many of the online courses have a larger class size (i.e., around 25 students).

Faculty are an integral part of any higher education institution; The University currently employs approximately 70 full-time and 670 part-time faculty members, 75% of whom hold a Master's degree in their field and 18% of whom hold a doctoral degree or first professional degree. Many of the adjunct faculty members maintain careers in their degree fields, allowing them to bring practical experience into the classroom. Faculty members are trained, evaluated, and recognized at the campus level. They complete an online orientation consisting of four modules that each consist of about a two page overview, plus several additional resources to review, addressing The University's mission and values, learning concepts and theories, good teaching practices, and classroom management, among other topics. Each of these modules takes an estimated

thirty minutes to an hour, plus there is an extensive faculty handbook to review that is over 100 pages in length. Subsequently, they participate in faculty development webinars, and quarterly teaching appraisals. Through their chosen careers, many faculty members also participate in professional associations and activities at the local, regional, and state level.

The faculty orientation is designed for both online and campus-based instructors. Online faculty members are provided a course shell with a schedule, syllabus, course materials, and discussions ready-made for each course they teach. While they are able to add additional relevant materials for students, they may not exercise much discretion over the basic curriculum and weekly requirements in the online classroom. The master syllabus with the course description and objectives, plus the detailed syllabus with weekly assignments included are posted in the course. The courses are laid out in an 11 week format, most commonly with an assignment and a discussion due each week, plus a midterm and final exam. These are supplemented with readings from the textbook and additional articles, online materials, videos, etc. Discussion boards include a prompt based on the weekly readings; students are typically required to post a substantial initial post and respond to at least two other students. The prompts are included in the prepared curriculum, but the faculty member can add information if they choose. Often there are weekly announcements posted by the instructor at the beginning of the week to explain the week's activities and learning objectives. Avenues for interaction include discussion forums, course email, announcement forum on course home page, chat function, instructor office hours, and live video conferencing. Instructors are required to hold office

hours weekly, some provide a phone number (although this is not required), and they have control over holding video-conference office hours, meetings, or review sessions. There are no required synchronous meetings scheduled during these courses, which maintains a high level of flexibility for students; however, the capability is available.

In comparison, in campus-based courses, the faculty role is more traditional. Faculty are given the master syllabus that includes learning objectives and guidance on building a syllabus, and are able to create the course readings, assignments, discussions, etc. from that information. Campus-based faculty have more input related to how the course is taught, as long as learning objectives are met. In contrast to online faculty, campus-based faculty create their own detailed syllabi and assignments, but online faculty members have the opportunity to add multimedia and resources to the course content. There are multiple resources available in the orientation that explain the performance based curriculum philosophy at The University, provide strategies for active learning, and offer grading guidelines, among many other dimensions of course practices.

Design of Study

Description. The design of the study is to categorize discussion posts based on Garrison et al.'s (2000) Community of Inquiry (CoI) framework and then to use these categories to quantitatively analyze potential differences across course levels and post types. To explore the first research question, *Does the nature of nontraditional student participation in asynchronous online discussions differ between levels of courses?*, both a one-way ANOVA and linear regression will be conducted. A one-way ANOVA is used to determine if there are differences between the means of two or more groups; therefore,

this ANOVA will be used to analyze the overall difference in each type of presence across course levels. An ANOVA will be conducted for total amount of cognitive presence found in each course level, total amount of social presence found in each course level, and total amount of teaching presence found in each course level. Next, a linear regression will be conducted to determine how the types of presence are related and if there are any predictable relationships among them. Linear regression is intended to assess the linear relationship between two continuous variables; therefore, it is an appropriate tool to be used to look at the relationships between the different types of presence. This type of analysis helps determine how much variation in the dependent variable is explained by the independent variable and understand the magnitude and direction of a relationship. For example, it will indicate if teaching presence has an influence on cognitive presence, and how much of the variation in cognitive presence can be explained by teaching presence. This analysis will help determine how the types of presence interplay with one another and how the presence of one influences the presence of another, thereby helping to explain how students are interacting in this environment. The relationships will be explored based on previous findings, namely, that teaching presence influences cognitive presence and social presence, and social presence influences cognitive presence; and the potentially mediating influence of social presence between teaching presence and cognitive presence (Garrison, Anderson, & Archer, 2010).

Last, the analysis will focus on the specific categories of each type of presence and how they vary. The chi square statistic is used to determine whether two categorical variables are associated; therefore, several of these will be conducted to answer the next

two research questions. First, *Do cognitive, social, and teaching presence vary between course levels?*, and second, *Do cognitive, social, and teaching presence vary between levels of post?* The first set of chi square tests will look at the associations between category of cognitive presence and course level, category of social presence and course level, and category of teaching presence and course level. The second set of chi square tests will look at the association between category of cognitive presence and post type, category of social presence and post type, and category of teaching presence and post type. This will further elucidate the findings in the higher level analyses based on overall level of presence by examining how the categories within each type of presence are different across course level and post type.

The existing framework used in this research is Garrison et al.'s (2000) Community of Inquiry, including analysis of all three types of presence. The CoI was developed to provide a framework to analyze online communication using three types of presence and how their interplay creates an effective educational experience (Garrison et al., 2000). There are multiple reasons for applying this framework to this research project. First, the extension to a different population in this study helps to better understand how the framework applies to nontraditional and online students, which is beneficial in learning more about this population and how to apply AODs in a different sector of higher education (i.e., for profit, online institutions). This focus on a specific setting allows the inclusion of more units of analysis than many of the studies reviewed, rather than using fewer units from different settings. Larger sample sizes provide more reliability in a study, and will give the researcher more examples of student responses

from which to help draw conclusions. Second, research shows all three categories of presence are correlated, and social and teaching presence have been found to be predictors of cognitive presence (Archibald, 2010; Garrison, Cleveland-Innes, & Fung, 2010). While they may be predictors, an important aspect of the CoI is how the three types of presence work together to create a community and an educational experience, therefore, using the framework in its entirety will allow for a more complete picture. This research should develop a more thorough understanding of how students in this environment are participating in asynchronous online discussions and whether this differs across course levels. The research does this by conducting quantitative analyses based on both course level and post type, analyzing each type of presence based on course level, then analyzing each type of presence based on post type.

Lastly, it is important to note the direction of research on CoI has more recently turned toward quantitative, inferential constructs, such as creating surveys to measure whether and to what extent the categories of presence are being experienced in online discussion forums (Arbaugh, Cleveland-Innes, Diaz, Garrison, Ice, Richardson, & Swan, 2008; Archibald, 2010; Garrison, Cleveland-Innes, & Fung, 2010). However, the current research extends the existing literature through the combination of the analysis across course levels and the focus on a different population than has been previously studied. Using a framework of this type allows comparisons across the specific categories of presence and across course levels, in addition to how they work together to create a community. The quantitative analyses conducted look at comparisons across the categories of cognitive, social, and teaching presence in the AODs to learn more about

how each is distributed in this population and level of course.

Sampling strategy. The sample consists of four different courses, with two sections from each course level used, and multiple discussions within all sections to create a robust collection of online discussions and to enlarge the sample size of discussion posts. Historical data were used from archived online discussions during fall quarter 2014 from four different courses and two sections of each course, with each course being taken subsequent to one another. There were a few reasons for using data from fall quarter 2014. First, it is a completed course, therefore the data were ready to be collected and there were no additional posts added at any point. Also, fall quarter is the beginning of the academic year, which historically has produced the highest level of participation in courses; it is the time of year with the highest enrollment numbers and lowest drop rates during the quarter. By using four courses from the same quarter, the researcher could be certain that the same student will be in only one of these four courses because unless the student had transfer credit and was able to take more than one course at the same time, he or she would only be eligible for one of the four courses. In this participant sample, there were no students who were enrolled in more than one of these four courses, so there was no overlap in data. This lack of overlap allowed an analysis of different level courses and presumably students who are at different academic levels and therefore would potentially have different levels of presence in the CoI framework. Discussion data were collected from the following four undergraduate courses (course descriptions retrieved from The University online catalog), each of which is worth 4.5 credits and therefore has a similar workload.

- CS1600 Pathways to Academic and Professional Success-This course is designed to enhance the university learning experience and prepare students for academic, personal, and professional success. In addition to analyzing various models of thinking and self-reflection, participants will explore learning skills and college success tools.
- MT2050 Principles of Management-This course introduces students to the field of management and emphasizes the knowledge and skills used by successful managers. Throughout the course, students will demonstrate specific knowledge and skills in the areas of management, history, decision-making, communication, planning, organizing, staffing, directing, controlling, and business ethics.
- MT3000 International Business-This course covers the scope of international business and the dimensions of multi-national enterprises. The student studies exporting and marketing in foreign business environments.
- MT4450 Strategic Management-This course provides practical training for the senior-level business student to develop an understanding and knowledge of strategic management as a tool for long-term business success. The course will develop skills in analyzing the various functions and contributions of the organization's component parts, and how they may be used in making strategic decisions. Students will create strategy by means of written case analyses.

Since the focus of this research is specifically on online students, sections were chosen that contain the largest proportion of students who are primarily online students. While there is an online division of this institution, students can be registered in any

section of an online course, so students who usually take campus-based courses could be taking an online course with completely online students. Therefore, the course sections used in the research were chosen to avoid students who were enrolled in one online course and the rest campus-based, or students who were taking their first online course in the term from which the data were collected. The reason for this strategy was to obtain a sample that is primarily online students. Course sections were sought out which had at least 80% of students who were only in online courses for that particular term, and had taken at least 50% of their courses online historically. It was important to ensure the sample in this research included primarily online students to best answer the research questions posed. The first step of sampling entailed obtaining a dataset on all students in online courses from fall quarter 2014, which was then narrowed down to determine which individual sections of the above courses were used.

The dataset included a large amount of information, including demographic data. The relevant pieces for course section sampling are the percent of fall 2014 courses a student took online and overall percentage of total courses a student has taken online. Using this data, sections were sorted out that contained the largest percentage of students enrolled in all online courses for fall quarter 2014, and then narrowed down to sections from fall quarter that contained students who have taken most or all of their previous courses online. A course was considered for inclusion in the analysis if it contained at least 80% of students who were only enrolled in online courses for fall quarter. Additionally, sections were included in the analysis that contained the largest percentage of students who had taken more than 50% of their previous courses online. Table 1

details the percentages of students for each section that had only online courses for fall 2014, and the percentage of students in each section who had taken more than 50% of their previous courses online. All sections used in this research had more than 80% of its enrolled students taking only online courses for fall quarter, and a majority of students in all sections had taken more than 50% of their previous courses online. Both of these sampling procedures helped obtain a sample of students who were primarily online students.

Table 1

Course Sampling Procedure-Percentages of Online Students in Course Sections

Course Section	n	% Fall 2014 Online	% Overall Online >50%
CS1600	25	100%	100%
CS1600	23	100%	100%
MT2050	25	96%	96%
MT2050	29	93%	97%
MT3000	24	83%	71%
MT3000	24	83%	88%
MT4450	27	100%	67%
MT4450	23	96%	91%

The sample for the analysis was derived from the sections discovered in the culling of data above from all students enrolled in fall quarter 2014. Once the courses were narrowed down to two sections of each course, discussions from weeks two through ten were used, excluding weeks one and eleven because they are usually introductory and course wrap-up, respectively. This exclusion allowed a focus on discussions that are

based on course content and how community is developed through learning discourse, rather than including a thorough analysis of introductions and discussion regarding course processes and requirements. Weekly discussion questions and responses are a graded requirement in each of these courses; with a typical class size of 25 and two responses required to others' posts, there could potentially be at least 75 units of analysis per discussion. Based on the pilot testing of several discussions it was found that there were on average 30-35 responses per weekly discussion. This initial pilot analysis led to the decision to use two sections of each of the four course levels, which would have led to approximately 2,160 total units of analysis. In actuality, there were far more units of analysis per discussion: on average there were 471 units of analysis per course, for an average of 59 units of analysis per discussion. This led to a total of 4,243 units of analysis for the entire project. See Appendix C for a graphical representation of this breakdown.

Limitations of Data. There were restrictions placed on the data provided by The University that affected how the analysis was conducted. The data of all students from fall 2014 was provided to the researcher in a completely de-identified excel spreadsheet. Additionally, the text documents with the discussion boards provided to the researcher were also completely de-identified. These data allowed the researcher to have detailed demographic characteristics for the specific sample, but no way to link the demographic characteristics to a particular post in the discussion board. Therefore, it was not possible to conduct analyses based on demographic characteristics. If the data had not been completely de-identified, it would have been possible to conduct analyses of students from a particular category (e.g., women, African-American) and look at what their

specific patterns of presence were in the discussion forums. Additionally, the threaded discussions were de-identified in a manner that only grouped discussions based on the main thread. It was not possible to determine if a different student was responding, the student who posted the main post was responding, or the instructor was responding. This lack of distinction limited the analysis in such a way that it was not possible to categorize based on three levels as originally planned (main post, required responses, and additional responses).

Research Instrument

This research used a previously established framework to categorize responses in asynchronous online discussions. The framework developed by Garrison et al. (2000), detailed in Chapter 2, theorizes there are three types of presence displayed in AODs: social, teaching, and cognitive presence. Each of these types of presence incorporates different categories, included in Table 2, which have been detailed in the theory section.

Table 2

Types of Presence and Corresponding Phases in Garrison et al.'s (2006) Community of Inquiry

Elements	Categories	Indicators (examples only)
Cognitive Presence	Triggering event	Sense of puzzlement
	Exploration	Information exchange
	Integration	Connecting ideas
	Resolution	Apply new ideas
Social Presence	Affective	Expressing emotions
	Open communication	Risk-free expression
	Group cohesion	Encouraging collaboration
Teaching Presence	Design and organization	Setting curriculum and methods
	Facilitating discourse	Sharing person meaning
	Direct instruction	Focusing discussion

In this research, each unit of analysis was coded for each type of presence at the category level, which Garrison, Cleveland-Innes, Koole, and Kappelman (2006) used to ameliorate reliability challenges. Murphy and Ciszewska-Carr (2005) found that coding at the indicator level often leads to poor reliability. This framework has been chosen based on its ability to categorize student responses based on how the types of presence are demonstrated in the classroom. This framework was judged appropriate for this set of research questions because it was developed based on asynchronous online discussions and directed at the need to better understand how discussions are actually being used, how they can be better implemented, and how they are related to community and engagement in the classroom. An additional benefit of this research is to further test this framework and whether these categories are useful and related to interaction in a previously unstudied population of students in this sector of higher education institutions.

The CoI framework was chosen as the instrument for this research after a thorough review of literature around asynchronous online discussions. It is the most prevalent theory used in this type of research, in addition to being based on a sound theoretical background. This strong theory is critical in order to build valid research surrounding the framework (Garrison & Arbaugh, 2007). Content analysis and the coding procedure are somewhat subjective methods, but if they are built on strong theory and the coding scheme is straightforward, it should lead to stronger results. Additionally, the CoI coding framework has been demonstrated to have an acceptable level of interrater reliability in previous studies (e.g., Aykol, Garrison, & Ozden, 2009; Garrison et al., 2001; Gorsky, Caspi, Blau, Vine, & Billet, 2012). This is an especially important feature

in this research as the coding and analysis was conducted primarily by a single researcher.

CoI Categorization

To investigate the differences in discussion participation, a detailed analysis was conducted of a variety of asynchronous online discussions. As described above in the sampling section, multiple discussions were used within each course and the analysis was conducted on multiple levels. All posts were categorized according to the framework, maintaining a focus on assigning categories in a consistent manner across the variables used in the analysis (i.e., post type and course level). This multi-level coding provides a picture of how students are participating across level of response, and if types of presence vary across these levels. There were 72 full discussion forums to analyze, with an average of 59 units of analysis in each. Each unit of analysis was independently analyzed for evidence of cognitive, social, and teaching presence. This data were organized and stored in an excel document for analysis.

Data Collection Procedures

Data were collected via the course management system and student management system at The University. After approval by the IRB at The University, access was granted to the data, which were attained in multiple phases. First, the information technology department at The University collected a full dataset for students from fall 2014, including specific descriptive statistics required for this research. These data includes, by student and course: program description, gender, marital status, race/ethnicity, age, term, section, course code, course name, grade, credits, course

delivery method, percent of fall 2014 courses taken online, Pell grant status, and overall percentage of courses a student has taken online. The information collected was presented to and approved by the IRB committee at The University, retrieved from the student management system by the IT department, then handed over to the researcher in an excel spreadsheet. This dataset did not include any identifying information that would allow the researcher to link the data to a particular individual.

In the next phase of data collection, the sections identified in the sampling strategy for collection of discussion forum transcripts were used to request specific discussion boards from The University. Again, in conjunction with the IT department at The University, the full discussion boards from the eight course sections were retrieved and given to the researcher in text files. These electronic documents for each full discussion forum were organized by section to be analyzed. There was one document for each discussion; one for CS1600, section 1, discussion 2; CS1600, section 1, discussion 3; etc., totaling 72 documents, each containing one full discussion for the analysis. For the first 25% of the discussions, a research assistant was hired and trained on coding with the CoI framework in order to obtain an acceptable level of reliability for this content analysis. A Research Assistant Agreement was produced and signed by both parties (see agreement in Appendix E). The coding protocol training involved three phases: background, training, and trial coding. First, during the background phase, the Research Assistant was given the Garrison et al. (2000) article and coding chart to read and review on her own. Next, during training, the article and coding chart were reviewed together, and a pilot discussion was used to practice coding together. Each post was read

individually, reviewed for cognitive, social, and teaching presence, while noting key phrases that led to the decision for the particular codes. This notation was completed to help the coders align their thought processes and decision-making. In the trial phase, both coders went through the coding process separately, and then conducted a negotiated coding session to further coordinate the assignment of presence categories.

The researcher and assistant completed the analysis for 18 discussion forums, using a cross section of discussions from different courses in order to establish at least a 75% agreement rate using all course levels. While there is not an overarching agreed upon minimum percentage for inter-rater reliability, various propositions remain around 75%. The 18 discussions coded by two coders were the following: discussions 2, 3, and 4 from both sections of CS1600, and discussions 2 and 3 from both sections of MT2050, MT3000, and MT4450. An overall agreement rate of 76% was achieved on all codes from this first section. For the codes that were not originally agreed upon, negotiated coding was conducted to come to a consensus for all codes, leading to attaining codes to be used in the analysis for each unit of analysis. Meeting this minimum agreement rate allowed the researcher to complete the coding for the 54 remaining discussions individually, but argue that the coding results would be consistent with other hypothetical raters, based on the agreement with the research assistant who coded the first section of coding.

The categorization was conducted by coding each unit of analysis (i.e., discussion post) for cognitive, social, and teaching presence, yielding three codes for each unit of analysis. Only one code for each type of presence was assigned to each discussion post.

This coding was done by hand on printed discussion forums by both coders for the first 25% of the coding and subsequently transferred into an excel spreadsheet by the researcher. These spreadsheets were used to compare the researcher and assistant's categories and determine the agreement rate between the two. The negotiated coding was also done in person and on the printed discussions, and subsequently transferred into the excel spreadsheet. The remaining coding done solely by the researcher was all completed electronically by converting the text documents into PDF files, reading, coding, and editing in electronic format, emailing the annotations, and copying/pasting into the excel spreadsheet. These were edited and organized by type of post, and type of presence, in order to get totals for each category for each discussion. Finally, all coding elements were tabulated and condensed into one spreadsheet containing all the data, summing within each discussion, section, and course, along with summations based on post type.

There were several areas noted during the coding to be mindful of in assigning codes throughout the rest of the analysis, especially during the first phase with the research assistant. Regarding cognitive presence codes, the most difficulty arose between the categories of exploration and integration. A general rule was that if a statement is made in the discussion post, but one could ask "why" or "how", it was more likely exploration. For integration more explanation of statements was required. Additionally, for integration, if an outside source was included, some explanation of it was necessary. Simply listing a reference at the bottom of the post did not automatically signify integration. There was a lot of reiteration in response posts in all sections, which was labeled as exploration; students were clearly thinking about the content in this case, but

cannot be considered integration unless the idea or thought is expanded upon. Similarly, in response posts, no cognitive presence was assigned to those posts that simply stated "great post" or "I agree". As noted above, one could ask "why" or "how" to these responses.

The categories of social presence were the easiest to differentiate. The only aspect to note here is there is often a fine line between self-disclosure and general statements. For coding purposes, it was considered a general statement and labeled as no social presence if it could apply to anyone. For example, "get good grades and receive my degree", "start my own business", or "control my diet and eat healthy". An example of self-disclosure would be, "I want to control my diet by eating less fast food just because it is convenient. I want to eat healthier by planning meals for the week and involving my children in their preparation."

There were also some discrepancies for teaching presence that allowed the researcher to clarify how to assign codes. The most notable disparity in codes was between facilitating discourse and direct instruction. Both categories included some level of asking questions, but the way to distinguish the two was based on what the question was referring to; if the question is directed to the student about their post, it is considered facilitating discourse; however, if the question is referencing overall course content, then it is considered direct instruction. Furthermore, if a prompt required a reference, direct instruction was not assigned to a post that included an article unless there was additional explanation of the source. Similar to the inclusion of references in cognitive presence, there needs to be some demonstration of thinking or incorporating the information from

the reference to be considered direct instruction. Teaching presence codes could be applied to any post based on the tenet in social constructivism that states any more knowledgeable individual can help create learning (Vygotsky, 1980) and that teaching presence can performed by the teacher or a student in the classroom (Garrison & Arbaugh, 2007). All posts were coded the same, regardless of whether they were posted by the instructor or student. Instructor and student posts could not be differentiated throughout the coding based on the data provided by The University and the IRB stipulations.

There were also some general notes to be aware of during the coding. At times coding became difficult when there was a lot of repetition in responses because seeing them for what they were worth was a challenge. Comparing across posts was avoided; instead each post was coded on an individual basis as much as possible, referencing only the coding framework. It was also difficult after analyzing many posts to avoid second-guessing the work that was already completed. Again, the researcher focused on individual posts and referenced the framework to keep the categories clear. Finally, posts that were blank, duplicate, or only stated "attendance" were not coded.

CoI Category Examples

How discussion posts are categorized should be the same across course level and post type; what varies is the amount of each and the distribution across these variables. This section includes examples of each category in each type of presence. Interrater reliability is very low when coding at the indicator level (e.g. Garrison et al., 2006; Murphy & Ciszewska-Carr, 2005), which is why many studies, including this one, code

at the broader category level (e.g., Aykol et al., 2009; Gorsky et al., 2012). This section will provide examples of all these categories directly from the discussion boards used in the study, which will allow a review of what types of discussions constituted each of the categories. The coding framework is included in Table 3, which includes the categories for each type of presence and the indicators used to label them. The abbreviations in the first column are those used in the coding and will also be used in the examples.

Table 3

Types of Presence with Categories and Indicators

Cognitive Presence	
Categories	**Processes/Indicators**
Triggering Event (TE)	Presenting background information that culminates in a question
	Asking questions
	Messages that take discussion in a new direction
Exploration (EX)	Unsubstantiated contradiction of previous ideas
	Many different ideas/themes presented in one message
	Personal narratives/descriptions/facts (not used as evidence to support a conclusion)
	Author explicitly characterizes message as exploration
	Adds to established points but does not systematically defend/justify/develop situation
	Offers unsupported opinions
Integration (IN)	Reference to previous message followed by substantiated agreement
	Building on, adding to others' ideas
	Justified, developed, defensible, yet tentative hypothesis
	Integrating information from various sources
	Explicit characterization of message as a solution by a participant
Resolution/Application (RA)	Providing examples of how problems were solved
	Defending why a problem was solved in a specific manner

Social Presence	
Categories	**Indicators**
Affective (AF)	Expressing emotions
	Use of humor
	Self-disclosure
Open Communication (OC)	Continuing a thread
	Quoting from others' messages
	Referring explicitly to others' messages
	Asking questions
	Complimenting, expressing appreciation
	Expressing agreement
Group Cohesion (GC)	Vocatives
	Addresses or refers to the group using inclusive pronouns
	Phatics, salutations
Teaching Presence	
Categories	**Indicators**
Design & Organization (DO)	Setting curriculum (including assessment)
	Designing methods
	Establishing time parameters
	Utilizing medium effectively
	Establishing netiquette
	Making macro-level comments about course content
Facilitating Discourse (FD)	Identifying areas of agreement/disagreement
	Seeking to reach consensus
	Encouraging, acknowledging, or reinforcing student contributions
	Setting climate for learning
	Drawing in participants, prompting discussion
	Assessing the efficacy of the process
Direct Instruction (DI)	Present content/questions
	Focus the discussion on specific issues
	Summarize the discussion
	Confirm understanding through assessment & explanatory feedback
	Diagnose misconceptions
	Inject knowledge from diverse sources e.g., textbook, articles, internet, personal experiences (includes pointers to resources)
	Responding to technical concerns

Following are examples from each category within each type of presence. They are laid out in the following order: cognitive presence-N/A (indicating no cognitive presence in the post), triggering event, exploration, integration, and resolution/application; social presence-N/A, affective, open communication, and group cohesion; teaching presence-N/A, design and organization, facilitating discourse, and direct instruction. Prior to each quote there is a brief explanation of why that post was assigned that particular category, with key passages in the discussion post underlined for the particular category being demonstrated. The codes for all three types of presence will be listed as a reference; however, the focus is on the particular category for that section. Likewise, the course level and post type will be included, but the assignation of the category should not vary across these variables. Thus, the following information will also be included as a reference: cognitive presence category, social presence category, teaching presence category (0 indicating a lack of that type of presence), course level, and post type. At the beginning of each section of presence, the definition will be included from the theory section.

Cognitive presence. Cognitive presence (CP) is "the extent to which the participants in any particular configuration of a community of inquiry are able to construct meaning through sustained communication" (Garrison et al., 2000, p. 89). Following are examples for each category of cognitive presence, including lack of cognitive presence (NA), triggering event (TE), exploration (EX), integration (IN), and resolution/application (RA).

Lack of cognitive presence (NA). The following posts were coded NA for

cognitive presence because they lacked any question, statement, opinion, hypothesis, etc. They are just stating good work, but not including why, or a direct answer to a question.

"yess i totally agree with you" (0 OC 0 CS1600 response)

"Thanks [name] for your feedback and input :)" (0 GC FD MT2050 response)

Triggering event (TE). The following posts were coded TE because they are asking questions.

"Perfect definition from the book. What is your definition though, or how do you read it? Great post thank you" (TE OC FD MT2050 response)

"Hi [name]
I noticed that you brought up several arguments that meet the requirements of the assignment. I did not find an example of our trade with China. Do you have an example for this? Do you have any other referencesthata person may go to? [name]." (TE GC FD MT3000 response)

Exploration (EX). The following posts were coded EX for cognitive presence, the first example because it offers an unsupported opinion. With this category, if one could ask 'how?' or 'why?' in relation to a response, it typically indicated it had not moved into the next level in cognitive presence of integration.

"My review on Discover (achievement) Self Motivation is finding my resources and what I founded was Authority which was Psychology Today by Sussex Publishers. Accuracy – I looked in the information and seen that some shows it is correct and some shows it is written in their own words. Objectivity- I say yes it is offering a balanced look at the issues. Reviewing all the information it is up to dated. It was copyrighted between 1991 – 2014; so it shows that it is up to date. Watching the tutorial, I have learned so much on how discover information and it will help me along the way into my career and the rest of college. I have got all this information from my cited resource information" (EX 0 DI CS1600 main)

The following post is coded EX because it adds to established points by talking about course content in relation to another response, but it does not further develop why the author thinks the student would be able to find a company that fits them or why

she/he thinks the score may not be accurate.

> *"[name] I would imagine that if you looked a little harder you'd find a company that fits your style. Though you scored low in Culture if that's where you see yourself and feel you fit in then perhaps finding those companies that fall under those same characteristics would be better suited for you."* (EX GC 0 MT2050 response)

Integration (IN). The following discussion post was coded IN for cognitive presence. It is sometimes a difficult distinction between EX and IN, but for the latter the post must have substantiated agreement, add onto ideas, go into more explanation of the content, integrate outside sources, etc. The discussion following is categorized IN because it is integrating information, including the information from the book, their score, and giving examples of two companies that have that culture.

> *"After taking the New Manager Self-test in the text book I found that I fell under the Involvement Culture. The Involvement Culture emphasizes and internal focus on the involvement and participation of to adapt rapidly to changing needs from the environment.Also, this culture places high value on meeting the needs of employees, and the organization may be characterized by a caring family-like atmosphere. Boehringer Ingelheim, a company thatoperates under the Involvement Culture, was named as one thetop 100best companies for working mothers by Working Mother Magazine. It focuses on meeting the needs of working mothers, to include daycare and family time off. By being sensitive to these needsBoehringer Ingelheim is providing piece of mind to employeeswho will be better focused while at work. Another company that follows the Involvement Culture is Southwest Airlines. By providing a fun work environment forit's employees, by encouraging creativity, by rewarding their employeesfor their hard work and dedication Southwest Airlines hascreated a strong workforce with little turn over. They recognize that byshowing the the employees that their needs areimportant, that they matter, theemployee will put forth theirbest efforts delivering excellent customer service.I feel that in order to maintain excellent customer serviceit takes the employee and the employer to work together. In doing so, they both work towards a common goal which is the customer."* (IN 0 DI MT2050 main)

Resolution/Application (RA). The following post was coded RA for cognitive presence, which indicates there was final resolution to the discussion. The post was coded

RA because it discusses how the author got involved in a particular project, including what piqued her/his interest, how she/he solved the problem of becoming a moderator, and how it has applied to her/his education.

> *"One thing I enjoyed learning is all about eagles. I saw a news story about a live camera on an eagle next with 3 eggs that were about to hatch. I looked in that night and saw the first baby emerge from its shell and I was totally mesmerized. From that moment on I was determined to become involved in the research projects and I began by asking questions of the experts that were watching the nest too. They gave me links to articles, discussions, photography, and research papers. I read everything I could, studied every bit of information that I could find, all the while watching the nest for 2 to 4 hours every day to learn first-hand about behaviors and activities and talk to the researchers there.*
>
> *I was extremely excited, told every person I could about the experience and sharing it with them. After approximately 6 months I found I was the one answering many of the questions from new viewers, sharing links and videos, explaining behaviors. It was wonderful to be able to share my knowledge and passion with others and I became determined to become a moderator at an eagle site. A moderator is a volunteer who works a set schedule in the online viewing community to provide expertise, knowledge and maintain a professional tone at all times. It took a little over a year but finally I was asked to join the research team at a White Bellied Sea Eagle nest in Sydney, Australia and this is my fourth season with them. I think learning about raptors in general; eagles in particular awakened my interest in learning new things again. I believe that it is because of this experience that I felt it was possible to succeed in school and helped me make the decision to enroll at [school name]."* (CPRA SPAF TP0 CS1600 main)

Social presence. Social presence (SP) is "the ability of participants in a Community of Inquiry to project their personal characteristics into the community, thereby presenting themselves to the other participants as 'real people' " (Garrison et al., 2000, p. 89). Following are examples for each category of social presence, including lack of social presence (NA), affective (AF), open communication (OC), and group cohesion (GC).

Lack of social presence (NA). Each of the following posts are categorized as not

having social presence, because they are main posts and do not contain self-disclosure or emotion.

> *"Self motivation is something that you have to work on really hard is one thing you have to keep tabs on"* (EX 0 0 CS1600 main)

> *"In general, we all know that ethics deals with right or wrong of a company. Employees sign agreements upon receiving employment with a company about being ethical to other employees, management and staff of a company. Its doing the right thing and being fair to all people regardless of where they are from, to hiring someone who is qualified for a position. We all knowthis sometimes may get out of hand. The article I found was from the Sunday Times: Investigation reveals inappropriate behavior as supermarket chain scrambled to cope with falling sales.*
>
> *Basically the companys sales dropped and they reported delayed first half results. It was reported that the employees involved did it to save their jobs, and not for personal gain. This could have been a faulty oversight, or company culture that puts profits and business performance ahead of ethical behavior. The irresponsibility of the company was reporting the results, but in a delayed fashion. This gives them the opportunity to alter any revenue for the company and allows them to falsify income statements and journals. This clearly is an unethical practices for this overseas grocer. Furthermore it lead to an investigation which revealed all that was trueUnethical Acts on the company/employees.*
>
> *Gamble, J. E., Peteraf, M. A., Strickland III, A. J., Thompson, A. A. (2014). Crafting andExecuting Strategy (Nineteenth ed., pp. 259, 263). New York, NY: McGraw- Hill/Irwin.*
>
> *O'Connell, D., Shah, O. (2014, October 14). Tesco probe finds evidence of cover-up. In The Sunday Times. Retrieved October 21, 2014, from http://www.thesundaytimes.co.uk/sto/business/Retail_and_leisure/article1472665.ece"* (IN 0 DI MT4450 main)

Affective (AF). The following post demonstrates the social presence category of AF through self-disclosure regarding the ability to be artistic.

> *"One thing I have always enjoyed learning is Art. To me the ability to be artistic is one of my best qualities. I enjoy learning new art forms and, love to watch videos about the art. Art in general is very brief for me I love all art however, I'm not good at all forms of art. I draw in black and white, I very much dislike to color in my own drawings to me it takes away from the beauty.*

I first started to draw at a very young age it was a way to release issues that I was having to deal with. At the age of eight I lost fifteen loved ones within a two year period. I was having a hard time dealing with all the stress and emotional roller coaster that it had put me threw. Art was my way of release.

I learn about art in general just about every second I have available for it, I try to draw as much as possible. However, with both work and school it is very hard to find the time. The feedback I get from a new drawling inspires me to do greater things within my artistic ability. I have realized that I can actually use my love of art to help me with my studies for college. I'm able to learn and repeat what learned just like I do with my art. To be honesty I never really thought my love for art would help me study.

One thing I enjoy learning is the culture of Art and how diverse it can be . I learned this by watching videos, reading books, watching other's and even just teaching myself. I think I can maximize other necessary learning by applying myself the same way I do with Art . Watching videos, reading other post by students, and just by absorbing everything that it taught to me. learning the way's of art is actually a very good tool for way's to study it's basically the same concept just applied a little differently." (EX AF 0 CS1600 main)

Open communication (OC). The next section includes social presence posts in the category of OC. Each of these is a response post, which indicates they are continuing a thread and that denotes open communication. However, there are some that also include expressing appreciation, agreeing with a post, or asking questions.

"Interesting! I have never tried that before!" (0 OC 0 CS1600 response)

"I agree that a successful business needs all three hrm activities. A company that focuses on only one actvity will not be as successful as a company that makes all three a priority." (EX OC 0 MT2050 response)

"Great summary on the key factors of success. You really did a great job of summarizing what the attributes are and how the business can evolve successfully with a clear exectution of their strategic plan." (EX OC FD MT4450 response)

"I have read about local companies not reporting revenue or fasifying income statements, regardless if it was intentional or not. It is always important to file all the documents necessary when they are due because it is more of a pain to be audited and have to justify the actions taken to the IRS. Good post." (EX OC FD

MT4450 response)

Group cohesion (GC). This section includes several examples of group cohesion, which is primarily demonstrated through the use of other student's name, but can also include addressing the class as a whole.

"Ty [name]" (0 GC 0 CS1600 response)

"Hello All,
On the new manager self-test I got the achievement culture but involvement culture was a close second. I think thats right; I do like to get things done and done the right way first, but I dont like the competiveness or the aggression part. So that is wear the involvement culture takes over because I do care about the people I work with and some places make it feel like a family. I think all companies should have both the achievement and involvement cultures because people would love working there and doing their jobs. To me it would be a fun place to work. The AirForce is defiantly an achievement and involvement culture. They get the job done (some are defiantly more completive then others) and they are a family oriented organization. They work hard and play hard!
[name]" (IN GC 0 MT2050 main)

"[name]-
Nice emphasis on how important it is for a company to have a strategic plan. I agree with you that if a company does not have one, it is going to be extremely difficult for them to stay afloat. It would be like aimlessly drifting in the wind and they will definitely be passed up if they do not provide the company with a roadmap of where they want to go and how they are going to get there.
[name]" (EX GC FD MT4450 response)

Teaching presence. The third type of presence in the CoI model is teaching presence (TP), which has two functions, the design of the educational experience and facilitation, which can be shared among the teacher and other participants (Garrison et al., 2000). Following are examples for each category of teaching presence, including lack of teaching presence (NA), design and organization (DO), facilitating discourse (FD), and direct instruction (DI).

Lack of teaching presence (NA). This section includes posts that have been

determined as not having any evidence of teaching presence. Some of these agree with the prior post, but in itself, that does not indicate teaching presence, there would need to be the additional step of identifying overall areas of agreement, as opposed to just saying they agree with a particular aspect of one's post.

"So true, only you can make your goals turn into reality." (0 OC 0 CS1600 response)

> *"China definately has its issues, and we do import a tremendous amount of trade with them, but that does not mean that they don't have to follow the rules. A country cannot decide what rules it will or will not follow and expect the world not to react."* (EX OC 0 MT3000 response)

This post is an example of one that has a reference included, but does not cite it in the text, so it does not count as teaching presence. The post needs to explain the reference in order for it to count as teaching presence, in this example, one cannot tell what is included from the textbook in the actual response.

> *"There are number of reasons that you would consider out-sourcing. Cost savings you can save about 20% of process costs which in turn can boost your profitability. Technology you can obtain the latest know-how without a major investment. Flexibility can be done during peak seasons, which allows you to hire staff in large numbers or lay-off immediately. Focus on specialization frees up staff who can direct their focus elsewhere as needed.*
>
> *It can expand the businesss range of activities backward into sources of supply and/or forward towards end users. Also it may allow you to strengthen your business in the market by lowering cost and improving visibility. Your suppliers may be cheaper or better allowing you to cut costs.*
>
> *Thompson, A.; Peteraf, M.; Gamble, J.; Strickland III, A.; Craft (2014) Crafting and Executing Strategy (Nineteenth Edition) Chapter 6, pg 162; McGraw-Hill Irwin, New York"* (EX 0 0 MT4450 main)

Design and organization (DO). These posts have been classified as DO, which usually includes information about the curriculum or overall comments about the course,

if they include information about the particular discussion or topic, it would more likely be considered facilitating discourse or direct instruction.

> *"Nice analysis, but I believe this discussion was supposed to be on an article that you found doing, from Learning Activity 6, that relates to someone/company violating business ethics/practices, not the one in the book?*
> *-[name]"* (0 OC DO MT2050 response)

> *"[name]…do you have questions about the 300 words for discussions and/or 3 to 5 sentences for responses?*
> *[name]"* (0 GC DO MT3000 DO)

Facilitating discourse (FD). The next category of teaching presence was the most common category for this type of presence. It most often entailed encouraging student contributions or prompting additional discussion. The first post was categorized as FD because the author encourages student contributions through expressing gratitude.

> *"Wow [name], good post, I had no idea this was going on in Arizona, probably all over the country I suppose. Thank yoou for sharing it, I will now be keeping closer tabs on property managers when I move to an apartment in the near future."* (EX GC FD MT2050 response)

The following post is categorized as FD due to encouraging contributions and prompting discussion through a question.

> *"Hi [name] and this is some good information. I did not know that Russia was finally accepted into the WRO. It only took them 18 years. Is this the WRO's way of gradually changing through negotiation? I would not even stand behind that if it is. 18 years is a longtime to wait, too long if you ask me. –[name]"* (EX GC FD MT3000 response)

Direct instruction (DI). The final category to be demonstrated is DI, which typically entailed injecting knowledge from diverse sources or presenting questions. A distinction to be kept in mind here is that asking a question can also be categorized as FD, but the difference is that it would be a specific question to that particular student. For a

question to be categorized as DI it would need to be about overall course content instead. The first example includes a post categorized as DI because the author is not only encouraging contributions like in FD, but also summarizing the student's post.

> *"Hi [name],*
> *Thank you for a really good post! You described how you studied, learned and practiced in order to reach a goal that was and is important to you. The same approach will serve you well academically and professionally. Good job!*
> *[name]"* (IN GC DI CS1600 response)

The following post was coded as DI because the author is applying the content from the post to a larger concept from the learning plan regarding the profit-maximizing view.

> *"Hello [name],*
> *You sure picked a prime example of unethical behavior, this discussion alone is literally blowing up with posts! I do agree with you that the way this whole incident is being covered up and twisted is sick. I for one am ashamed of the millions of fans that are more worried about the guy continuing to play for the season then they are about the assault that he committed. I am one to truly believe innocent until proven guilty but at the same time I was not born yesterday and video does not lie. I guess this goes to show also a prime example of what our learning plan reviewed with Milton Freidmans profit-maximizing view, thecommissioner and possibly stakeholderswanted their profits from the team maximized and were willing to overlook what Rice did. By the way great post!*
> *[name]"* (IN GC DI MT2050 response)

This post is considered DI because it is injecting knowledge by referring a classmate to another website that might be helpful.

> *"[name] you should check out the web site export.gov. It is full of useful tools to help US producers (or service) do business with foreign countries. It will narrow it down for you and do a lot of the research you are talking about. It is really easy to use too. I looked at the business plan from our text to see what the characteristics are for foreign investment and there is a list of things to help get someone gettingstated. Good job. -[name]"* (EX GC DI MT3000 response)

Chapter 4: Results

This chapter details the findings of the research. First, there is a thorough description of the sample of students, including how it compares to the overall university population reviewed in the methodology chapter. Next, the variables used for the analyses are described, including course level, post type, type of presence, and coding categories. Then, the results of the ANOVA, linear regression, and chi square analyses are presented, followed by a summary of the results.

Description of Sample

The sample and population are very similar and the sample was representative of nontraditional students based on age. See Table 4 for frequencies and percentages of demographic categories for the 200 students in the eight sections used in this research, plus percentages of demographic categories for the population of students at The University in Fall 2014.

Table 4

Student Demographic Information by Sample and Population

Variable	Frequency in Sample	% of Sample	% of Population*
Degree Type			
Associate	99	49.5	49.9
Bachelor	101	50.5	34.9
Program			
Allied Health	25	12.5	24.7
Business	153	76.5	43.5
Other	14	7.0	13.5
Information Technology	8	4.0	6.7

Cumulative GPA			
0-.99	32	16.0	9.6
1.0-1.99	15	7.5	10.8
2.0-2.99	58	29.0	31.0
3.0-4.0	95	47.5	48.7
Marital Status			
Divorced	20	10.0	9.5
Married	72	36.0	28.7
Separated	8	4.0	3.3
Single	95	47.5	56.9
Unknown	1	0.5	0.5
Widowed	4	2.0	0.9
Age			
<20	1	0.5	1.1
20-29	68	34.0	33.7
30-39	70	35.0	33.4
40-49	41	20.5	18.3
>50	20	10.0	13.4
Gender			
Female	137	68.5	68.9
Male	62	31.0	30.9
Not specified	1	0.5	0.2
Race/Ethnicity			
American Indian or Alaska Native	7	3.5	2.8
Asian	5	2.5	1.9
Black or African American	62	31.0	28.4
Hispanics of any race	14	7.0	7.8
Native Hawaiian or Other Pacific Islander	1	0.5	0.4
Race and Ethnicity Unknown	2	1.0	
Two or more races	14	7.0	6.5
Other	1	0.5	6.1
White	94	47.0	46.3
Pell Status			
Did Not Receive Pell	65	32.5	26.6
Received Pell	135	67.5	73.5
Total per Section	200	100%	100%

**Note.* The Frequency in Sample column and % of Sample column are related only to the sample used for this study. The % of Population column is the percent of each category in the entire population.

Description of Variables

The following section includes a description of the variables used in the study. There were multiple variables used in the quantitative analyses, including course level, post type, and categories of cognitive, social, and teaching presence. The analyses look at differences across course level and post type at the overall presence and category levels. Course level is based on the order in which courses are taken and them being prerequisites for one another, which indicates one cannot move onto the next level without first completing the lower level course. This is a proxy for how advanced students are in their education. The exception is CS1600, which is not technically a prerequisite for MT2050, but it is a course that all students enroll in during their first semester, therefore, it is taken prior to moving on to other courses. The total number of units of analysis is 4,243. There are a similar number of units of analysis in each course level, of the total sample, 857 (20.2%) are in CS1600, 991 (23.36%) are in MT2050, 1,087 (25.62%) are in MT3000, and 1,308 (30.83%) are in MT4450. This allows a fair representation of analysis from each level. The next variable used for the analyses is post type, which has two categories. The main posts are the first posts from a student in which the student responds directly to the prompt. In the response posts the student responds to another student's main post. In this analysis, 32% of the posts were main posts, whereas 68% of the posts were response posts. The amount of each type of presence will be compared across both course level and post type.

The outcome variable is the type of presence demonstrated in the discussion posts, including cognitive, social, and teaching presence. Cognitive presence has five

categories: N/A, triggering event, exploration, integration, and resolution/application. Social presence has four categories: N/A, affective, open communication, and group cohesion. Teaching presence also has four categories: N/A, design and organization, facilitating discourse, and direct instruction. In each of the types of presence, N/A is an abbreviation for not applicable and indicates there was no evidence of that type of presence found in the post. Table 5 and Figure 2 demonstrate the overall amount of each type of presence in each course level, notwithstanding the breakdown by category.

Table 5

Overall Amount of CP, SP, and TP Across Course Levels

	CP	CP %	SP	SP %	TP	TP %	Total Discussions
CS1600	705	82.26	770	89.85	325	37.92	857
MT2250	962	97.07	789	79.62	284	28.66	991
MT3000	1016	93.47	832	76.54	665	61.18	1087
MT4450	1289	98.55	911	69.65	565	43.19	1308

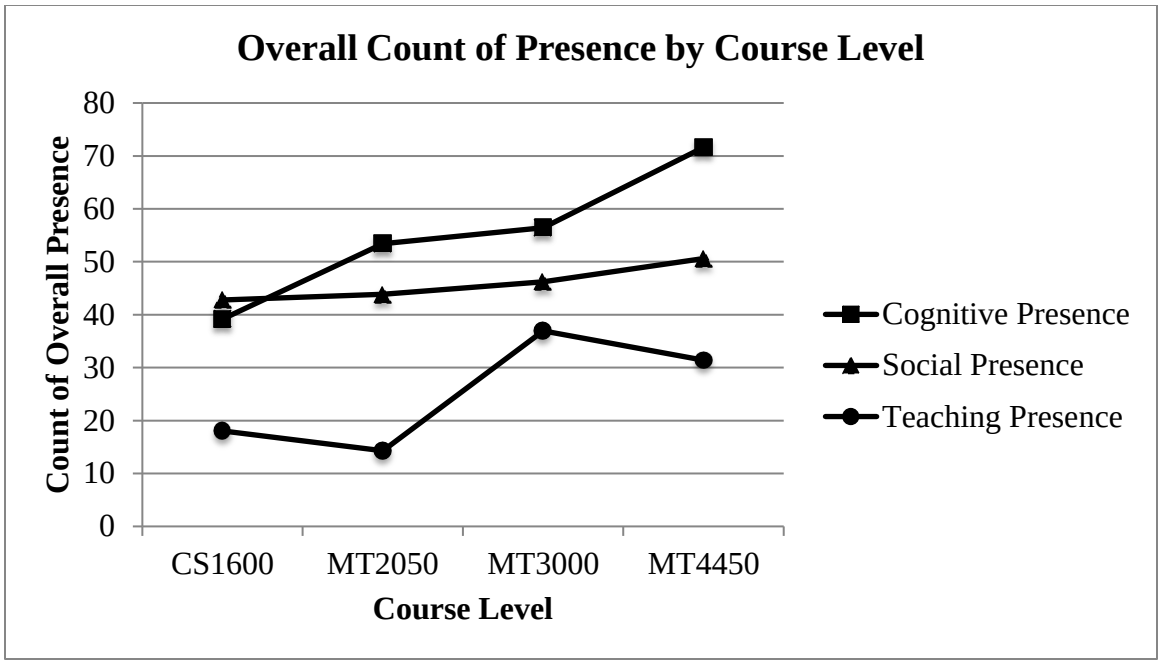

Figure 2. Overall count of presence across course level. This figure shows the percentage of cognitive, social, and teaching presence across course levels.

The numbers in Table 5 are a representation of the total amount of each type of presence in each course level. For example, in CS1600 there were 705 discussions that had some category of cognitive presence, which is 82% of discussions. This table demonstrates increasing cognitive presence as course level increases, similar amounts of social presence across course levels, and less teaching presence in lower level courses. In the total column in Table 6, some patterns emerge in the data. These represent the total count of each category of presence across course levels. The more prevalent categories of cognitive presence were exploration and integration, indicating a good amount of cognitive presence and critical thinking, but very little in the highest level of resolution/application. There was a fair amount of N/A for social presence, indicating less social presence, but also a moderate amount of open communication and group cohesion.

Lastly, teaching presence was the least observed type of presence, with most posts falling in the N/A category, but some evidence of facilitating discourse.

The additional breakdown of types of presence across course levels is also shown in Table 6. Across course level, there is generally a larger amount of exploration and integration within cognitive presence, than N/A, triggering event, or resolution/application. Additionally, one can see more N/A (i.e., less cognitive presence) in CS1600, and more resolution/application in MT4450. As far as social presence, open communication and group cohesion represent the largest percentages within each course level. But as the course levels go up, the percentages of N/A also increase, indicating less social presence. Finally, some patterns in teaching presence can also be observed, namely, there is comparatively little of it across all courses. There is, however, less N/A in MT3000 and MT4450, which indicates there is slightly more teaching presence in the higher level courses. The final preliminary observation in relation to presence and course level is the moderate presence of facilitating discourse across all course levels.

Table 6

Descriptive Statistics for Category of Presence by Course Level

		Course CS1600		Course MT2050		Course MT3000		Course MT4450		Total	
Presence	Category	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
Cognitive	N/A	133	15.5	29	2.93	71	6.53	19	1.45	252	5.94
	TE	16	1.87	15	1.51	16	1.47	0	0.00	47	1.11
	EX	489	57.06	615	62.06	687	63.20	737	56.35	2528	59.58
	IN	215	25.09	323	32.59	306	28.15	515	39.37	1359	32.03
	RA	4	0.47	9	0.91	7	0.64	37	2.83	57	1.34
Social	N/A	108	12.60	202	20.38	255	23.46	397	30.35	962	22.67
	AF	151	17.62	116	11.71	14	1.29	23	1.76	304	7.16
	OC	316	36.87	416	41.98	253	23.28	518	39.60	1503	35.42
	GC	282	32.91	257	25.93	565	51.98	370	28.29	1474	34.74
Teaching	N/A	533	62.19	707	71.34	574	52.81	743	56.80	2557	60.26
	DO	6	0.70	6	0.61	10	0.92	3	0.23	25	0.59
	FD	295	34.42	269	27.14	454	41.77	411	31.42	1429	33.68
	DI	23	2.68	9	0.91	49	4.51	151	11.54	232	5.47

Looking at the categories of presence in another way, one can see some variance across main and response posts. There is a larger percentage of response posts overall, which should be noted when reviewing the percentages in Table 7. In cognitive presence, there is the most exploration and integration across both types of posts, with a very large percentage of exploration in response posts. There is very little social presence indicated in main posts, but a large amount of both open communication and group cohesion in response posts. Last, there is very little evidence of teaching presence in main or response posts overall, but there is a moderate amount of facilitating discourse in response posts. These initial comparisons of variables will help guide the ensuing analyses.

Table 7

Descriptive Statistics for Category of Presence by Post Type

		Main Post		Response Post	
Presence	Category	*n*	%	*n*	%
Cognitive	N/A	23	0.54	229	5.40
	TE	3	0.07	44	1.04
	EX	592	13.95	1936	45.63
	IN	703	16.57	656	15.46
	RA	44	1.04	13	0.31
Social	N/A	919	21.66	43	1.01
	AF	295	6.95	9	0.21
	OC	45	1.06	1458	34.36
	GC	106	2.50	1368	32.24
Teaching	N/A	1115	26.28	1442	33.99
	DO	2	0.05	23	0.54
	FD	65	1.53	1364	32.15
	DI	183	4.31	49	1.15

The final graphical representation that will be helpful in this analysis is the letter grades earned by students in these courses. While it is not possible due to data restrictions to match these grades with particular students in the analysis and what types of discussions they posted, it is an overall demonstration of how students did in the courses. Figure 3 shows the number of passing individual letter grades across course levels, and Figure 4 groups the grades into two groups for an overarching summary. Students were considered 'Successful' if they earned a grade of C or better, and were considered 'Unsuccessful' if they earned a grade of D, F, or W.

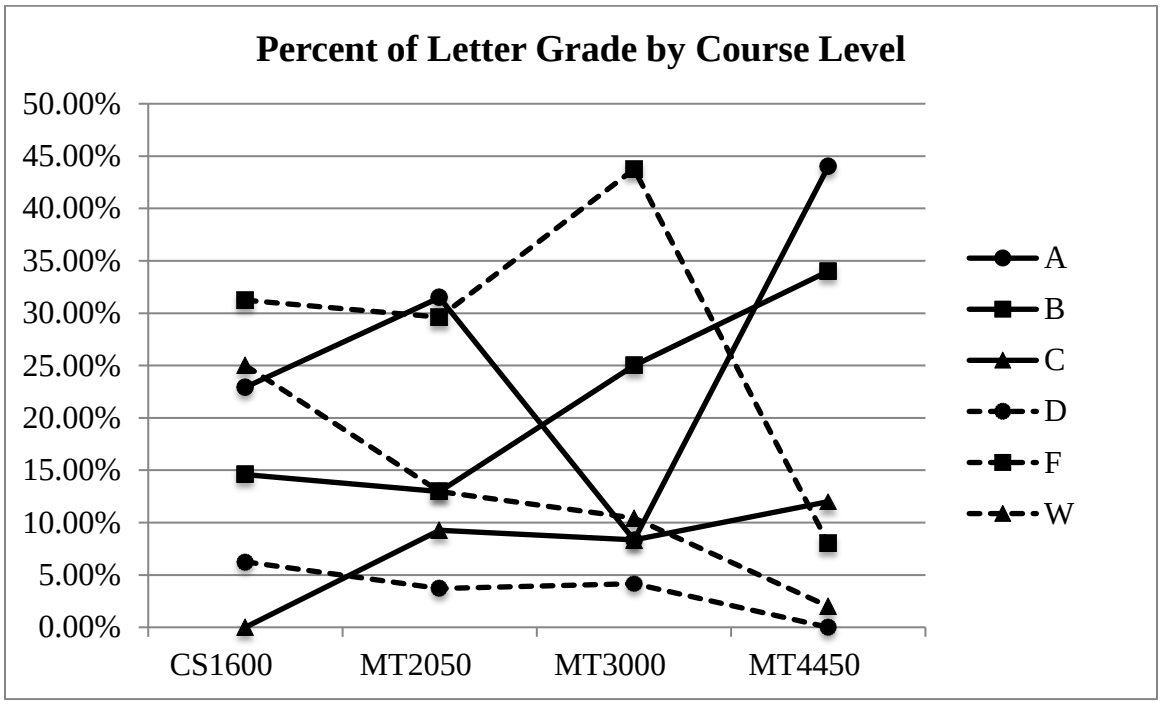

Figure 3. Percentage of each letter grade by course level.

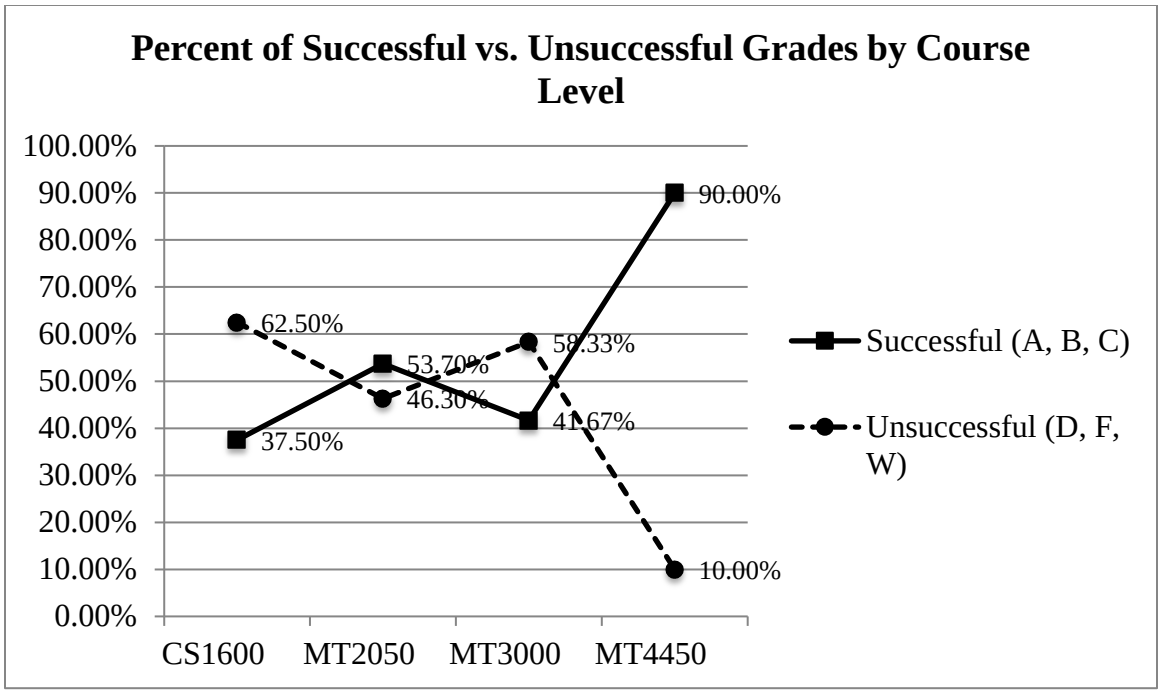

Figure 4. Percentage of successful vs. unsuccessful grades by course level.

Data Analysis

Research question 1. Does the nature of nontraditional student participation in asynchronous online discussions differ between levels of courses?

Both a one-way ANOVA and linear regression are used to analyze this question. The ANOVA looks at overall differences in types of presence across courses and the linear regression looks at the potentially predictive relationships between types of presence. The ANOVA statistics in this research look at the difference in cognitive presence across all course levels, the difference in social presence across all course levels, and the difference in teaching presence across all course levels. Linear regression was also conducted for three potential relationships based on the findings of Garrison, Cleveland-Innes, and Fung (2010), the influence of teaching presence on cognitive

presence, the influence of teaching presence on social presence, and the influence of social presence on cognitive presence.

ANOVA 1: Does overall level of cognitive presence vary across course level?

- H_0: All course level population means for cognitive presence are equal ($\mu_{CS1600} = \mu_{MT2050} = \mu_{MT3000} = \mu_{MT4450}$).
- H_A: All course level population means for cognitive presence are not equal.

A one-way Welch ANOVA was conducted to determine if level of cognitive presence was different across course levels. There were four groups, one at each course level: CS1600 (n = 18), MT2050 (n = 18), MT3000 (n = 18), and MT4450 (n = 18). There were no outliers and the data were normally distributed for each group, as assessed by boxplot and Shapiro-Wilk test ($p > .05$), respectively. Homogeneity of variances was violated, as assessed by Levene's Test of Homogeneity of Variance ($p = .008$). Cognitive presence was statistically significantly different between course levels, Welch's $F(3, 36.013) = 44.171$, $p < .001$. Cognitive presence increased from CS1600 ($M = 39.17$, $SD = 12.71$) to MT2050 ($M = 53.44$, $SD = 8.59$) to MT3000 ($M = 56.44$, $SD = 9.90$) to MT4450 ($M = 71.61$, $SD = 5.46$). Games-Howell post hoc analysis revealed that the mean increase between the following courses was statistically significant: from CS1600 to MT2050 (14.28, 95% CI [4.44, 24.11], $p = .002$), CS1600 to MT3000 (17.28, 95% CI [6.99, 27.57], $p < .001$), CS1600 to MT4450 (32.44, 95% CI [23.42, 41.47], $p < .001$), MT2050 to MT4450 (18.17, 95% CI [11.63, 24.70], $p < .001$), and MT3000 to MT4450 (15.17, 95% CI [7.87, 22.47], $p < .001$). The group means were statistically significantly different ($p < .05$) and, therefore, we can reject the null hypothesis and accept the

alternative hypothesis. This indicates there is a difference in level of cognitive presence across course levels in this study. In Figure 5 the increase in cognitive presence is demonstrated as course level increases.

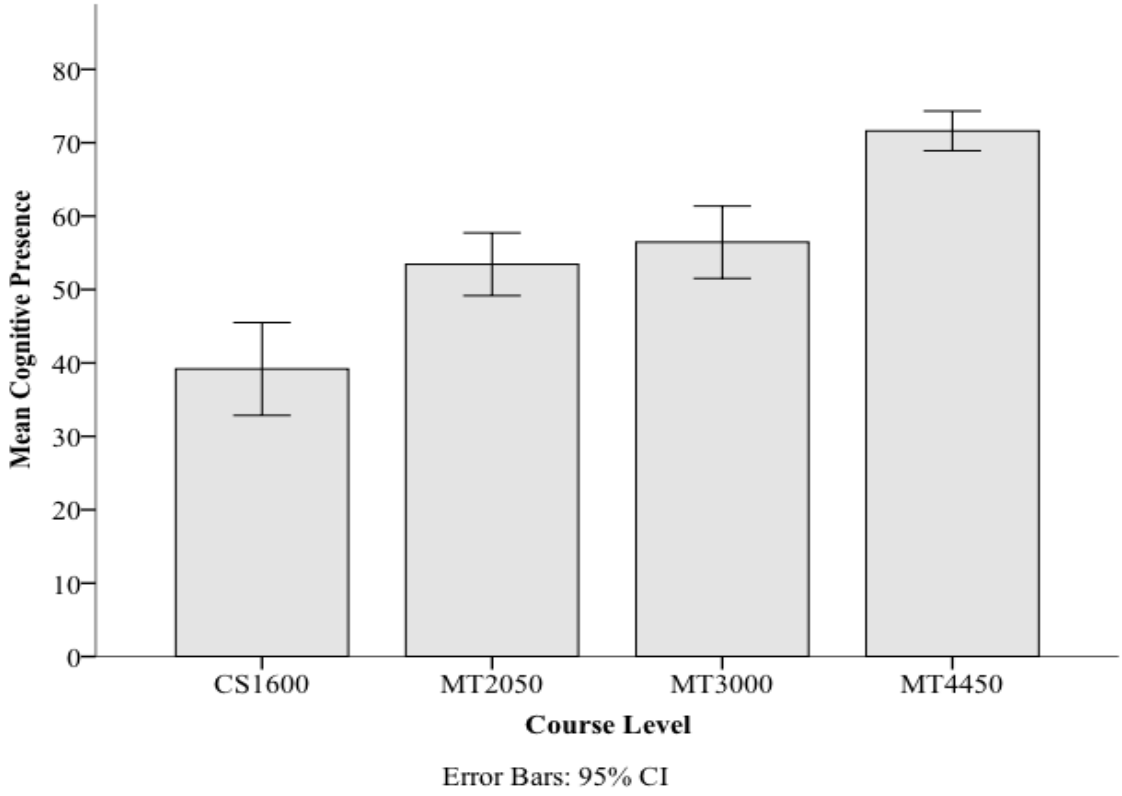

Figure 5. Bar chart for one-way ANOVA comparing cognitive presence across course levels, with confidence intervals.

ANOVA 2. Does overall level of social presence vary across course level?

- H_0: All course level population means for social presence are equal ($\mu_{CS1600} = \mu_{MT2050} = \mu_{MT3000} = \mu_{MT4450}$).
- H_A: All course level population means for social presence are not equal.

A one-way Welch ANOVA was conducted to determine if level of social presence was different across course levels. There were four groups, one at each course

level: CS1600 (n = 18), MT2050 (n = 18), MT3000 (n = 18), and MT4450 (n = 18). There were no outliers and the data were normally distributed for each group, as assessed by boxplot and Shapiro-Wilk test ($p > .05$), respectively. Homogeneity of variances was violated, as assessed by Levene's Test of Homogeneity of Variance ($p < .001$). Social presence was statistically significantly different between course levels, Welch's $F(3, 34.301) = 3.984$, $p < .05$. Social presence increased from CS1600 (M = 42.78, SD = 15.04) to MT2050 (M = 43.83, SD = 10.25) to MT3000 (M = 46.22, SD = 7.84) to MT4450 (M = 50.61, SD = 4.18). Games-Howell post hoc analysis did not reveal statistically significant differences between groups, which can occur because the sensitivity of the ANOVA is greater than the pairwise comparison sensitivity. The group means were statistically significantly different ($p < .05$) and, therefore, we can reject the null hypothesis and accept the alternative hypothesis. However, the pairwise comparisons were not statistically significant ($p > .05$). This seems to indicate there is a significant difference in level of social presence overall across course levels in this study, but not a significant difference between individual course levels. However, what this may also indicate is the presence of a Type I error, or a false positive, which in this case is possible due to a small sample size since the ANOVA were run based on the overall amount of presence in each discussion. In this case, we would fail to reject the null hypothesis. In Figure 6, the bar chart demonstrates very little difference in social presence across course level.

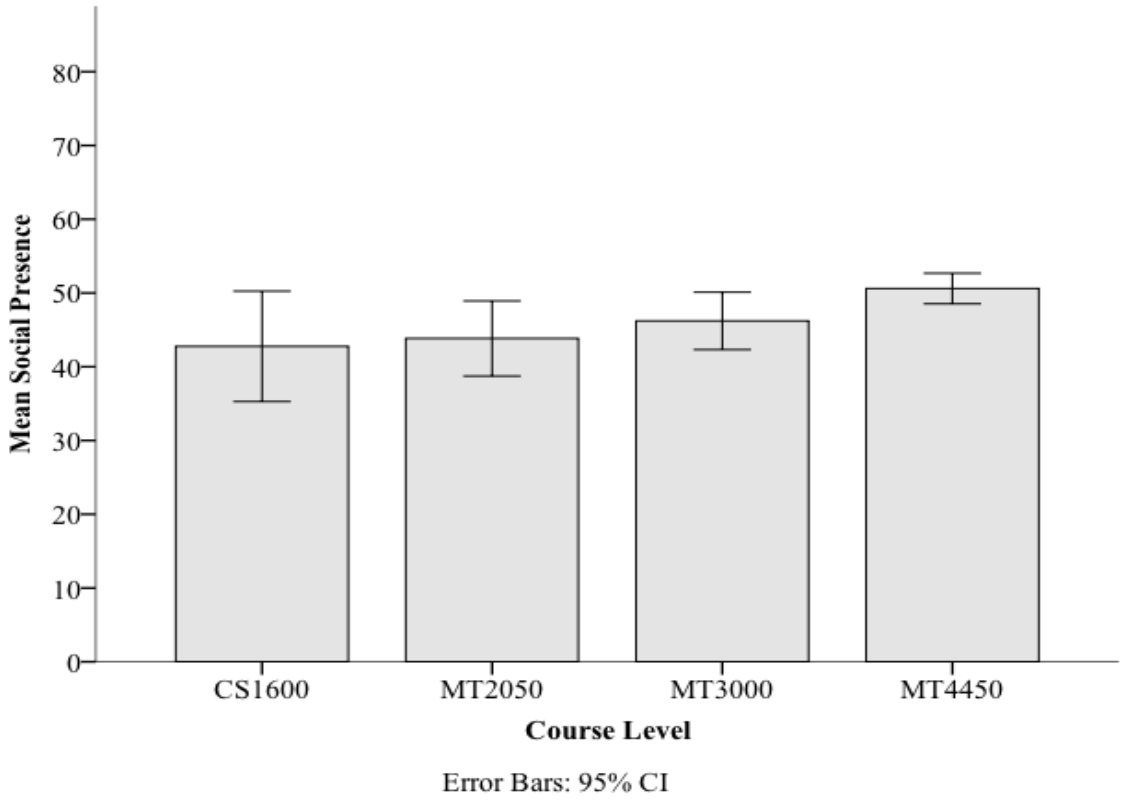

Figure 6. Bar chart for one-way ANOVA comparing social presence across course levels, with confidence intervals.

ANOVA 3. Does overall level of teaching presence vary across course level?

- H_0: All course level population means for teaching presence are equal ($\mu_{CS1600} = \mu_{MT2050} = \mu_{MT3000} = \mu_{MT4450}$).
- H_A: All course level population means for teaching presence are not equal.

A one-way Welch ANOVA was conducted to determine if level of teaching presence was different across course levels. There were four groups, one at each course level: CS1600 (n = 18), MT2050 (n = 18), MT3000 (n = 17), and MT4450 (n = 18). There was one outlier in MT2050 as assessed by boxplot, an ANOVA was run both with and without the outlier and the results were the same. The results without the outlier will

be reported here. The data were normally distributed for each group, as assessed by Shapiro-Wilk test ($p > .05$). Homogeneity of variances was violated, as assessed by Levene's Test of Homogeneity of Variance ($p < .001$). Teaching presence was statistically significantly different between course levels, Welch's $F(3, 36.251) = 24.192$, $p < .001$. Teaching presence decreased from CS1600 ($M = 18.06$, $SD = 8.08$) to MT2050 ($M = 14.29$, $SD = 5.68$), then increased to MT3000 ($M = 36.94$, $SD = 13.17$), and decreased to MT4450 ($M = 31.39$, $SD = 9.19$). Games-Howell post hoc analysis revealed that the mean increases were statistically significant: from CS1600 to MT3000 (18.89, 95% CI [8.95, 28.83], $p < .001$), CS1600 to MT4450 (13.33, 95% CI [5.53, 21.14], $p < .001$), MT2050 to MT3000 (22.65, 95% CI [13.26, 32.04], $p < .001$), and MT2050 to MT4450 (17.09, 95% CI [10.09, 24.10], $p < .001$). The group means were statistically significantly different ($p < .05$) and, therefore, we can reject the null hypothesis and accept the alternative hypothesis. This indicates there is a difference in level of teaching presence across course levels in this study. Figure 7 demonstrates the levels of teaching presence across course level, including a decrease from CS1600 to MT2050, a large increase from MT2050 to MT3000, and another decrease from MT3000 to MT4450.

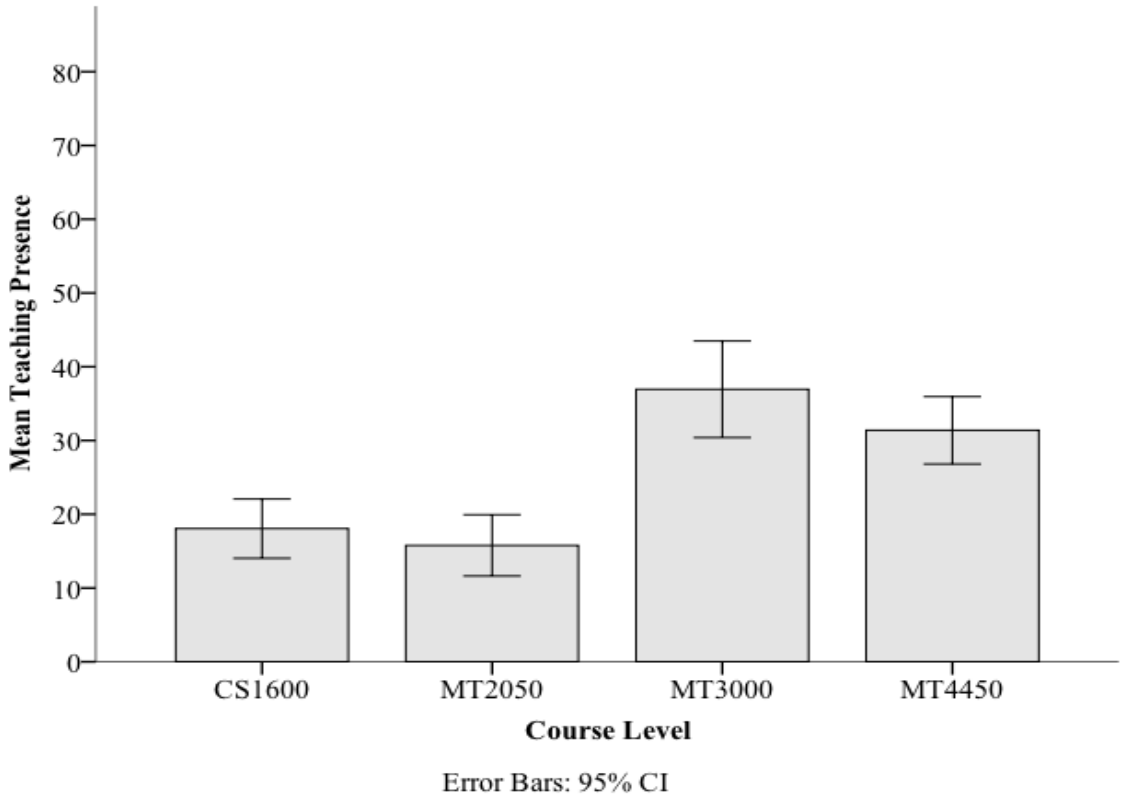

Figure 7. Bar chart for one-way ANOVA comparing teaching presence across course levels, with confidence intervals.

Linear regression 1. Does teaching presence have an influence on cognitive presence?

- H_0: $b_1 = 0$, the coefficient of the slope equals 0 (zero)
- H_A: $b_1 \neq 0$, the coefficient of the slope does not equal 0 (zero)

A linear regression was run to understand the effect of Teaching Presence on Cognitive Presence. To assess linearity a scatterplot of cognitive presence against teaching presence with superimposed regression line was plotted. Visual inspection of these two plots indicated a linear relationship between the variables. There was homoscedasticity, normality of the residuals, and no significant outliers.

The prediction equation was: cognitive presence = 39.206 + (.625 x teaching presence). Teaching presence statistically significantly predicted cognitive presence, $F(1, 70) = 31.01$, $p < .001$, accounting for 30.7% of the variation in cognitive presence with adjusted $R^2 = 29.7\%$, a large effect size (Cohen, 1988). An extra instance of teaching presence in a discussion leads to a 0.625, 95% CI [0.401, 0.849] increase in instances of cognitive presence in a discussion. In the scatterplot in Figure 8, one can see the positive inclination of the line, as teaching presence increases, cognitive presence also increases.

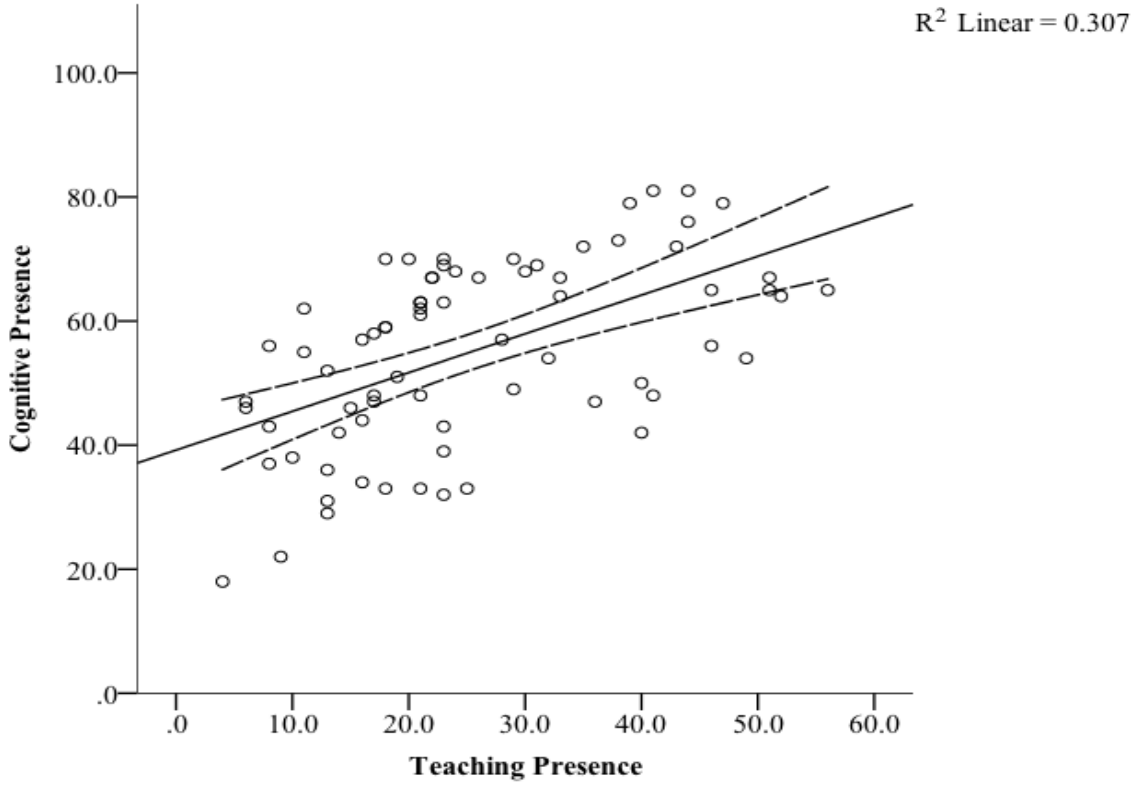

Figure 8. Scatterplot for teaching presence prediction of cognitive presence, with confidence intervals.

Linear regression 2. Does teaching presence have an influence on social presence?

- H_0: $b_1 = 0$, the coefficient of the slope equals 0 (zero)
- H_A: $b_1 \neq 0$, the coefficient of the slope does not equal 0 (zero)

A linear regression was run to understand the effect of Teaching Presence on Social Presence. To assess linearity a scatterplot of social presence against teaching presence with superimposed regression line was plotted. Visual inspection of these two plots indicated a linear relationship between the variables. There was homoscedasticity, normality of the residuals, and no significant outliers.

The prediction equation was: social presence = 37.806 + (.315 x teaching presence). Teaching presence statistically significantly predicted social presence, $F(1, 70) = 13.46$, $p < .001$, accounting for 16.1% of the variation in social presence with adjusted $R^2 = 14.9\%$, a medium effect size according to Cohen (1988). An extra instance of teaching presence in a discussion leads to a 0.315, 95% CI [0.144, 0.487] increase in instances of social presence. The medium effect is demonstrated in Figure 9 in the closer to horizontal line for teaching presence predicting social presence. In comparison to Figure 8, it is a smaller effect size.

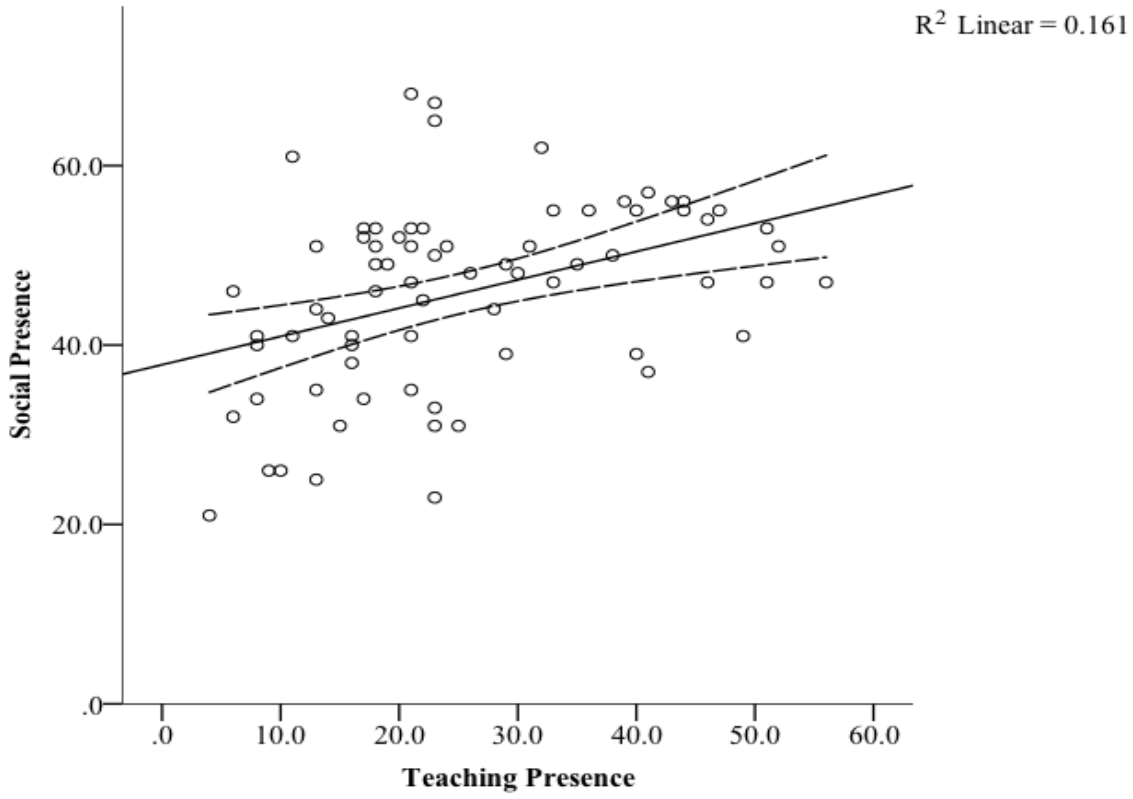

Figure 9. Scatterplot for teaching presence prediction of social presence, with confidence intervals.

Linear regression 3. Does social presence have an influence on cognitive presence?

- H_0: $b_1 = 0$, the coefficient of the slope equals 0 (zero)
- H_A: $b_1 \neq 0$, the coefficient of the slope does not equal 0 (zero)

A linear regression was run to understand the effect of Social Presence on Cognitive Presence. To assess linearity a scatterplot of cognitive presence against social presence with superimposed regression line was plotted. Visual inspection of these two plots indicated a linear relationship between the variables. There was homoscedasticity, normality of the residuals, and no significant outliers.

The prediction equation was: cognitive presence = 8.746 + (1.012 x social presence). Social presence statistically significantly predicted cognitive presence, $F(1, 70) = 69.08$, $p < .001$, accounting for 49.7% of the variation in cognitive presence with adjusted $R^2 = 48.9\%$, a large effect size according to Cohen (1988). An extra instance of social presence in a discussion leads to a 1.012, 95% CI [0.769, 1.255] increase in instances of cognitive presence in a discussion. Figure 10 demonstrates the large effect size of social presence on cognitive presence, as social presence increases, so does cognitive presence. This figure demonstrates the largest effect size of the three linear regression analyses conducted in this research.

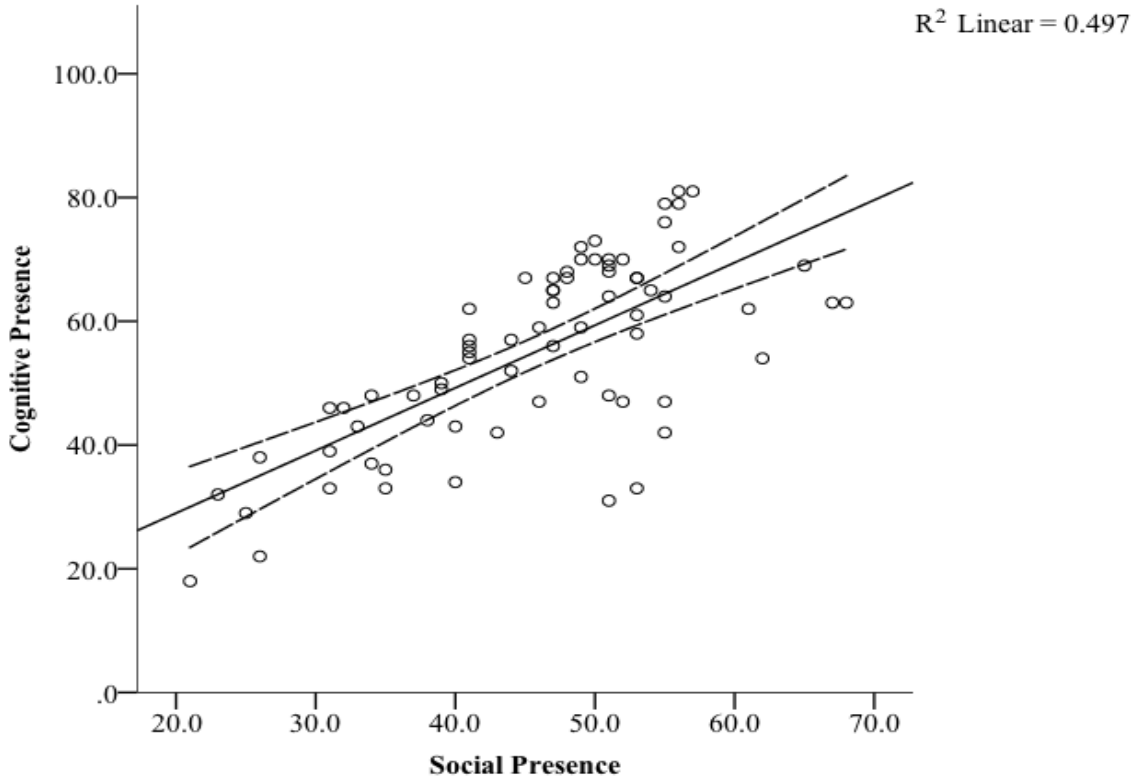

Figure 10. Scatterplot for social presence prediction of cognitive presence, with confidence intervals.

The next two research questions will be analyzed with the chi square statistic, which is used to look in further detail at the categories of each type of presence and their variances across course level and post type. The chi square is used to determine whether two categorical variables are associated, therefore, this will provide insight into the association between each category of each type of presence based on course level.

Research question 2. Do cognitive, social, and teaching presence vary between course levels?

To answer the research question regarding the association of course level and cognitive, social, and teaching presence, chi square analyses were conducted for each of the following: 1) cognitive presence categories and course level, 2) social presence categories and course level, and 3) teaching presence categories and course level. The null and alternative hypotheses for each are included below, as well as the results and a brief interpretation.

Course level chi square 1. Do categories of cognitive presence vary across course level?

- H_0: There is no association between cognitive presence category and course level.
- H_A: There is an association between cognitive presence category and course level.

A chi square test of independence was conducted between the cognitive presence categories and course level. All expected cell frequencies were greater than five. There was a statistically significant association between cognitive presence and course level, $\chi^2(12) = 292.762$, $p < .001$. Therefore, we can reject the null hypothesis and accept the alternative hypothesis. The association was moderate (Cohen, 1988), Cramer's V = .152.

Looking further at the adjusted standardized residuals in Table 8, there are several cells that demonstrate where an association may reside. There are 13 cells with an adjusted residual of greater than +/- 2. The largest adjusted residuals (greater than +/- 5) are in the cells associated with a lack of cognitive presence in CS1600 and MT4450, and integration and resolution/application in MT4450. The cell that was a product of CS1600 and N/A had a very large, positive residual, indicating more lack of cognitive presence (i.e., less cognitive presence) in CS1600. The cell that was a product of MT4450 and N/A had a large, negative residual, indicating less lack of cognitive presence (i.e., more cognitive presence) than expected. Last, the cells associating integration and resolution with MT4450 had large, positive residuals, indicating more integration and resolution in MT4450 than would be expected if there were no association.

Table 8

Crosstabulation of Cognitive Presence and Course Level

Cognitive Presence	Course Level			
	CS1600	MT2050	MT3000	MT4450
N/A	133 (13.3)	29 (-4.6)	71 (1.0)	19 (-8.3)
TE	16 (2.4)	15 (1.4)	16 (1.3)	0 (-4.6)
EX	489 (-1.7)	615 (1.8)	687 (2.8)	737 (-2.9)
IN	215 (-4.9)	323 (.4)	306 (-3.2)	515 (6.8)
RA	4 (-2.5)	9 (-1.4)	7 (-2.3)	37 (5.6)

Note: Adjusted residuals appear in parentheses below observed frequencies.

Course level chi square 2. Do categories of social presence vary across course level?

- H_0: There is no association between social presence category and course level.
- H_A: There is an association between social presence category and course level.

A chi square test of independence was conducted between the social presence categories and course level. All expected cell frequencies were greater than five. There was a statistically significant association between social presence and course level, $\chi^2(9) = 535.827$, $p < .001$. Therefore, we can reject the null hypothesis and accept the alternative hypothesis. The association was large (Cohen, 1988), Cramer's V = .205. A closer analysis of the adjusted residuals in Table 9 shows 13 cells with greater than a +/- 2 adjusted residual. Those cells with the highest adjusted residuals are associated with group cohesion and MT3000 (13.8), affect and CS1600 (13.3), open communication and MT3000 (-9.7), and affect and MT4450 (-9.1). These adjusted residuals indicate the following differences from what would be expected if there were no association, in order: 1) there was a larger amount of group cohesion found in MT3000, 2) there was a larger amount of affect in CS1600, 3) there was less open communication in MT3000, and 4) there was less affect in MT4450.

Table 9

Crosstabulation of Social Presence and Course Level

Social Presence	Course Level			
	CS1600	MT2050	MT3000	MT4450
N/A	108 (-7.9)	202 (-2.0)	255 (0.7)	397 (8.0)
AF	151 (13.3)	116 (6.3)	14 (-8.7)	23 (-9.1)
OC	316 (1.0)	416 (4.9)	253 (-9.7)	518 (3.8)
GC	282 (-1.3)	257 (-6.7)	565 (13.8)	370 (-5.9)

Note: Adjusted residuals appear in parentheses below observed frequencies.

Course level chi square 3. Do categories of teaching presence vary across course level?

- H_0: There is no association between teaching presence category and course level.
- H_A: There is an association between teaching presence category and course level.

A chi square test of independence was conducted between the teaching presence categories and course level. All expected cell frequencies were greater than five. There was a statistically significant association between teaching presence and course level, $\chi^2(9) = 214.202$, $p < .001$. Therefore, we can reject the null hypothesis and accept the alternative hypothesis. The association was moderate (Cohen, 1988), Cramer's V = .130. Focusing in further on Table 10 shows there are 10 cells with +/- 2 adjusted residuals. The largest adjusted residuals are located in the cells associated with the following combinations: direct instruction and MT4450 (11.6), N/A and MT2050 (8.1), direct

instruction and MT2050 (-7.2), and facilitating discourse and MT3000 (6.5). Each of these indicates a lack of independence in the following manner: there is more direct instruction in MT4450, there is more N/A in MT2050 (indicating a lack of teaching presence, or less teaching presence), less direct instruction in MT2050, and more facilitating discourse in MT3000.

Table 10

Crosstabulation of Teaching Presence and Course Level

Teaching Presence	Course Level			
	CS1600	MT2050	MT3000	MT4450
N/A	533 (1.3)	707 (8.1)	574 (-5.8)	743 (-3.1)
DO	6 (.5)	6 (.1)	10 (1.7)	3 (-2.0)
FD	295 (.5)	269 (-5.0)	454 (6.5)	411 (-2.1)
DI	23 (-4.0)	9 (-7.2)	49 (-1.6)	151 (11.6)

Note: Adjusted residuals appear in parentheses below observed frequencies.

Research question 3. Do cognitive, social, and teaching presence vary between levels of post?

To answer this research question regarding the association of post type and cognitive, social, and teaching presence, chi squared analyses were conducted for each of the following: 1) cognitive presence categories and post type, 2) social presence categories and post type, and 3) teaching presence categories and post type. The null and alternative hypotheses for each are included below, as well as the results and brief

interpretation. These analyses looked at the overall presence by post type, using total amount of presence across all courses.

Post type chi square 1. Do categories of cognitive presence vary across post type?

- H_0: There is no association between cognitive presence category and post type.
- H_A: There is an association between cognitive presence category and post type.

A chi square test of independence was conducted between the cognitive presence categories and post type. All expected cell frequencies were greater than five. There was a statistically significant association between cognitive presence and post type, $\chi^2(4) = 455.594$, $p < .001$. Therefore, we can reject the null hypothesis and accept the alternative hypothesis. The association was large (Cohen, 1988), Cramer's V = .328. All of the cells in Table 11 have adjusted residuals greater than +/-2, but the largest adjusted residuals are between N/A and response posts (170.9), integration and main posts (18.7), and integration and response posts (-18.7). These are the primary locations where the lack of independence is occurring, which indicates very little cognitive presence in response posts, a large amount of integration in main posts, and a small amount of integration in response posts.

Table 11

Crosstabulation of Cognitive Presence and Post Type

Cognitive Presence	Post Type	
	Main	Response
N/A	23 (-8.1)	229 (170.9)
TE	3 (-3.8)	44 (3.8)
EX	592 (-14.8)	1936 (14.8)
IN	703 (18.7)	656 (-18.7)
RA	44 (7.3)	13 (-7.3)

Note: Adjusted residuals appear in parentheses below observed frequencies.

Post type chi square 2. Do categories of social presence vary across post type?

- H_0: There is no association between social presence category and post type.
- H_A: There is an association between social presence category and post type.

A chi square test of independence was conducted between the social presence categories and post type. All expected cell frequencies were greater than five. There was a statistically significant association between social presence and post type, $\chi^2(3) = 3363.846$, $p < .001$. Therefore, we can reject the null hypothesis and accept the alternative hypothesis. The association was large (Cohen, 1988), Cramer's V = .890. Again, all of the cells in Table 12 have adjusted residuals of greater than +/- 2. The largest adjusted residuals were in the cells associated with N/A and main posts (47.8), N/A and response posts (-47.8), open communication and main posts (-30.1), and open

communication and response posts (30.1). These had residuals that balanced one another out, with far more N/A in main posts and far less N/A in response posts, indicating less social presence in main posts and more social presence in response posts. Further, there was far less open communication in main posts and far more open communication in response posts than would be expected with no association.

Table 12

Crosstabulation of Social Presence and Post Type

Social Presence	Post Type	
	Main	Response
N/A	919 (47.8)	43 (-47.8)
AF	295 (25.1)	9 (-25.1)
OC	45 (-30.1)	1458 (30.1)
GC	106 (-25.4)	1368 (25.4)

Note: Adjusted residuals appear in parentheses below observed frequencies.

Post type chi square 3. Do categories of teaching presence vary across post type?

- H_0: There is no association between teaching presence category and post type.
- H_A: There is an association between teaching presence category and post type.

A chi square test of independence was conducted between the teaching presence categories and post type. All expected cell frequencies were greater than five. There was a statistically significant association between teaching presence and post type, $\chi^2(3) = 891.526$, $p < .001$. Therefore, we can reject the null hypothesis and accept the alternative

hypothesis. The association was large (Cohen, 1988), Cramer's V = .458. All of the cells in Table 13 have adjusted residuals of greater than +/- 2. The largest residuals reside in the following cells: facilitating discourse and main posts (-27.4), facilitating discourse and response posts (27.4), N/A and main posts (19.6), and N/A and response posts (-19.6). Again, these two combinations are opposites of one another, with far less facilitating discourse in main posts and far more facilitating discourse in response posts. In the cells associated with N/A, there was far more N/A in main posts and far less N/A in response posts, indicating less teaching presence in main posts and more teaching presence in response posts.

Table 13

Crosstabulation of Teaching Presence and Post Type

Teaching Presence	Post Type	
	Main	Response
N/A	1115 (19.6)	1442 (-19.6)
DO	2 (-2.6)	23 (2.6)
FD	65 (-27.4)	1364 (27.4)
DI	183 (15.7)	49 (-15.7)

Note: Adjusted residuals appear in parentheses below observed frequencies.

Summary of Results

Research question 1. Does the nature of nontraditional student participation in asynchronous online discussions differ between levels of courses?

There were differences found in each type of presence, cognitive, social, and teaching, across course levels. These analyses looked at the overall amount of each type of presence across course levels. They compared the total amount of all categories of cognitive presence, that is, they combined triggering event, exploration, integration, and resolution/application, leaving out those discussions that did not demonstrate any cognitive presence and were coded as N/A. This allowed an overall look at the difference in the presence of each type of presence across courses. There was a significant difference across course levels for cognitive presence, social presence, and teaching presence. There were significant increases in cognitive presence between CS1600 and MT2050, CS1600 and MT3000, CS1600 and MT4450, MT2050 and MT4450, and MT3000 and MT4450. There were not significant differences found between individual course levels for social presence. In teaching presence there were significant increases between CS1600 and MT3000, CS1600 and MT4450, MT2050 and MT3000, and MT2050 and MT4450.

Based on Garrison, Cleveland-Innes, and Fung (2010), there are some prediction relationships among the types of presence. In the linear regression statistics run in this research, there were medium to large effect sizes found for these relationships. Teaching presence had a large effect size on cognitive presence, accounting for 30.7% of the variation in cognitive presence. Teaching presence was also found to have a medium effect size on social presence, accounting for 16.1% of the variation in social presence. Last, social presence was found to have a large effect size on cognitive presence, accounting for 49.7% of the variation in cognitive presence. These variations indicate

that, for example, as teaching presence increases, cognitive presence also increases.

Research question 2. Do cognitive, social, and teaching presence vary between course levels?

The next two research questions look in more detail at the refined categories of each type of presence across course level and post type. There was a moderate association between categories of cognitive presence and course level, with the most likely associations between CS1600 and lack of cognitive presence, MT4450 and more cognitive presence, MT4450 and integration, and MT4450 and resolution/application. This indicates less cognitive presence in the lowest level course, and more and higher categories of cognitive presence in the upper level course. There was a large association between categories of social presence and course level. The most likely associations exist between MT3000 and group cohesion and CS1600 and affect, with positive residuals indicating more of these categories than would be expected if there was no association. Additionally, there are likely associations between MT3000 and open communication and MT4450 and affect, with negative residuals indicating less of these categories than would be expected. There was a moderate association between categories of teaching presence and course level. The likely associations lie in the combinations of MT4450 and direct instruction, MT3000 and facilitating discourse, and MT2050 and N/A, indicating more of these categories than would be expected, and in MT2050 and direct instruction with a negative residual indicating less of this category than would be expected if there was no association.

Research question 3. Do cognitive, social, and teaching presence vary between

levels of post?

The final analyses looked at differences across post type related to all categories in each type of presence. Since the requirements for each of these types of posts are different, one would expect to find variations across them. There was a large association between post type and categories of all three types of presence, cognitive, social, and teaching presence. The most likely associations for cognitive presence appear in lack of cognitive presence in response posts, increased integration in main posts, and decreased integration in response posts. For social presence, the most likely associations are found in lack of social presence in main posts, an increased amount of social presence in response posts, less open communication in main posts, and more open communication in response posts. Last, for teaching presence the associations likely reside in lack of teaching presence in main posts, increase in teaching presence in response posts, less facilitating discourse in main posts and more facilitating discourse in response posts.

Chapter 5: Discussion

Part of the aim of online courses is to create curriculum that will produce additional and highly effective participation and engagement in online courses, leading to more community for these online learners, who, previous research tells us, often feel isolated and disconnected from other learners and the university. The purpose of the present study was to investigate if there are differences in responses or participation in asynchronous online discussions, both by course level (i.e., newer versus more experienced students) and post type (i.e., main responses directly answering the prompt versus responses to other students). In doing so, this study advances the work on the Community of Inquiry (CoI) framework carried out by Garrison et al. (2000) by applying their framework to exclusively online students at a specific type of institution and comparing across course levels and post type. Participants in the current study were nontraditional and online students at a single institution, with the intent to help postsecondary educators and administrators elucidate how to better support this population. This chapter will include summaries of the main findings, organized by research question in the same manner as the results chapter, along with their importance and relevance to prior research. They will also be explained in relation to the CoI framework (Garrison et al., 2000), and the other theories that support this study, social learning (Vygotsky, 1980), capital (Bourdieu, 1986), and andragogy (Knowles, 1978). For ease of reference, the courses will be referred to as the following in this chapter, indicating increasing level: lowest level course, CS1600, will be Course 1; next level course, MT2050, will be Course 2; second highest level course, MT3000, will be Course

3; and the highest level course, MT4450, will be Course 4. Theoretical implications, practical implications, limitations and delimitations of the research, and recommendations for future research are also included.

The conceptual framework first provided in Chapter 1, Figure 1 for the CoI used in this study is included here as a reference to better understand the results and their implications. The prevalence of each of these types of presence and how they are demonstrated in the data in this research can be explained further based on the CoI framework. The evidence of varying levels of cognitive, social, and teaching presence create the overlapping categories; supporting discourse is found in the overlap of cognitive and social presence, setting the climate is found in the overlap of social and teaching presence, and selecting content is found in the overlap of teaching and cognitive presence. The evidence of all types of presence indicates the creation of community around course content (Garrison et al., 2000), which is an important component of this research. High level results indicate less supporting discourse, setting climate, and selecting content in the lower level courses, as opposed to more evidence of these categories in the higher level courses. The focus here is on asynchronous online discussions and how to use them to promote interaction. This type of discussion is the most commonly used in online courses (Rovai et al., 2005) and has been shown to be beneficial for knowledge construction (De Wever, Van Keer, Schellens, & Valcke, 2010). An aspect of this research context that is important to note and remember is that the data are from a particular institution, thus, the results are not highly generalizable. Nonetheless, the results will be useful for the particular institution and can serve as a

starting point for further research which examines how nontraditional students interact in online discussions across course levels.

Figure 1 (Reprised from Chapter 1). Elements of an educational experience (from Garrison et al., 2000). This figure demonstrates how the three types of presence interact to create community in an online educational setting.

Research question 1. Does the nature of nontraditional student participation in asynchronous online discussions differ between levels of courses?

Research question one explored whether the nature of participation in asynchronous online discussions differs between levels of courses for nontraditional students. Previous research has demonstrated that asynchronous online discussions are a beneficial tool for knowledge construction because they can involve cooperation with peers, knowledge sharing, and problem solving, which can lead to critical thinking (De

Wever et al., 2010). The current research looked further into AODs in two ways, first, by comparing the overall amount of each type of presence across courses, and second, by looking for whether or not one type of presence predicts the other types. According to the CoI framework used in this research, when all types of presence exist in the online discussion, there is more likely to be effective learning and community in the classroom (Garrison et al., 2000).

All course levels in the present research demonstrated evidence of all types of presence. This indicates some level of engagement in the educational experience, which the three types of presence in the CoI combine to create. There is evidence that as course levels increase cognitive and social presence also increase, and there is more teaching presence in the two upper level courses. This shows that as course levels increase, so too does engagement with the CoI elements, and thus learning. In prior research, it has been found that as students gain experience with online learning, there is often increased evidence of deeper engagement in learning (Richardson & Newby, 2006). This relates to the current research because as course levels increase, so does the student's level of experience with online learning. Therefore, the students in higher level courses should potentially demonstrate higher levels of the elements of the CoI, showing more engagement in learning.

The increase in cognitive presence is relevant because evidence of cognitive presence seems to predict academic success, whereas social and teaching presences do not (Ozturk, 2015). So the increase in cognitive presence in higher level courses in the current research would demonstrate the higher likelihood that as students go up in course

level, their cognitive presence also increases, and therefore success would also potentially increase. The data on this are somewhat mixed. When defining success as a passing grade (A, B, C) and lack of success as a D, F, or W, there are far more successful students in Course 4, and fewer successful students in Course 1, but the middle level courses do not follow this pattern. Course 2 has fewer successful students compared to Course 3. While cognitive presence does increase as course levels increase, success does not increase in each course level in this study, which could potentially be explained by the patterns or influence of the other types of presence. For example, there was more social presence, specifically group cohesion, found in Course 3, and perhaps that has an effect on the level of success. Or perhaps the difference in this study could be explained by the lesser amount of teaching presence across course levels that did not create this predicted increase in success as course levels increase.

This research is also related to the theory of social constructivism. According to the CoI model, when all types of presence are evident in the online discussion, effective learning and community in the classroom are more likely to also be evident (Garrison et al., 2000). With evidence for all types of presence in this research, it demonstrates some application to the CoI framework in creating an effective educational experience through the interaction of all three. However, there was a much lower amount of teaching presence evident in these courses, which indicates less interaction with cognitive presence in selecting content, and less interaction with social presence in setting climate. This may explain some of the variances in success demonstrated here. It is important to note that while interaction is important, it is not sufficient. Interaction in online courses

must be sure to promote and support the deeper engagement and critical thinking on the content of the course (Meyer, 2014).

Cognitive presence across course levels. Looking at the overall amount of each type of presence across courses, this demonstrates whether there are differences between course levels in amount of each type of presence, which tells to what varying degrees different levels of students (i.e., those that are more or less experienced with online courses) are demonstrating different types of presence. Knowing how different levels of students participate in AODs can potentially help us better understand how to engage students in learning in online courses. This is beneficial because the CoI has been related to positive outcomes such as academic success, motivation (Ozturk, 2015), higher perceived learning (Aykol & Garrison, 2011), and retention (Meyer, 2012). The first research question asks if there is a difference in overall cognitive presence across course level. There is, with significant increases from Course 1 to Course 2, Course 1 to Course 3, Course 1 to Course 4, Course 2 to Course 4, and Course 3 to Course 4. The increases in cognitive presence as course level increases was an expected finding because as students move up in course level, they are generally expected to have higher ability and as more experienced students, are also expected to be more effective at explaining their thoughts and demonstrating their learning. This expectation was borne out in the data, perhaps showing that upper level students are more effective at demonstrating cognitive presence in their discussions. However, since this is looking at overall presence of cognitive presence, looking further into the patterns of the specific categories of cognitive presence will show more about what this finding indicates. For example, it is possible

that across all course levels the majority of the cognitive presence represented was one category (e.g., triggering events), so there was a difference across courses, but not necessarily indicating higher levels of critical inquiry as course levels increase. This is explored further in a subsequent research question based on differences in categories of each type of presence across course levels.

Ozturk (2015) found that cognitive presence specifically influences motivation, whereas the other types of presence do not. Thus this increase in cognitive presence across course levels in this research should also demonstrate increased motivation. A recent line of inquiry into asynchronous online discussions is how the task presented to students influences the levels of evidence of CoI. For example, Koh, Herring, and Hew (2010) found more cognitive activity in project based activities versus non-project based activities. Since many online discussions, including in this research, did not state a specific goal to be accomplished, it could lead to a lesser amount of cognitive presence. For example, Aykol and Garrison (2011) found that more focused student communication was associated with higher order thinking and the encouragement of collaboration among learners is more effective than individual based activities.

Social presence across course levels. The second research question asks if there is a difference in overall social presence across course levels. There was evidence found across all course levels, and a significant overall difference; however, there were not significant differences between course levels. This indicates there is evidence of social presence, but it is a similar amount between course levels. If there were an expectation, it would have been that it would decrease as the course level increased, because there is less

need for social presence for more experienced students. However, the increase may indicate a difference in how nontraditional students prefer to participate in online discussion forums as opposed to traditional students. Previous research has pointed to this possibility (Carnoy et al., 2012; Deil-Amen, 2011; Knightley, 2007; Price & Baker, 2012), and this finding supports this explanation. For example, perhaps as course levels increase, social presence increases because students are more comfortable expressing themselves and applying their learning to their personal experiences. Perhaps in lower level courses, students are maintaining their focus on the course content specifically, and then as they advance to higher level courses, they are able to better apply and explain through personal experiences. However, since there are not significant differences found between individual courses, this might actually be an indication that students across courses are demonstrating social presence in a similar manner.

In relating this to the recent line of inquiry into how the activity influences participation, Morueta, Lopez, Gomez, and Harrison (2016) found as the requirements for a task increased, social activity also increased. This points to the potential importance of properly structuring tasks and discussion requirements in asynchronous online discussions to promote more evidence of social presence. Dennen and Wieland (2007) found that social presence is not inherently related to learning, but it is present when social learning occurs. This relates to the theory of social constructivism and online discussions because if more social presence is demonstrated, learning will be influenced. In the current research results, there is evidence of social presence across courses, which is beneficial to the overall level of CoI in the courses.

Teaching presence across course levels. The last research question looking at overall amount of presence across courses asks if there is a difference in teaching presence. Teaching presence had a divergent pattern across courses in these results in comparison to the previous two. The two lower level courses (Course 1 and Course 2) had less teaching presence than the two upper level courses (Course 3 and Course 4). But within these pairs, the lower course levels had more evidence of teaching presence (i.e., the lowest level course had more teaching presence than Course 2; and the lower level of the two upper level courses had more teaching presence than Course 4). The significant differences appeared between Course 1 and Course 3, Course 1 and Course 4, Course 2 and Course 3, and Course 2 and Course 4. As with social presence, there was not a specific expectation of a pattern, however, if there was it would be expected that there would be more teaching presence in the lower level courses. A potential reason for this would be that students in lower level courses need more support and potentially have more questions about how to effectively demonstrate their thoughts and apply the content.

While there was not literature found on differences across course levels specifically, Richardson and Newby (2006) did find as students gain experience in online learning, their engagement increases. Therefore more teaching presence would demonstrate more course organization, facilitation, and instruction (Meyer, 2014), and subsequently encouragement of the resolution stage of cognitive presence (Garrison & Arbaugh, 2007). Additionally, Nandi et al. (2012) found quality of interaction in online discussions is dependent upon instructor feedback. However, the data in this research

show more teaching presence in upper level courses, which could be explained in multiple ways. First, it could be that a different type of teaching presence is being demonstrated across levels, and that would provide more insight into how the results should be interpreted. Individual categories of teaching presence will be explored further in a subsequent research question. Otherwise, it could also indicate there is, in fact, more teaching presence in upper level courses, demonstrating perhaps that upper level course students need a significant amount of facilitation and instruction. This could also be an indicator there is more analysis and discussion happening, since more teaching presence could indicate more exploring of ideas, questioning of application, figuring out how to integrate thoughts, etc. Since there was not a way to distinguish between student and instructor posts in these data, it limits the conclusions that can be drawn from this. However, since teaching presence can be enacted by a student or an instructor (Garrison et al., 2000; Garrison & Arbaugh, 2007), conclusions can still be drawn based on the evidence that there is some level of teaching presence in the courses from some source. It is another potential line of inquiry to look at data that would distinguish between students and instructors to see who is enacting teaching presence and what types. For example, is it as effective for students to enact teaching presence or is it more beneficial to learning and presence of CoI elements for instructors to enact this type of presence?

Meyer (2014) states that teaching presence exerts its main influence on engagement through the assigning of engaging tasks in order to help movement through the stages of cognitive presence. This is an interesting piece in this particular research because online instructors are provided with a course shell with the discussion questions

already created. Therefore, in this research context, how to create more teaching presence generated by the instructor, aside from just the discussion prompt content, is relevant to increasing cognitive presence. It is a commonly held belief that courses with only online discussion forums lead to very little instructor-student interaction and student-student interaction (Hull & Saxon, 2009). The current results support the lack of instructor-student interaction, but not necessarily that they lead to little student-student interaction. While it must be stated that the only way to be certain that a post was instructor generated was if the instructor included her/his name, guiding discussion, probing questions, and summarizations of discussions were almost entirely non-existent. Which indicates little of any of the categories of teaching presence, regardless of the source.

While faculty-student interaction outside the classroom has been shown to have a positive impact on student learning (Pascarella & Terenzini, 2005), this type of interaction is not feasible within an online learning environment where students and instructors are remote from the physical institution, or in an entirely online institution, where students and instructors may never be physically present in the same place. Therefore, one could argue that instructor presence within the online classroom and in online discussions would be elevated in importance, however, the results of this research do not show a significant amount of teaching presence. Learning and community in these courses could potentially be improved with the increased presence and guidance of an instructor throughout the discussion boards. This may be especially important for nontraditional students who may need additional flexibility due to the management of multiple roles and need for self-regulation, wherein faculty support and encouragement is

especially beneficial (Brescia et al., 2004). However, while this additional presence was not demonstrated in this research, there was some level of teaching presence discovered.

Overall differences across course levels. There is a lack of prior research where analyses look at differences across course levels. There is more recent literature looking further into how the structure of a task or discussion can influence presence, or how CoI is related to different academic disciplines (Arbaugh, Bangert, & Cleveland-Innes, 2010; Gorsky, Caspi, Antonovsky, Blau, and Mansur, 2010; Koh et al., 2010; Morueta et al., 2016; Richardson & Ice, 2010**)**. Moving forward these lines of research could involve examining differences across course levels based on task structure or academic discipline. This would provide additional insight into how students are progressing through their coursework and if CoI varies based on these factors, ultimately narrowing in further on how best to engage students at different levels, disciplines, and types of activities.

Influence of teaching presence on cognitive presence. The next set of questions looks at the potential predictive relationships among the types of presence. Garrison, Cleveland-Innes, and Fung (2010) found teaching presence predicted both cognitive and social presence, and social presence also predicted cognitive presence. The first question here asks if teaching presence had an effect on cognitive presence in these data. The results show teaching presence accounts for 30% of the variance in cognitive presence. What this indicates is that as teaching presence increases, so does cognitive presence. This is important because it shows there is a relationship between types of presence, which in turn means that one type of presence can be influenced by another. Therefore, if one wanted to increase cognitive presence in the online discussion, increasing teaching

presence should accomplish that. In practice this would mean the instructors could influence the amount of cognitive presence being demonstrated by students. This supports the results of Garrison, Cleveland-Innes, and Fung (2010) and supports the relationship of CoI as a framework (Garrison et al., 2000).

Previous research also reviewed this relationship. Kozan and Richardson (2014) found while high levels of teaching presence are associated with high levels of cognitive presence, teaching presence does not necessarily affect the relationship between cognitive and social presence. Thus, the results from the current research support prior research. This research also focused on nontraditional students, therefore further corroborating the potential differences in the nature of nontraditional student participation in online discussions. However, prior research also shows that social presence has a mediating effect between teaching presence and cognitive presence (Garrison, Cleveland-Innes, & Fung, 2010), and in the current research and Kozan and Richardson (2014), social presence is found to have a much smaller mediating effect. This indicates more research may need to be completed to learn more about this relationship.

Influence of teaching presence on social presence. The next question asks whether teaching presence has an effect on social presence, which it does, accounting for 16% of the variance in social presence. This means that as teaching presence increases, so does social presence, although to a lesser extent than teaching presence predicts cognitive presence. This is important because in practice it means the instructor could have an influence on the amount of cognitive presence that is shown in the classroom. If the goal is to have all types of presence demonstrated in the same asynchronous online discussion,

the instructor can play a large role in increasing both other types of presence, thereby influencing and providing the educational experience that all three types of presence combine to create in the CoI framework. This supports the results of Garrison, Cleveland-Innes, and Fung. (2010) and supports the relationship of CoI as a framework (Garrison et al., 2000).

Again, relating this to the recent research by Kozan and Richardson (2014), who also looked at nontraditional students, high levels of teaching presence are also related to high levels of social presence. They also found when controlling for cognitive presence, the relationship between teaching and social presence may disappear, which indicates cognitive presence mediates the relationship between teaching and social presence. This is in contrast to the present research that finds a mediating relationship of social presence between teaching and cognitive presence. However, this is not a very strong relationship. The present research supports Garrison, Cleveland-Innes, and Fung's (2010) findings, but it is not as strong of a relationship. This could indicate that while nontraditional students in this context interact in a way that reflects that of traditional students, social presence does not have as large of an effect. This supports the prior research that demonstrates social presence is not as important for nontraditional students, or their social presence is enacted in a manner that integrates with cognitive presence (Carnoy et al., 2012; Deil-Amen, 2011; Price & Baker, 2012).

Influence of social presence on cognitive presence. The last predictive relationship question asks if social presence has an influence on cognitive presence. It was found to account for 49% of the variance in cognitive presence, which is a very large

effect size. This effect size indicates that for every instance of social presence, there is also an instance of cognitive presence. This is an interesting finding because based on the existing research it is expected, but in this population of students there would have been less of an expectation that social presence would have such a large effect on cognitive presence. With the multitude of research that shows nontraditional students may participate in discussions in a different manner (Carnoy et al., 2012; Deil-Amen, 2011; Knightley, 2007; Price & Baker, 2012), this finding could demonstrate that nontraditional students are enacting social presence for a cognitive purpose. In contrast, it could also indicate that both types of presence are important to this population. To further investigate this, follow up with interviews in this population of students to learn more about how they are engaging with the content and other students in online discussions might be informative. As with the other prediction questions, this supports the results of Garrison, Cleveland-Innes, and Fung (2010) and supports the relationship of CoI as a framework (Garrison et al., 2000).

Kozan and Richardson (2014) also found that higher levels of social presence are related to higher levels of cognitive presence. These findings support the idea that social presence not only requires portraying oneself as a person in online discussions, but cohesion also requires an intellectual focus (Garrison & Arbaugh, 2007). This is supportive of the importance for nontraditional students to be able to integrate both socially and academically, rather than demonstrating social presence for its own sake. Morueta et al. (2016) conducted a study adding information about the level of structure in a task and how it influences the CoI in a discussion. They found a strong relationship

between social and cognitive presence, with a stronger correlation between the two when the task is relatively less structured (Morueta et al., 2016). Since online discussions in this research context and in general are less structured, the strong relationship between social and cognitive presence is reinforced. However, simply asking students to respond and agree or disagree in a discussion, does not usually lead to higher level cognitive presence (Darabi, Arrastia, Nelson, Cornille, and Liang, 2011), therefore, the combination of these results demonstrates there should be some structure plus an end goal in online discussions to increase their utility.

Overall prediction relationships. As a whole, these results demonstrate support of the prior research that teaching presence predicts cognitive presence and social presence, and social presence predicts cognitive presence (Garrison, Cleveland-Innes, & Fung, 2010). The difference that may point to the distinction between the current research and its focus on nontraditional students is the smaller effect size for teaching presence on social presence. While social presence is still a factor between teaching and cognitive presence, the mediating influence may not be as strong in this research context. This demonstrates that in the current context, teaching presence can influence both other types of presence, which in practice means the instructor would potentially be able to increase social and cognitive presence if necessary.

Research question 2. Do cognitive, social, and teaching presence vary between course levels?

The second research question explored the differences of categories of each type of presence across course levels. This was broken down into three more detailed research

questions, each one related to a specific type of presence. There is evidence of different categories of presence in different course levels, suggesting that students in these different course levels are participating in discussions in divergent manners. In lower level courses (Course 1 and Course 2) students show more affect, less cognitive presence, less direct instruction, and less teaching presence. In contrast, in upper level courses (Course 3 and Course 4) students show more integration, application, group cohesion, direct instruction, and facilitating discourse. When looking at the categories within each type of presence, these findings are demonstrative of upper level students showing higher levels of each type of presence. From these results, it may be interpreted that lower level students show social presence, but more self-disclosure as opposed to group identity, as well as much less cognitive presence, which is an important indicator of critical thinking.

Cognitive presence categories across course levels. The first research question looking into the specific categories of presence asks if there is a difference in the categories of cognitive presence across course levels. There was a moderate association found here with the likely differences appearing in the following areas: lowest level courses and lack of cognitive presence, Course 4 and more cognitive presence, specifically more integration and resolution/application. What this indicates is there was less cognitive presence found in Course 1, and more cognitive presence overall and in the more advanced critical inquiry stages in Course 4. This supports the findings in relation to overall level of cognitive presence across the courses, which demonstrated cognitive presence increased as course level increased. This is an expected finding because the students are more experienced in relation to discussion participation and online learning

as course level increases. As students gain more experience in online learning, their engagement with learning also increases (Richardson & Newby, 2006), which this finding supports in this research context. The importance of this finding lies in the reasoning that if upper level students are participating differently, we can attempt to examine the way in which they are participating differently and then potentially apply the learning in lower level courses in order to increase engagement in learning. Although it is not possible to increase online experience in an accelerated manner, there could be other ways to increase their comfort with the online environment. For example, more extensive and targeted orientations could be created and required in order to help students gain some level of experience and comfort with the online learning experience prior to beginning courses. While this is not a new concept in this literature (Habley, Valiga, McClanahan, & Burkum, 2010; Brescia et al., 2004; Sahin & Shelley, 2008), it reinforces the potential benefit of requiring an orientation or some similar requirement based on the presence of more advanced stages of cognitive presence and success in upper level courses as compared to the lower level course.

Another aspect is to look further at how teaching presence is affecting this result. Since overall, there was a low level of teaching presence found in these courses, might additional teaching presence increase the amount of cognitive presence demonstrated in all or some course levels? These data did not allow the researcher to differentiate teaching presence that was enacted by the instructor versus by a student, so exploring this differentiation might help illuminate how to increase cognitive presence through teaching presence. Such insight would be relevant due to the fact that this research found that

teaching presence accounts for a large amount of the variance in cognitive presence, along with prior research (Garrison, Cleveland-Innes, & Fung, 2010; Kozan & Richardson, 2014).

While Exploration and Integration were not found to have the strongest possible associations with course level in this research, the data do show there are associations between course level and the Exploration and Integration phases that are noteworthy in relation to previous literature. Prior literature typically demonstrates the Exploration phase is the most common in cognitive presence (Koh et al., 2010; Kovanovic, Gasevic, Joksimovic, Hatala, & Adesope, 2015; Morueta et al., 2016), however, there has been some evidence of Integration being the most active (Aykol & Garrison, 2011). In the current research the former is supported with Exploration being the most active by far and Integration was the second most active. Further, the associations across course level and these two phases of cognitive presence indicate more Exploration in Course 3 and less in Course 4, which is accounted for in more Integration in Course 4. Additionally, less Integration was present in Course 1 and more was present in Course 4, which demonstrates Integration increases as course level increases. An anomaly in this pattern is the smaller association between Integration and Course 3, which can be explained in the larger association between Exploration and Course 3. However, it is a surprising finding that there was more Exploration than Integration in Course 3 since it is a higher level course and therefore should be demonstrating higher levels of cognitive presence. In practice, it might be beneficial to determine early in the course the levels of cognitive presence demonstrated by various students, in order to provide early interventions.

Further research on how data can be used to gain more knowledge of student learning and subsequently provide these early interventions and specific feedback is critical (Office of Educational Technology, 2017). An example of research in this area explores whether different categories of words (e.g., tentative words, causal words, etc.) could predict cognitive presence, finding there are distinct levels of word use across categories of cognitive presence (Joksimovic, Gasevic, Kovanovic, Adesope, & Hatala, 2014).

Social presence categories across course levels. The research question regarding social presence asks whether there is a difference across course levels in amount of the different categories of social presence. There is a large association in these results, with the differences presented in more self-disclosure in Course 1, more group cohesion and less open communication in Course 3, and less self-disclosure in Course 4. These results indicate generally more self-disclosure in lower level courses, which is expected, however, it might indicate less application to personal experience in upper level courses, which would not be expected. Otherwise, it could indicate that students in upper level courses are applying more content without the use of self-disclosure, which could indicate a more sophisticated manner of engaging with the content because they are able to do so without applying it directly to their own experience. This would be an interesting additional line of inquiry, looking further into how students across course levels are demonstrating application of the content, and whether self-disclosure varies. This would tell us more about how different levels of students are engaging with the content and expressing social presence, a relevant topic because research demonstrates nontraditional students may interact and utilize social presence in a different manner from traditional

students (Carnoy et al., 2012; Deil-Amen, 2011; Knightley, 2007; Price & Baker, 2012). Furthermore, part of the foundation of social constructivism is the ability to present oneself as a person, even in these virtual environments (Garrison et al., 2000), therefore social presence is an important aspect of participation in online courses overall.

In relation to group cohesion, there was a large amount present in Course 3, which indicates these students were doing more than just responding to one another (which would show open communication), but also demonstrating a sense of group mentality. Part of this is due to a large amount of discussion and well wishes at the end of one of the courses, which could demonstrate feelings of cohesion with classmates. Otherwise, it could also indicate that there was a group mentality and because some people sent these messages, others followed along. This aligns with previous research showing high quality initial postings can influence subsequent postings (Ioannou et al., 2014), thus, while these extensive social messages at the end of the term could indicate a high level of group cohesion, it could also simply indicate students following the lead of other students. Either way, it demonstrates some level of group cohesion, regardless of the motivation. Another example of group cohesion in another course level (Course 2) was demonstrated in discussions regarding unethical business practices and how students behaved in those situations. In this particular discussion there was a large number of students praising one another for demonstrating ethics and standing up for what was right in the situation. Following are two brief examples of responses to main posts detailing unethical practices in a business situation. These demonstrate the group cohesion students are feeling and how they are expressing them in the discussions.

> *"That is shocking. I can't believe they showed no remorse for that act. For me, this is an easy ethical decision. It violates not only legal ethics but also shows how greedy and careless the person involved is."*
>
> *"Hello [name]. That is so wrong and unethical. Like really they thought that they would get away with something like that? Not only are they bringing trouble to themselves but the company as a whole because customers would feel as if that company has no moral values amongst a list of other things. I hope that they got rid of the person doing this and they are trying to rebuild their company up again, because they do not deserve to be punished for those dastardly deeds."*

These demonstrations of group cohesion can be related to the finding that initial postings can influence subsequent posts (Ioannou et al., 2014), and applied to the instructor having the ability to influence discussions. If students are generally responding to one another in a similar manner and it is inaccurate, the instructor can step in and re-orient the discussion. The timing and frequency of instructor posts have been demonstrated as being influential on the quality of the online discussion (Ming & Baumer, 2011). Therefore the instructor could stimulate the type of participation that leads to community and positive engagement.

Teaching presence categories across course levels. The last research question in relation to the differences across course levels is whether there is a difference in categories of teaching presence. There is a moderate association here, with the likely associations residing between more direct instruction and Course 3, facilitating discourse and Course 4, respectively, and less teaching presence overall, but specifically direct instruction, in Course 2. These results show overall more advanced levels of teaching presence in the higher level courses. The distinction between these two categories needs to be clear, teaching presence must be sure to provide facilitation as the discussion progresses and demonstrate direct instruction as needed (Garrison & Arbaugh, 2007).

Thus, the fact that these categories are found in different courses could be an issue because both are not being enacted in the same discussion. However, these results are somewhat difficult to interpret due to the nature of the data and the inability to distinguish between student and instructor postings. However, overall there was less evidence of teaching presence in these courses as compared to cognitive and social presence. Due to the lesser amount of teaching presence overall, this would seem to indicate that the instructor was not highly active. Even though the difference could not be distinguished, there should have been more evidence of teaching presence in these courses, based on what is known about the benefit of its role in online discussions and its influence on both cognitive and social presence, found in prior research (Garrison, Cleveland-Innes, & Fung, 2010; Kozan & Richardson, 2014; Ming & Baumer, 2011; Nandi et al., 2012). In cases where there is less teaching presence, there is some evidence that social presence can offset that lack (Aykol & Garrison, 2011), but in the present research there was not a significantly higher level of social presence.

Research question 3. Do cognitive, social, and teaching presence vary between levels of post?

The third research question explored the differences of categories of each type of presence across post type. This was broken down into three more detailed research questions, each one related to a specific type of presence. The findings in this group of research questions are to be expected, because the expectations for a main post versus a response post are different. They will be reviewed briefly here, but do not reveal significant contributions to the understanding of the presence of CoI in online

discussions. The original research project intended to look at additional levels of posts, but was not able to due to restrictions on the data. What these analyses do demonstrate is the evidence of all types of presence overall in the discussions, with more cognitive presence in main posts and more social and teaching presence located in response posts. This does further explain some differences regarding where the types of presence are enacted, and also demonstrates they are all present, which is not a new finding, but does corroborate previous findings (De Wever et al., 2010; Garrison et al., 2000; Garrison, Cleveland-Innes, & Fung, 2010). The substantiation of these previous results can lead to the conclusion that there is presence of CoI in the overall courses, which in theory, should lead to positive outcomes in online learning, such as: collaborative learning and deeper understanding of content (Bangert, 2008); higher perceived learning (Aykol & Garrison, 2011); retention (Meyer, 2012); collaborative learning and engagement (Putman et al., 2012); and academic success and motivation (Ozturk, 2015).

Cognitive presence categories across post type. This research question looks at the differences in types of presence across post type. There were two types of posts analyzed in this research, main and response posts. Main posts are the posts wherein students respond directly to the discussion prompt, and response posts are those where students are responding to one another. Generally, the main posts are expected to be more substantial, whereas response posts are typically shorter, but are included as part of the course requirements and are intended to be thoughtful extensions and/or questions posed to other students. Because of the divergent expectations for these two types of posts (i.e., main and response), it is expected there would be differences in categories of presence

across them. To the first question of whether there was a difference in categories of cognitive presence across post types, a large association was found. The associations most likely in this analysis are in response posts and less cognitive presence, specifically less Integration than would be expected, whereas there was a higher likelihood of an association with main posts and Integration. This indicates there is more cognitive presence in main posts, which is where students are responding to the prompt. Additionally, it demonstrates more Integration in main posts as opposed to other categories of cognitive presence. This is related to the finding in the above analysis of categories of cognitive across course level, that there is more Integration in the higher level courses. This result explains that finding further by demonstrating the Integration category is found in main posts in upper level courses.

Social presence categories across post type. Are there differences in categories of social presence across post types? Again, a large association was found. This association is most likely to reside between social presence overall, with less in main posts and more in response posts. Additionally, there was a strong likelihood of an association between open communication and response posts, with evidence of far less open communication in main posts. This is also an expected finding because the principal manner in which social presence would be evidenced is through Self-disclosure, so if Self-disclosure is lacking, then it probably won't be shown in main posts. On the other hand, since the act of continuing a thread in an online discussion is evidence of Open Communication, there is a large amount of evidence for this category in response posts. This further explains the findings above in looking across course levels by showing that in spite of the large

amount of Open Communication in response posts, the evidence of Group Cohesion in Course 3 is still strong enough to stand out.

Teaching presence categories across post type. Last is the research question looking at the possible differences between categories of teaching presence and post type. Again, a large association was found here. There are two pairs where this association probably resides, first, between main posts and less teaching presence, and response posts and more teaching presence. Second, between main posts and more facilitating discourse, and between response posts and less facilitating discourse. The first is an expected finding because students are responding directly to the prompt in their main posts, so questions are less likely to be posed. However, another aspect of teaching presence is direct instruction, by bringing in additional resources and explaining them it is possible to have more in main posts. The lack could indicate less use of external resources, which is also an aspect of demonstrating cognitive presence. In response posts, there was more evidence of teaching presence, particularly facilitating discourse, further explaining where it is found in relation to the findings across course levels, i.e., facilitating discourse is found in response posts in upper level courses.

Teaching Presence and the Role of Discussion Prompts

Considering the importance of teaching presence and discussion prompts demonstrated in previous research (Garrison et al., 2010; Kozan & Richardson, 2014; Ming & Baumer, 2011; Nandi et al., 2012), and the lesser amount of teaching presence demonstrated in the data in this research, it is an important finding to discuss further. There is substantial research looking at teaching presence in the CoI, three potentially

relevant areas for this research project include Bloom's taxonomy, activity type, and subject matter effects. The role and importance of effective teaching cannot be argued in any educational context, in an online environment, this includes the intentional implementation of pedagogy that is informed by research on education and learning with technology (Office of Educational Technology, 2017).

In the present research context the course level curriculum is developed based on Bloom's taxonomy, which is a common theme in curriculum building. Figure 11 demonstrates how the constructs of cognitive presence, Bloom's taxonomy, and course level used in this research are related. While specific examples of curriculum and discussions prompts are not included due to the agreement with The University, some general observations can be made. The curricula for the overall courses are based on Bloom's taxonomy, but the discussions are not directly related to the levels of Bloom's taxonomy. Discussion prompt requirements were similar across course levels, with a typical discussion asking the student to review a resource from the course content and discuss it, with nearly all of them (i.e., thirty-four out of thirty-six) asking specifically for application, either to personal experience, opinion, or course content. Therefore the nature of the discussion prompt should not have influenced the results in this research.

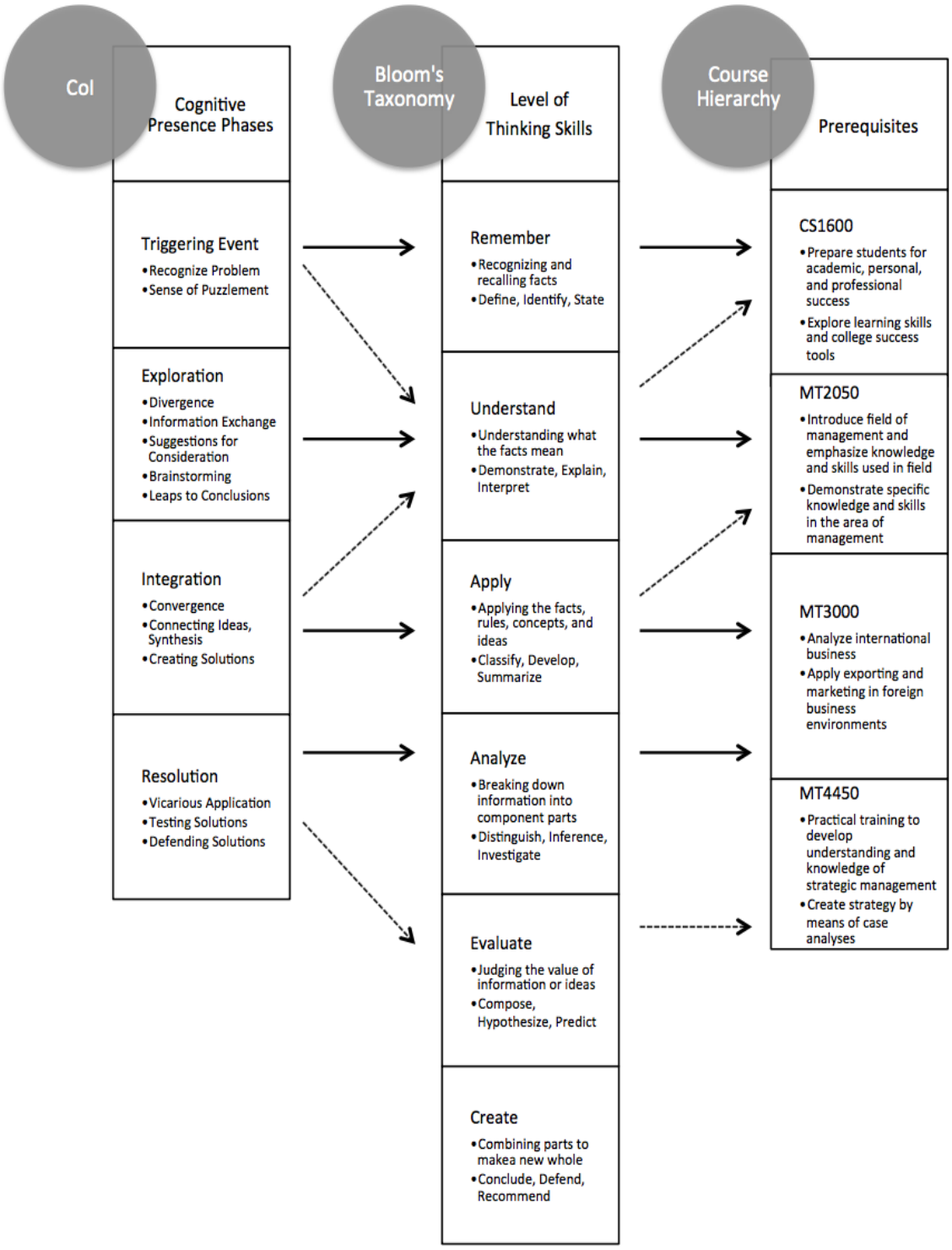

Figure 11. Relationships across constructs. Relationship between cognitive

presence in CoI, levels of thinking in Bloom's taxonomy, and course level distinction at The University.

Some research has looked into the influence of Bloom's taxonomy levels on the presence of elements of the CoI framework. Morueta et al. (2016) reviewed three types of tasks that require increasingly complex levels of Bloom's taxonomy (analysis, evaluation, creation) and measured the levels of CoI demonstrated in the discussions. They found a higher level of cognitive presence in creation and increasing levels of social presence as the levels increased, concluding that the requirement of the task does influence the elements of the CoI framework. Aykol and Garrison (2011) added the influence of collaborative activities and determined there is a relationship between this type of activity and higher order learning outcomes. Whereas in this research collaborative activities were found to increase cognitive presence with less structure, in Morueta et al. more structured tasks at higher Bloom's taxonomy levels led to more cognitive and social presence. Pecka, Kotcherlakota, and Berger (2014) propose the incorporation of learning activities based on Bloom's taxonomy level to the CoI model in order to more easily measure learning outcomes. This model could be relevant to the context in the current research because they are already using Bloom's taxonomy for other aspects of the course.

Activity type is another current line of inquiry using the CoI model to measure how the types of presence are expressed in different manners based on the task. This is relevant in the current research in order to determine how best to design tasks to encourage cognitive, social, and teaching presence based on how they are currently

expressed. It can help determine ways to improve discussions and increase level of CoI in different course levels as needed based on the results. As mentioned, Morueta et al. (2016) reviewed tasks based on Bloom's taxonomy and found the type of task influences cognitive and social presence. Richardson and Ice (2010) found discussions based on real-life cases can help stimulate more critical thinking, whereas Koh et al. (2010) found project-based tasks led to more cognitive activity. This demonstrates the advantageous nature of including more specific tasks in discussion prompts and including an end goal, rather than having an open-ended discussion, which is often the norm for asynchronous online discussions. Simply asking students to respond to questions and agree or disagree with one another, typically does not lead to higher level cognitive presence (Darabi et al., 2011). Garrison and Arbaugh (2007) summarize this well with their observation that, "It would appear that if the activity is problem or case-based, clear expectations are given, and appropriate teaching presence is provided, participants in a community of inquiry would not have difficulty moving to resolution" (p. 162). Darabi et al. (2011) reviewed different types of discussion activities to see which had the most propensity to generate higher level learning. They used four methods: a structured approach with detailed questions, scaffolded where student mentors guided the discussion, forced debate where students had to debate a randomly assigned position, and role play where students assumed the role of a professional in their field. Findings based on category of cognitive presence included: the most triggering events in the structured task, the most exploration in the debate, the most integration in the debate task, and no significant difference for resolution. They state that these findings are instrumental in determining how best to

design online discussions (Darabi et al., 2011).

The last topic to review here in relation to current research is subject matter effects, which is related to activity type because the type of activity required can vary along disciplines. Arbaugh et al. (2010) found differences across hard/linear subjects like engineering versus soft/creative subjects like education, where the soft disciplines scored higher in cognitive, social and teaching presence, concluding the CoI may be more applicable to soft subjects. In contrast, Gorsky et al. (2010) found more CoI dimensions in the sciences as opposed to the humanities. This information can be used in accordance with the differences across courses in determining how best to apply the current research to the research context in this study. For example, most of these courses are business courses, therefore using tasks that are more linear thinking and straightforward, may lead to additional demonstration of elements of the CoI.

Nontraditional Students in Online Learning

This study did not compare traditional and nontraditional students, however, it included a purposive sample of nearly all nontraditional students, at a nontraditional university, who are and have been primarily online students. This type of sample is relevant in the current higher education environment because recent reports have demonstrated that a majority (i.e., 74%) of all undergraduate students have at least one nontraditional characteristic (Office of Educational Technology, 2017). The current research includes a unique sample and a unique context focusing on a specific institution that is categorized as for profit. In one way narrowing this study to one particular institution is a detriment because it is such a specific context that the results may not

generalize to other higher education providers, however, it is also beneficial for some practical reasons. First of all, it will potentially be beneficial to The University itself, which can use the results to help improve its discussion boards. It may also be helpful as a starting point in additional research in this context and/or to look in more depth at course level differences. This research developed a more thorough understanding of how students in this environment are participating in asynchronous online discussions and how their behaviors differ across course levels. Carnoy et al. (2012) found nontraditional students complete degrees in a different manner than traditional students, so it stands to reason that they may also participate in a divergent manner.

A significant body of research points to the idea that nontraditional students may prefer to participate in discussions in ways that are dissimilar from traditional students (Carnoy et al., 2012; Deil-Amen, 2011; Knightley, 2007; Price & Baker, 2012). It is important to point out that effective discussions are critical because interaction in itself is not necessarily enough to ensure cognitive engagement with learning (Garrison & Cleveland-Innes, 2005). There are multiple ways students can interact online and community can be demonstrated through different avenues. Some indicators of strong classroom community include when students feel connected to each other and the instructor, share common interests and values, trust and help each other, actively engage in two-way communications, and pursue learning objectives (Rovai, 2002). While nontraditional students may participate in a social way, it is often more focused on classroom learning, as opposed to purely social interaction. This idea is not new, Conrad (2002) found that adult, online students participated in community building as a practical

manner in which to complete courses. Additionally, some students find online community and social presence to be helpful to learning, while others find it unnecessary and inconvenient (LaPointe & Reisetter, 2008), thereby demonstrating social community may not be desired by all students, especially those who have multiple other responsibilities, such as nontraditional students (Meyer, 2014).

Nontraditional students often have these additional responsibilities to juggle, which can make attending and succeeding in courses more challenging. Kozan & Richardson (2014) explain the results they obtained, which were different than much of the literature, by saying their population included many full time professionals. This context is unique in that they may have less time to integrate in a social manner and therefore may focus more on learning activities that have more points and more value (Kozan & Richardson, 2014). This demonstrates how nontraditional students may be integrating differently. Another example of differences between these two student populations was found in a study related to online cooperative learning. Oyarzun and Morrison (2013) compared traditional and nontraditional students in relation to cooperative learning and found no significant differences in relation to achievement or satisfaction, but for nontraditional students, cognitive and social presence were higher. This demonstrates how different learning activities can be used to appropriately engage different populations. Supporting this research is the finding of Kovanovic et al. (2015), which discusses the need to develop instructional approaches that lead to an effective educational experience for diverse subpopulations that exist in higher education. Additionally, the Office of Educational Technology (2017) states using digital tools (e.g.,

simulations, adaptive platforms, and cognitive tutors) and technology in higher education to engage students has expanded learning opportunities for many students. For example, this "technology can provide instructors with the means of creating active learning environments that connect students with content in different ways" (Office of Educational Technology, 2017, p. 28). These findings demonstrate the importance of focusing on using technology to help support students in multiple manners.

The theory of capital, which demonstrates the divergence among students in areas such as socioeconomic status and family characteristics, and how they influence opportunities afforded to different students is relevant here. While this research did not formally measure capital, the focus on nontraditional students brings to light the relevance of this theory. For example, familiarity and access to technology can vary across the nontraditional and traditional student populations (Warschauer & Matuchniak, 2010), pointing to the importance of ensuring all students are effectively prepared to be successful in their online courses. Ultimately, adults returning to higher education have different responsibilities and life experiences as compared to traditional students. Therefore, adjusting learning activities based on these findings may help increase success. Even Garrison (2011) has adjusted the CoI framework in light of recent developments with different types of students, reconceptualizing social presence as focusing more on social interaction with a learning purpose, rather than for a purely social purpose.

In relation to the background theory of andragogy, this focus on nontraditional students points to the recommendation that discussions be created to allow them to apply

the knowledge they have gained in their years of experience. The prompts in the discussion boards in the current context attempted to allow sufficient opportunity for students to apply their experience, but for some set of reasons there was less evidence of this in their responses than was expected. There are different possibilities for this lack, based on either students or curriculum. On the student side, they may have been underprepared or even unaware of what was important in critical thinking and success in the classroom. On the curriculum side, the prompts could be deficient or the discussions themselves could be missing critical features that encourage this additional application. Considering the observations in this research, there was very little teaching presence, a factor that likely contributed to the lack of personal application.

Theoretical Implications

The findings from this study contribute new understandings to each of the theories that were used as a framework for this research. While the constructs in each of these theories were not necessarily measured directly, the current research is able to provide further insights related to each of them. The grounding theories used in this study and reviewed in relation to the results here are the CoI theory, social constructivism, capital, and andragogy.

Community of Inquiry. The CoI theory is the most directly related to this study and its constructs were directly measured. Garrison et al. (2000) propose in this theory that cognitive, social, and teaching presence combine to create an effective educational experience within an online classroom. Prior research has found predictive relationships among the three types of presence, with teaching presence predicting both cognitive and

social presence, and social presence predicting cognitive presence (Garrison, Cleveland-Innes, & Fung, 2010). Additionally, there have been differences found between traditional and nontraditional students in how community and integration are expressed (e.g., Rovai et al., 2005), typically with nontraditional students focusing more on social interaction that has an academic purpose (Deil-Amen, 2011).

All types of presence were found in the current research, this overlap of cognitive, social, and teaching presence suggest the creation of an effective educational experience in these online courses. However, there were far fewer instances of teaching presence as compared to cognitive and social presence, which does not refute the CoI theory, but demonstrates that in this context there may need to be more of an emphasis on providing teaching presence in order to create a more effective educational experience. In the current research the same predictive relationships were supported, with teaching presence accounting for a significant amount of the variance in cognitive and social presence, and social presence accounting for a significant amount of the variance in cognitive presence. This supports the theory in that increasing one type of presence can influence the other types of presence, and therefore further encourage the demonstration of an effective educational experience for the students.

In this study, nontraditional and traditional students were not compared directly, however, an intentional sample of nontraditional students was used. The CoI is based on online communication, but was not created differentially for nontraditional and traditional students. Therefore with the results demonstrated here that there was less social presence in main posts, but still social presence demonstrated overall, it may

support the notion that nontraditional students are participating in a manner divergent from traditional students. This supports prior research that found integration may not be a critical part of the nontraditional educational experience, partly due to having different motivations for participating in higher education (Carnoy et al., 2012) and in nontraditional students at community colleges who did integrate socially, but primarily when it had an academic purpose (Deil-Amen, 2011). This may lead to the adjusting of expectations in the CoI for nontraditional students so an effective educational experience is still possible, or present, despite not demonstrating as much social presence.

Social constructivism. Social learning theory posits that learning occurs in a classroom setting when learners work together, using their experiences to co-construct meaning from the content of the course (Vygotsky, 1980). This includes the assumption that learning has a social component, demonstrating the importance of online discussions in providing a platform to enact this socialness in fully online courses. The results of this study provide support that learning is social, because there is social presence demonstrated in these courses. However, the amount of learning or number of students who were successful in these courses was not measured in relation to how much social presence a particular student demonstrated. This link between a particular student, what types of presence she/he demonstrated, and learning or grade in the course could not be measured in this research due to the de-identified nature of the data that were able to be accessed. This theory also discusses the use of more experienced individuals to help create understanding and learning, which was not demonstrated to a great extent in this research. There was some teaching presence demonstrated, but to a lesser extent than

cognitive or social presence. This may indicate that for nontraditional students in this environment, teaching presence is not as critical, or it may indicate that teaching presence is not being demonstrated to a great enough extent in this particular setting. It is unlikely in any educational setting that teaching presence is not critical, therefore, the most plausible explanation is the latter.

Capital. The theory of capital works to explain how social class and socioeconomic status (SES) can influence the opportunities afforded across classes (Bourdieu, 1986). In higher education this is demonstrated in research showing SES is linked with success (Callender & Jackson, 2008; Dwyer et al., 2012; & Tinto, 1975). Particularly in relation to nontraditional students, they are more likely to have less capital than traditional students (Bourdieu, 1986), therefore, gaining access to and finding success in higher education can be more complicated for nontraditional students, on which this study focused. While capital was not measured directly in this study, it is relevant due to the use of a purposive sample that included nontraditional students, at a nontraditional institution, who enroll primarily in online courses. The results of this study may demonstrate a divergent manner of participation for nontraditional students, which further corroborates the differences in participation in higher education related to capital. Again, this is by extension since capital was not directly measured, but may still provide additional support to the relevance of capital in higher education, and demonstrate the beneficence of additional research in this area.

Andragogy. The final theory used in this research as an overarching framework is that of andragogy, or adult learning theory. This is relevant in this context because age is

often used as one way in which to define nontraditional students (Bean & Metzner, 1985; U.S. Department of Education, 1995). One of the main aspects of andragogy includes the opportunity for adult students to have the ability to apply their classroom learning to the real world (Knowles, 1978). This could be demonstrated in the current study by the presence of self-disclosure in social presence. However, there was very little self-disclosure and there was not a significant demonstration of social presence in main posts, but rather more in response posts.

In relation to the results in this study, the lack of teaching presence may have led to the decreased amount of personal application to the content in the discussion forums. The teaching prompts were not analyzed in this research due to the agreement with The University, but most of them did request application in some manner. Thus, more application to the students' personal or work experiences could have been bolstered by additional teaching presence, such as facilitating discourse. Since the use of experience is one of the primary aspects of andragogy (Knowles, 1978), the results in this study point to the potential benefit of specifically using teaching presence to encourage personal application and additional interaction. This would also be useful because additional interaction can lead to bolstering capital, which can lead to feeling more a part of a learning community in online courses (Knightley, 2007).

Practical Implications

While there was evidence of all types of presence found in these courses, there are areas for improvement based on these research findings. The primary takeaway from the results in this research is the finding of less teaching presence as compared to cognitive

and social presence, and subsequently how to increase it in this setting. The areas for practical implications are broken down by the stakeholder groups of faculty, instructional designers, and program administrators, and are primarily concerned with how to effectively use prompts to engage students and the amount of teaching presence throughout the courses. Both of these are important and complicated areas to address, but this research can potentially strengthen the practices already in place. As a whole and reaching across all stakeholders, it is important to work together within an institution to design course curricula that are engaging, based on research, and based on how students learn (Office of Educational Technology, 2017).

Faculty. Faculty members have the most direct connection to students and therefore should be able to use their interactions to encourage additional participation and critical thinking by being a role model for these behaviors in discussions. In the current study, there was less teaching presence found overall in comparison to cognitive and social presence, therefore in this context, encouraging additional teaching presence is an important practical implication. Particularly at the beginning of a course and in the lower level courses, instructors could set a minimum standard for main and response posts, not just by including these instructions in the syllabus and discussion prompt, but also by posting an example of how they should look, such as including more information than simple agreement in a response post. In some courses there are minimum word counts required for both main and response posts, which can help encourage more discussion. Demonstrating these behaviors leads into the next policy recommendation related to teaching presence in the discussions.

It is clear that community is an important aspect of online learning, and teaching presence is a large contributor to creating community. Often adjunct faculty members are busy people, like their students, who have a lot to balance and not enough time in the week to complete everything. Encouraging, or requiring, faculty to be actively engaged in discussions as an extension of their teaching duties is recommended. If they are interested in teaching, but have not been prepared as educators, this will require that they be prepared and coached on how best to support discussions. If they are teaching in an online environment for the first time, it is especially important that more robust preparation is required. It is important to help instructors recognize that content from an on campus course cannot simply be transferred to an online environment and be expected to be as effective. In an on campus course, a large of amount of discussion and question-raising occur face-to-face, but this is often lost in the online course unless it is strategically included. This is why it is critical to create effective discussion prompts and then be present, as an instructor would be in the physical classroom, to ask questions to promote understanding, correct misconceptions, answer questions, etc. Additionally, faculty should work to intentionally draw out students' experience and encourage them to apply it to the course content. While students too can demonstrate teaching presence in the online discussion, they typically will not have the background knowledge to further explain, connect concepts, apply material, etc. This is why teaching presence by the instructor is essential in order to best facilitate the discussion and learning of course content.

Instructional designers. Creating effective prompts is a critical piece of creating more community and more active engagement. The literature and theory point to the importance of adult students having the ability to apply their experience to their educational endeavors, but this application was not demonstrated in this study. There was evidence that some of the prompts were leading to more integration and even some resolution and application; therefore, finding ways to replicate these prompts to encourage this higher order critical thinking is recommended. On the other hand, there were also prompts that seemed to lead to more exploration codes in cognitive presence, which could be re-evaluated to guide students towards increased critical thinking. Rather than asking students how they scored on a particular scale (for example, management style), the prompt could ask why they think they scored in that way, how their score surprised them, why or why are they not satisfied with their score, how would they change it, etc. These prompts would encourage students to explain their answers further, rather than just listing their scores. Recent research has shown the utility of creating discussion prompts with more structure and including a goal to increase higher levels of critical inquiry and engagement in learning (Darabi et al., 2011; Koh et al., 2010; Morueta et al., 2016; Richardson & Ice, 2010).

Additionally, in response posts students could be required to ask a question, compare/contrast their answer with another student's main post, why they agree/disagree with a main post, etc. These additional directions for response posts require students to say more than simply agreeing, but also why and how. Another method that could be utilized to engage these adult, nontraditional students would be to ask them to apply the

course content to their own experience. This is an important theoretical method for adult learning and allows students to also learn about each other on a more personal level. While all students may not have advanced professional experience, there is usually a way to apply content to your experience, or to apply it to a situation you have witnessed in the professional world. Either way, it encourages students to apply the course content to a real world setting, rather than just explaining what they read in the book.

There were often requirements in these prompts to include a reference, but many students just listed the reference at the bottom of the post, rather than citing it and explaining how the article supported, did not support, applied to, etc. the course content for the discussion. Explicitly stating what is expected with references may be beneficial, although it is recognized, especially in the upper course levels, that students should already know this, it may be with their busy lives they are just trying to do the minimum to complete the required work. There were prompts that asked students to explain how to prevent and deal with a particular behavior, which led to more integration. Thus, as mentioned in the first paragraph, asking how, why, why not, etc. questions in the prompt will lead to further explanation in responses.

More questions in another prompt seemed to lead to more resolution and application in responses, however, there should be some balance between having a long list of questions in a prompt, and asking the *right* questions. When there was the opportunity to watch a video as part of the prompt, there was a tremendous amount of response to this, both social presence expressing their personal thoughts about the video, and cognitive presence talking about the clip in relation to the course content. This leads

to the suggestion to include more multimedia opportunities in the discussion prompts. In general, the more intangible suggestion to keep in mind as a broad principle when creating these prompts is to find a way to get students more interested in the content and encourage discussion that goes beyond the minimum course requirements.

Program administrators. In some online environments, course shells are created for faculty who then have little input into the course requirements. This can lead to adjunct faculty sensing they are more facilitators than teachers. A cultural shift in attitudes may be required for online faculty to assume more control of the course content, but this shift can be portrayed in a positive manner. If a faculty member is handed a course shell with the content included, that actually allows those faculty the opportunity to have more time to be creative and include video lectures or do more research about current events or articles in the field or on the topic. It can encourage online faculty to create opportunities for engagement, rather than spending time writing a syllabus and finding readings. It can give them the additional time to spend in the discussion boards, asking pointed questions, correcting misconceptions, and even connecting students who seem to have similar ideas, or who may be struggling with similar concepts. In this way, the instructor can even facilitate social connections among students, which has been supported in the literature as an important piece of continued success. Another option would be to create small groups for discussions, rather than having one whole class discussion board, which can be overwhelming in the amount of posts. The groups could be four to five students, answering the main post and coming to a consensus throughout the week, even providing a summary at the end to clarify understanding. This would

facilitate teaching presence in students, however, it would still be important for the instructor to be present, furthering understanding as needed, and commenting on and extending the summary. This method would lead to more intimate discussions, potentially more social connections, and hopefully more comfort within the small group to have deeper discussions.

The final stakeholder and probably the most important are the students. All of these recommendations would help support their learning, and hopefully provide them with better opportunities to engage in discussions to lead to further learning and understanding of the course content. The overarching goal would be to help students see the utility in participating in these discussions and therefore create additional ways for nontraditional students to participate that they deem useful and worth their time. The options in the discussion boards for creating community are boundless. In the bigger picture of online learning, this engagement and community piece is clearly very important, as has been shown by this research. And while this research was conducted at a single online university, online courses in general can benefit from these suggestions, especially in working with nontraditional students.

Study Limitations and Delimitations

There are several limitations that may have an effect on the overall results of the study. First are the data limitations that led to not having the ability to distinguish between instructor and student posts in the discussion forum. This is a limitation because with that distinction, the researcher would have been more likely to gain a better understanding of the presence of the instructor in the discussions, thereby influencing

teaching presence. For example, while it is not certain, there are response posts that are presumed to be the instructor asking questions. Since these are questions being posed they were coded as a triggering event, therefore not displaying a high level of cognitive presence. This could influence the level of cognitive presence overall, even though it is the instructor who would generally display higher levels of cognitive presence. This was not noticed in a significant amount of posts, however, so is unlikely to have had a large effect in this research. However, since each post was coded based on its content in relation to the coding framework, any post, whether authored by the instructor or a student, could be assigned any code, including the teaching presence categories. Additionally, prior research demonstrates that teaching presence can be performed by either a teacher or a student in the classroom (Garrison & Arbaugh, 2007). This is evidence that the teaching presence codes are still appropriate in this research, and it is also validation of the relevance of Vygotsky's theory of social constructivism that any more knowledgeable individual can help create learning in the classroom.

There were general notes related to each type of presence in the coding that may have some influence on the results. Related to cognitive presence, there were times a post was coded for cognitive presence because the student was agreeing with another student's post; this also demonstrates significant social presence. Originally, this research was going to look at the differences between main posts, required responses, and responses in addition to the minimum requirement, but access to those data was not possible. The additional response posts that are simply agreement statements could have an influence on the overall results of cognitive presence. Although, as noted previously, simply stating

"I agree" was not enough to warrant a code of cognitive presence, so there did need to be some further explanation and that would have alleviated some of this potential variance. A requirement noted in one of the sections, the instructor required students to include names in response posts. Since addressing others by name was a factor in assigning a code of group cohesion, this requirement could affect the amount of this category found in this section. Students also had a tendency to include a reference, but failed to include the in text citation and simply listed the article at the bottom of the post. This made it difficult to discern what information in the post was the student's discussion versus what was quoted from the reference. Aside from this being considered plagiarism in academic writing, it may have led to additional codes of higher level cognitive presence where it was not actually justified.

A primary delimitation of this particular research is a lack of generalizability. Archival data were collected from one institution only, so the results are primarily applicable to the institution from where the data were gathered. Plus, archival data will best apply to the quarter when the courses ran, which was Fall Quarter 2014. It may be that these categories of presence affect success at this institution because of the way the discussions are set up for that quarter as well as the requirements in these courses for that particular quarter. In addition, any changes to the structure of courses subsequent to 2014 lead to less applicability to current courses, even within this one particular institution. However, in the bigger picture, it will be valuable data in relation to nontraditional students in online courses and could potentially lead to additional research with this population and/or framework at other institutions. These are recognized concerns and

should be kept in mind when interpreting and applying the results.

Another delimitation was the particular courses that were chosen for use in this research. Because it was necessary to choose courses that had prerequisites in order to look at differences across course levels, this may have led to students at different levels demonstrating different behaviors and participation across levels. This required making a limited choice in selecting the content of the courses; ultimately, courses from the business program were chosen. For this reason, some students could not be included because they were pursuing a different program, such as a medical degree. Fortunately, historically, business is the program with the largest enrollment and a focus for this institution, so selecting it provides a rich representation of the population of the institution. Additionally, it is still possible this research can be applied to other programs based on course levels.

Recommendations for Future Research

This study has revealed multiple avenues for possible further research, which have been organized into three areas that recommend further exploration of research methods, setting, and variables. The first possibility includes using qualitative methods to add to the quantitative findings here. Second, future research could include the addition of other institution types. The research in this study was conducted in a very specific setting at one institution, thus, looking at how the results compare across a broader population could be useful. Last, additional variables such as demographics and success in courses could be studied along with the variables of the CoI. These recommendations maintain the focus on nontraditional, online students as this is a population likely to

gravitate toward this delivery model, but not necessarily have the background to be successful.

Research methods. The first recommended path for research entails using additional research methods. In more recent research on the CoI a survey instrument has been developed to get student input on the presence of cognitive, social, and teaching presence in online discussions (Arbaugh et al., 2008). This would allow researchers to look at differences across course levels in all types of presence based on how the students experienced each of them, rather than how they are perceived in the discussion forum by the researcher. Research could also add a qualitative component, such as interviews, to expand on the existing quantitative research and get feedback from students on how they have experienced changes in the types of presence as they have progressed in course levels. This could provide additional insight into the knowledge surrounding how students participate differently across course level, with an additional potential factor including a focus on nontraditional students.

Broader setting. Another opportunity for future research would include looking at a broader setting. This particular research used a sample from one term at one type of institution. While this is beneficial, especially for this particular institution, adding types of institutions would provide a broader understanding of differences in participation across course level. Future research could compare across different types of institutions, and even add a comparison across traditional and nontraditional students to look further into the possible divergence in how these different populations participate in online discussions. This could lead to models that are designed to fit more specifically with a

particular population, and ultimately lead to practical suggestions that may focus on the differences across traditional and nontraditional students, or online versus face-to-face students, or different combinations thereof.

Additional variables. In this particular study, there were specific restrictions on the data, therefore it was not possible to look at differences across variables on demonstration of elements of the CoI. Additional research could include looking specifically at success in a course, for example, what types or patterns of presence in nontraditional, online students were related to success. Or if the discussion posts could be linked to a specific student, researchers could look at how different demographic variables could be related to patterns of participation in discussions, and further add how success in a course might be related to these factors or combination of factors. Having the ability to look at how a successful student participates and interacts throughout the course could produce valuable outcomes regarding how to encourage and support specific students. If it would be possible to understand the types of patterns successful students demonstrate early in the course, it could lead to practices that encourage students to enact these behaviors.

Conclusion

The results of this study suggest there are associations between cognitive, social, and teaching presence in the Community of Inquiry framework across course levels and post types within the discussion boards. There is evidence that types of presence varied across course levels, with cognitive presence increasing as course level increased, social presence also increasing, but not significantly, and teaching presence representing far

smaller numbers, but still indicating more in upper level courses. With the evidence for all types of presence demonstrated in these courses, there is reason to state the different elements of the Community of Inquiry are represented here. However, there is a need to bolster the amount of teaching presence in online courses to ensure that prompts are being created with the principles of andragogy in mind. These are areas in which higher education institutions that are working particularly with nontraditional and online learners can focus in order to improve the experiences and success of these students.

Summarizing the theoretical background used to frame this study demonstrates how each of the theories are useful in this context. Drawing on social learning theory, the need to work together to create community, including teaching presence, leads to the critical necessity of creating effective curriculum for online and nontraditional students. This effective curriculum must consider the target audience, which in this case is comprised of nontraditional students. These students frequently have less capital coming into the higher education arena and therefore additional support should be provided to create positive learning experiences and the opportunity for them to get a better understanding of expectations in this environment. Additionally, the principles of andragogy should be employed, particularly focusing on allowing these students the opportunity to demonstrate their personal and/or work experience and apply it to the content. This research in particular points to the need to be strategic about this, because even when given the chance, students do not always naturally apply this information. Finally, in drawing these three theories together, the benefit of community and finding common ground is vital and can be managed through learning together as nontraditional,

online students with numerous, varied experiences. Recognition of the opportunity to learn from one another and see different perspectives is an essential feature of pursuing a higher education.

The original purpose of this research was to look at ways, if any, that nontraditional student participation in asynchronous online discussions differs between levels of courses. The study looked at this question through quantitative methods in order to gain a better understanding of the results. As a whole, nontraditional students may experience higher education differently than more traditional students for many reasons, such as balancing multiple responsibilities or returning to higher education after a hiatus. This divergent perspective is perhaps amplified when these students gravitate toward online education because of the flexibility inherent in this mode of learning. In fact, higher education professionals would do well to keep these factors in mind when working with students who are nontraditional and entering a more traditional institution with less support and/or capital, combined with enrolling in online courses that generally have lower success rates. This is a paradox in online learning that needs to be reconciled, lack of time for social integration, but desire for community, and maintaining the flexibility of online learning while still creating a feeling of community and support. With the changing landscape of higher education and the increased quality of life one earns with a degree, it is critical to give all students the opportunity and support needed to attain their goals in higher education, in a campus or online environment.

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Appendix A

Types of Higher Education Institutions in the U.S.

Considering the diversity of higher education institutions, a review of different types is included. There are different methods used to categorize institutions of higher education. The Carnegie Classification is frequently used to differentiate among degree-granting institutions, including Associate's Colleges, Doctorate-granting Universities, Master's Colleges and Universities, and Baccalaureate Colleges ("The Carnegie Classification," n.d.). In addition to these, Eckel and King (2007) include for-profit institutions in a more recent breakdown of the categories. Associate's Colleges are those that grant only associate's degrees, or bachelor's degrees granted is less than 10% ("The Carnegie Classification," n.d.). These institutions generally prepare students for transfer to a four-year institution or maintain a focus on technical, business, or health sciences (Birnbaum, 1988). The mission of community colleges typically focuses on access, low cost, career preparation, and meeting community needs, thereby attracting a student population that is more likely to attend part-time, commute to school, work, be married, have graduated in the middle of their high school class, and be nontraditional as far as age (Birnbaum, 1988).

Doctorate-granting Universities are defined as those that confer at least 20 research doctorates per year and are further divided depending upon level of research activity ("The Carnegie Classification," n.d.). These institutions maintain a focus on teaching and service, but in reality research has a very strong emphasis (Birnbaum, 1988). These institutions have a large student population and most students are working

on undergraduate degrees, with many options for graduate study as well (Birnbaum, 1988). Students were typically in the top half of their high school class, academic expectations are high, and there are many options for living on or off campus (Birnbaum, 1988). Another category of graduate institution is the Master's Colleges and Universities classification that includes institutions that grant at least 50 Master's degrees per year ("The Carnegie Classification," n.d.). These institutions are a middle ground between the Doctorate-granting Universities and the Baccalaureate Colleges.

Baccalaureate Colleges are those wherein bachelor's degrees account for at least ten percent of all undergraduate degrees and award fewer than 50 master's degrees in a year ("The Carnegie Classification," n.d.). These four-year institutions include a wide-ranging set of institutions, including liberal arts or other specific focus, and can be public or private (Birnbaum, 1988). The missions of private baccalaureate institutions focus primarily on teaching and the student population is mostly from the top of their high school class, attend full time, live on campus, and are traditional college-aged (Birnbaum, 1988). On the other hand, public four-year missions typically focus on teaching, research, and service (Birnbaum, 1988), holding a middle ground between associate's colleges and doctorate-granting universities.

Last, is the newer player in higher education of for-profit institutions, which is the type of institution from which the data in this research were retrieved. Eckel and King (2007) state they primarily offer technical programs, many offer certificate and Associate's degree programs, with fewer offering Bachelor's and graduate degrees. Many serve a larger percentage of minorities and women, have a higher published tuition rate

(Bailey, Badway, & Gumport, 2001), and typically have open enrollment policies. Their missions are usually very specialized, focusing on preparing a diverse student body for careers in specific programs, such as business, accounting, computer science, electronics, and allied health (Bailey et al., 2001).

Since the focus of this research is online learning, it is essential to look at the ways in which some of the categories of higher education institutions are using online learning. According to one classification, there are several players in the current online learning environment, including nonprofit traditional distance learning universities, traditional nonprofit universities, for-profit universities, for-profit e-learning organizations, corporate online universities, and online learning digital content resources and open sources (Rudestam & Schoenholtz-Read, 2010). Picciano, Seaman, and Allen (2010) state that public colleges and universities, particularly community colleges, are the major providers of online learning, along with some for-profit colleges, whereas private four-year liberal arts colleges show very little interest and research universities typically relegate it to non-core academic areas. Another manner to look at how institutions are using online learning is by looking at the percentage of institutions that are engaged to differing extents in online learning. Allen and Seaman (2007) found 73% of public institutions are engaged or fully engaged, 63% of Associate's institutions are fully engaged, 33% of for-profit institutions are fully engaged, 26% of private non-profit institutions are fully engaged, whereas graduate, research, and baccalaureate institutions are least likely to be fully engaged. Fully engaged indicates the institution currently has online offerings and online learning is included in their strategic plan (Allen & Seaman,

2007). This demonstrates the differences in approaches to and which institution types consider online to be important to their future vision and mission.

However, it is important to keep in mind these are overarching categories and there are differences within them. Higher education in the United States is a huge, complex group of institutions and cannot be neatly broken down into categories. This includes their approaches to online education and their missions. As Birnbaum (1988) states, "As colleges and universities become more diverse, fragmented, specialized, and connected with other social systems, institutional missions do not become clearer; rather, they multiply and become sources of stress and conflict rather than integration" (p. 11). This is important to remember when looking at any individual institution or category of institutions.

Appendix B

Additional Demographic Information for Enrolled Students at The University

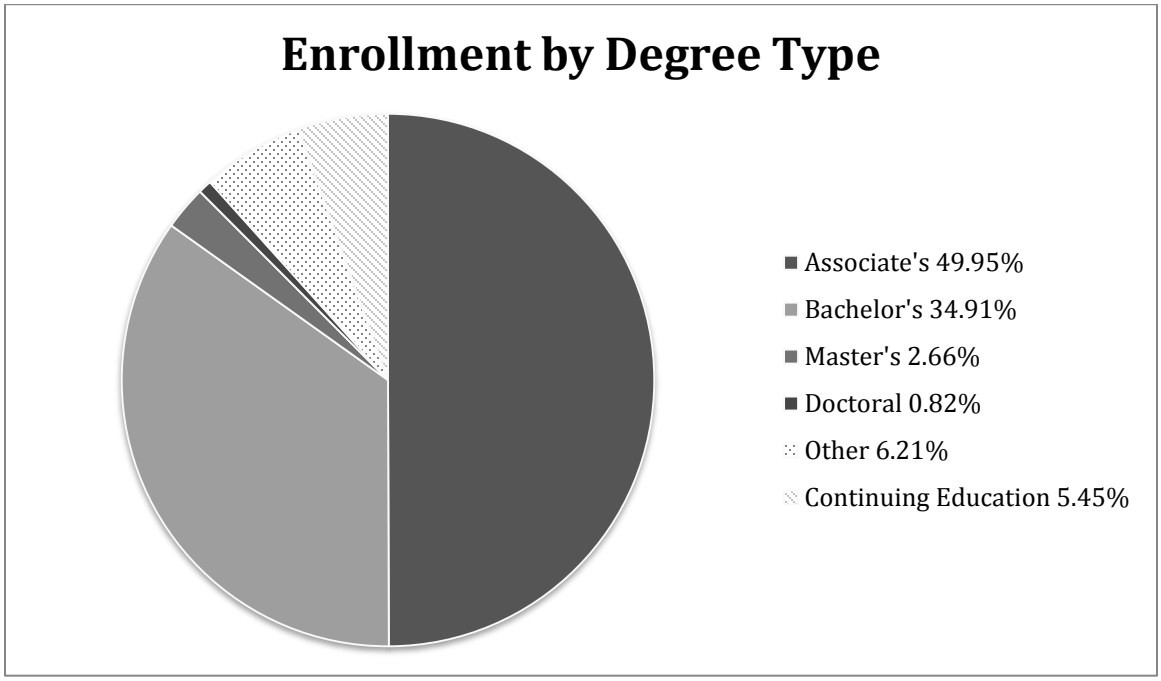


Figure A1. Student enrollment at The University by type of degree.

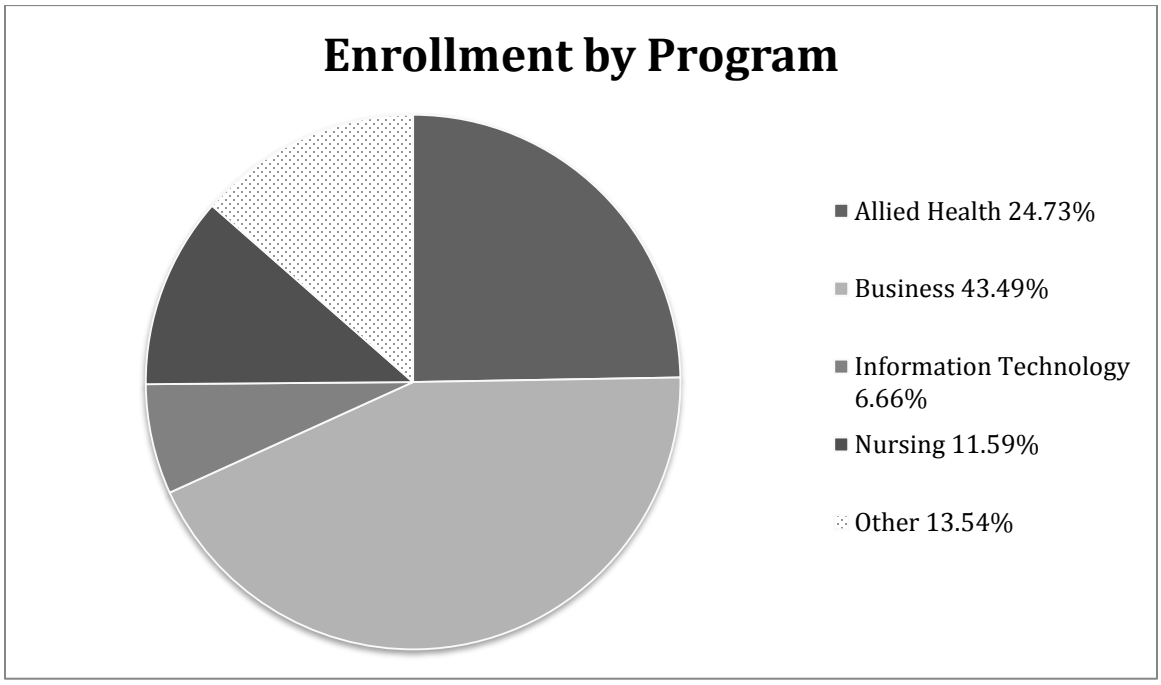


Figure A2. Student enrollment at The University by program area.

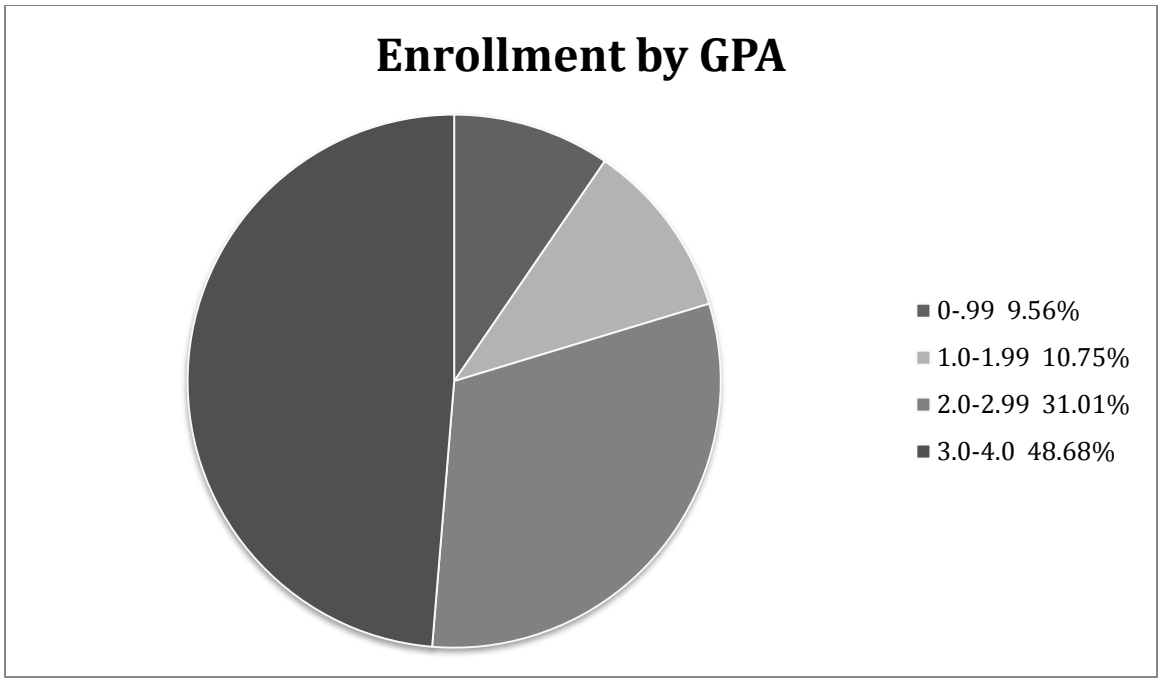


Figure A3. Student enrollment at The University by cumulative GPA.

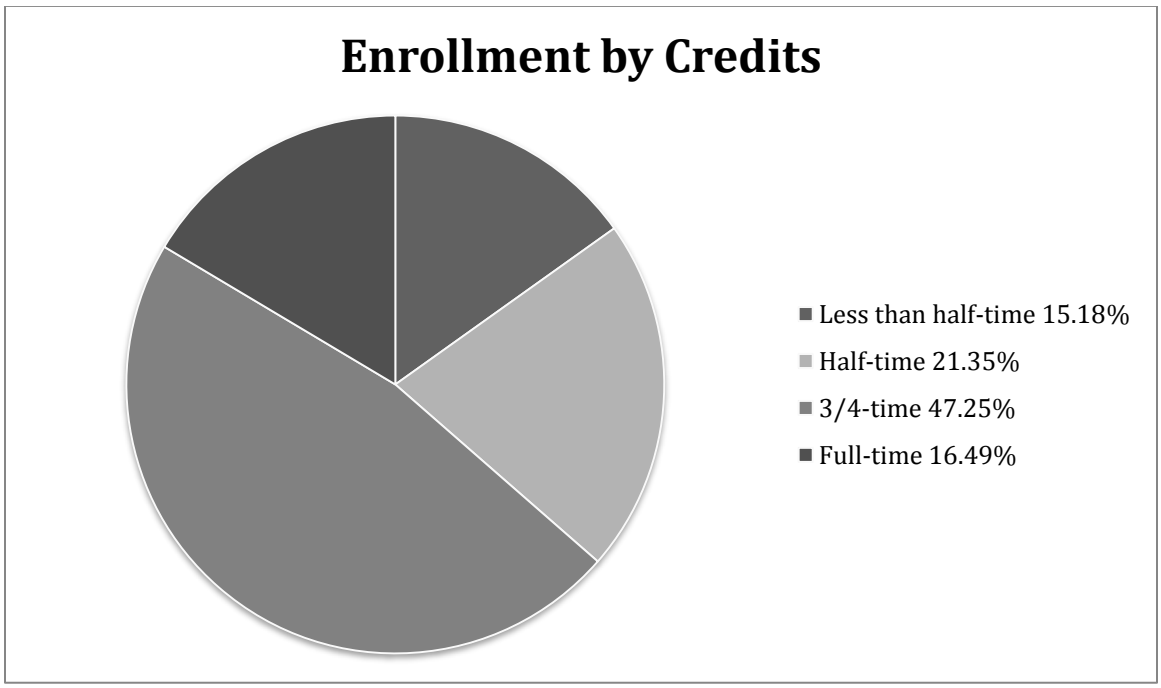


Figure A4. Student enrollment at The University by credits. This indicates how many credits a student is taking each quarter. The following credit ranges are used: less than half-time is less than 6, half-time is 6-8.99, ¾-time is 9-11.99, full-time is 12 or more.

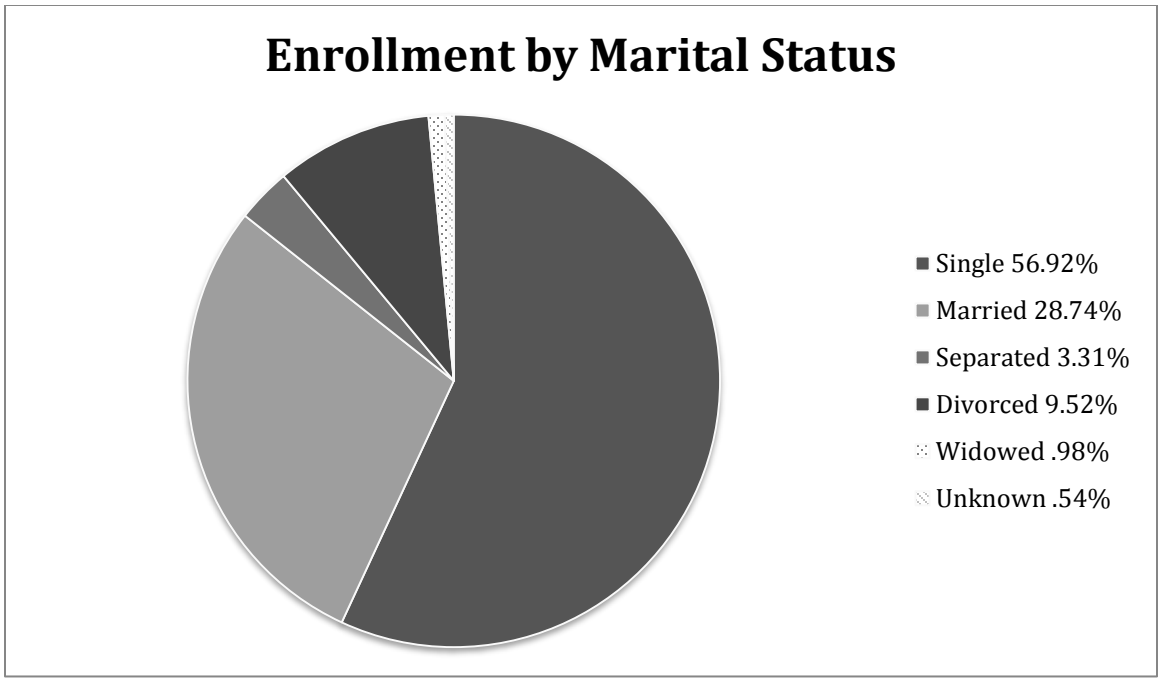


Figure A5. Student enrollment at The University by marital status.

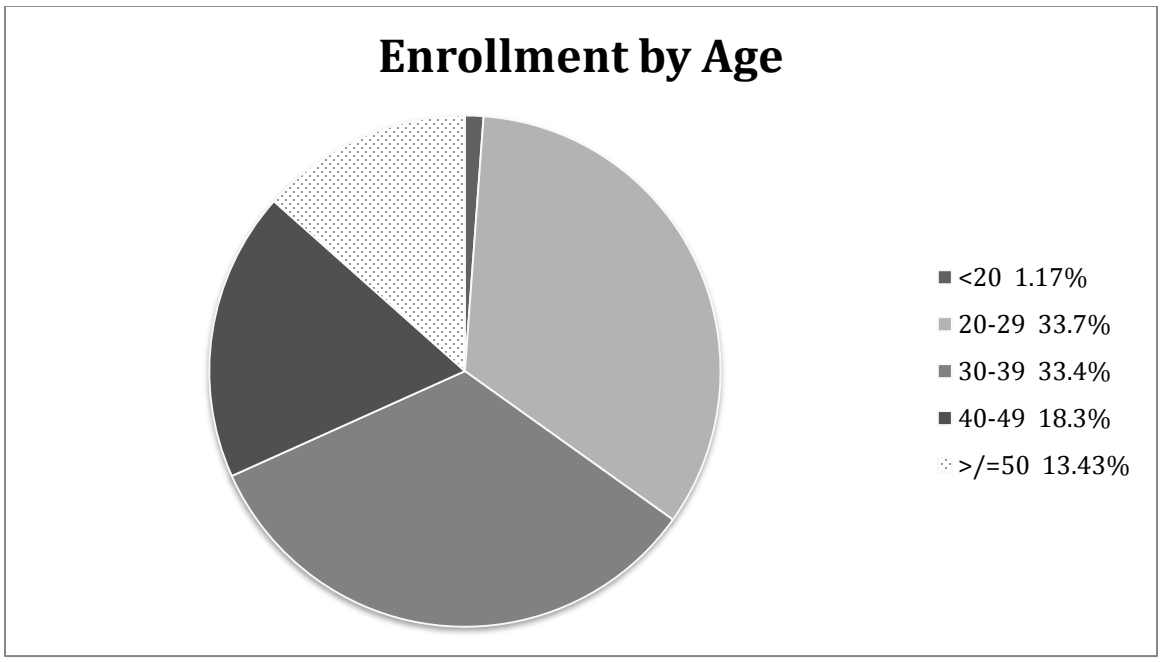


Figure A6. Student enrollment at The University by age.

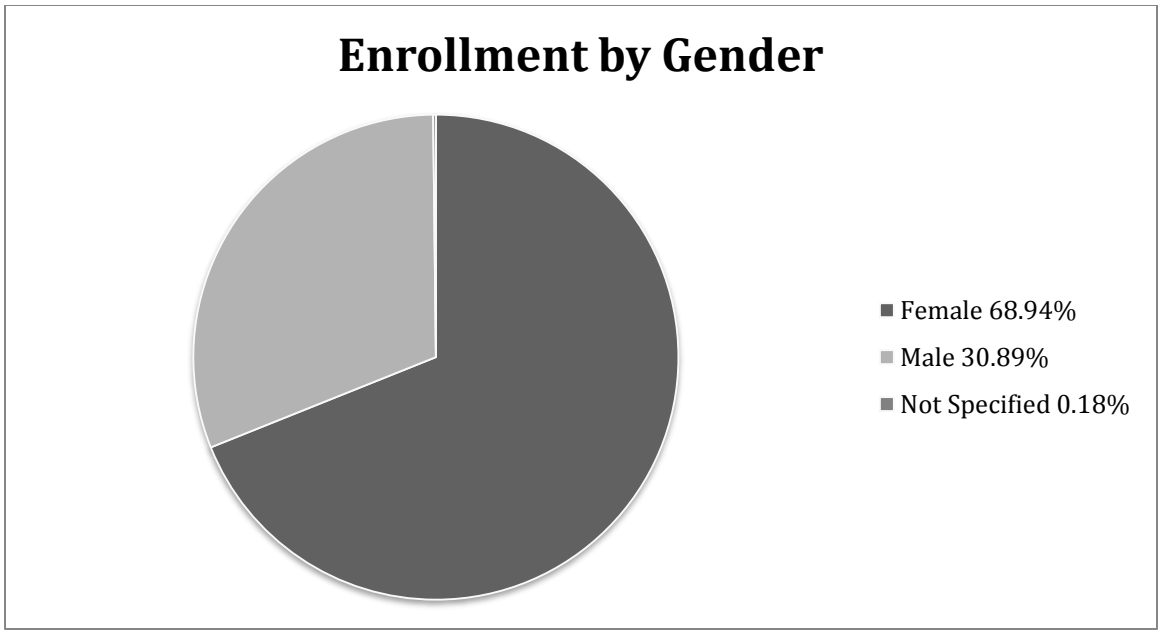


Figure A7. Student enrollment at The University by gender.

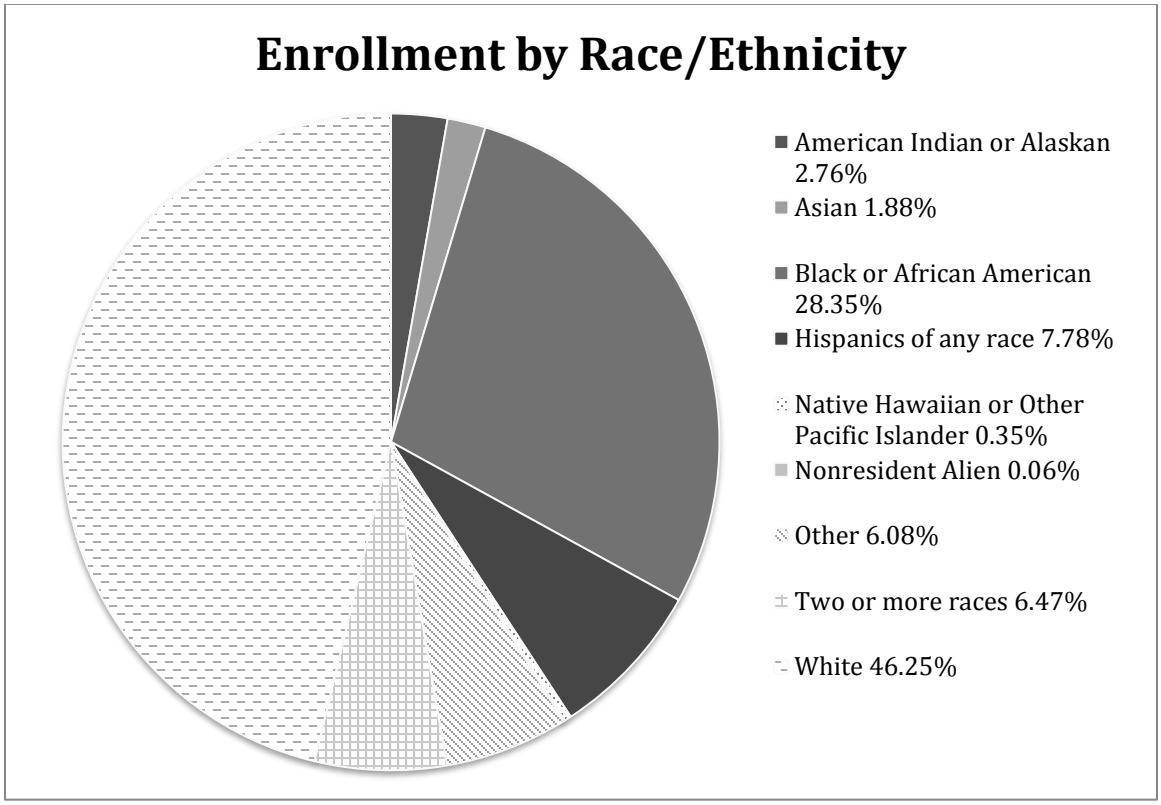


Figure A8. Student enrollment at The University by race/ethnicity.

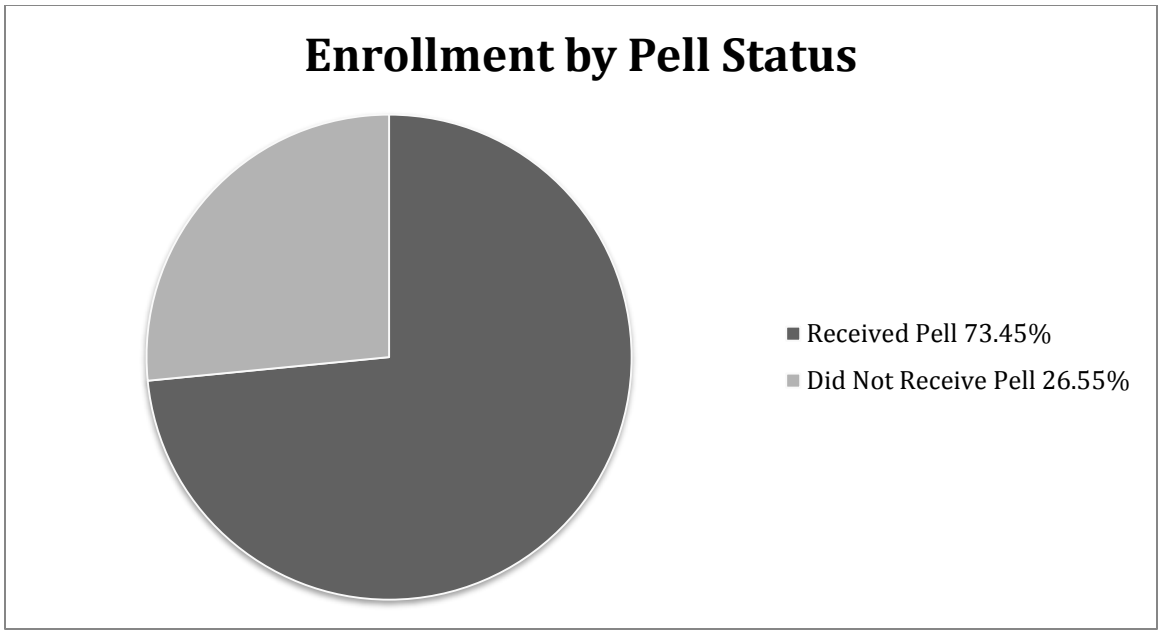


Figure A9. Student enrollment at The University by Pell status. This is an indicator of socioeconomic status, students only qualify to receive this grant if they earn less than a certain income.

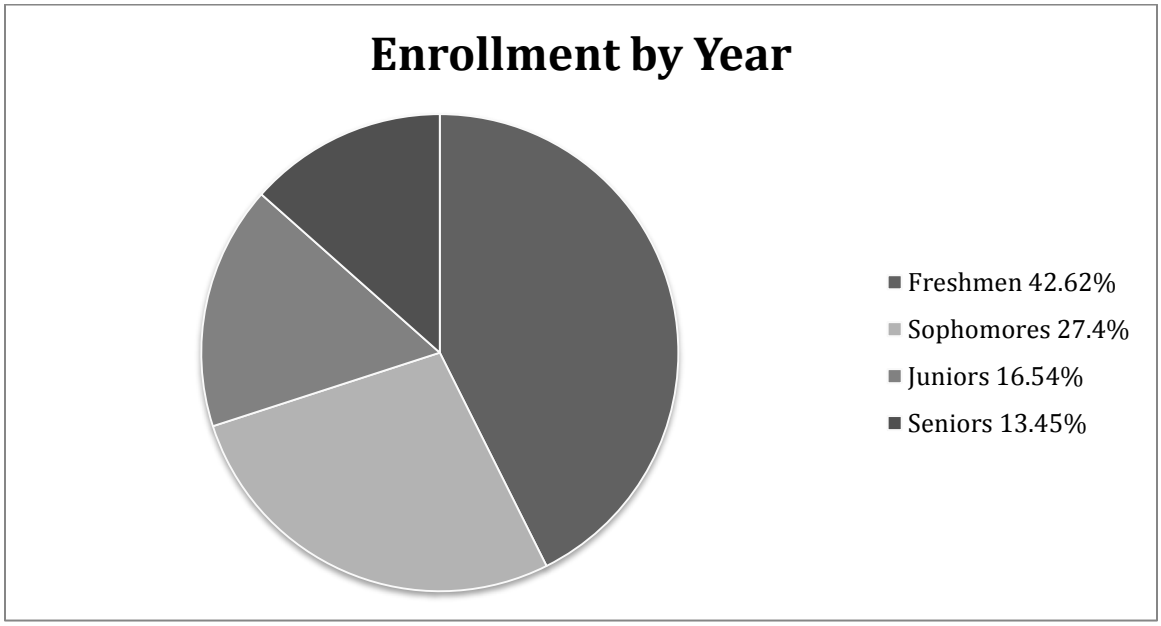
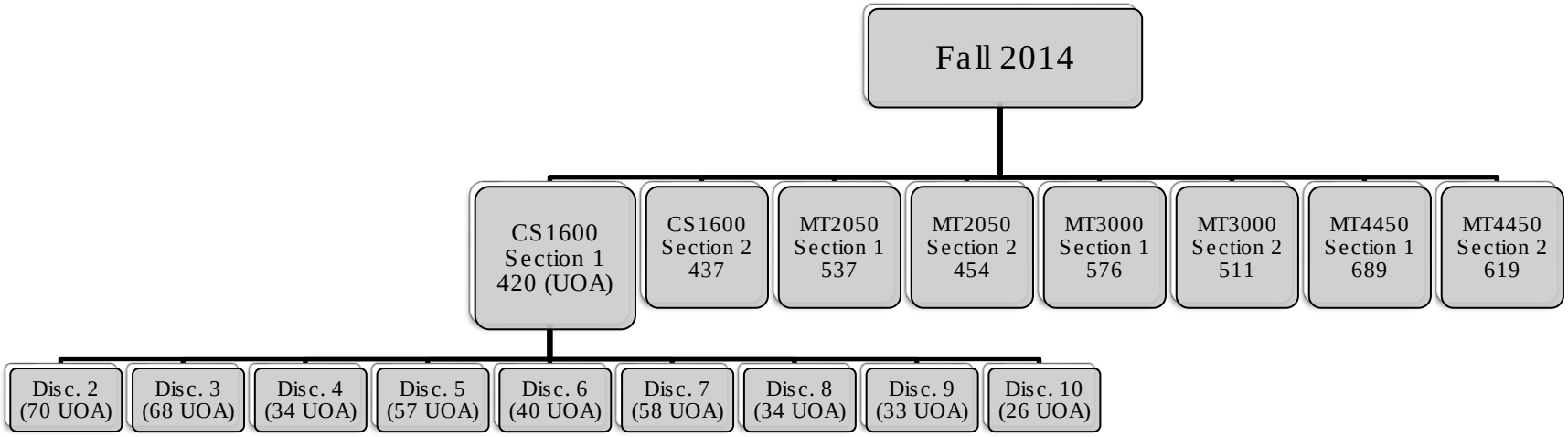


Figure A10. Student enrollment at The University by year. This is based on number of credits completed, not level of degree. The following credit ranges are used: Freshman-A student who has not yet earned 40 quarters hours of credit, Sophomore-A student who has earned 40-79 quarter hours of credit, Junior-A student who has earned 80-119 quarter hours of credit, Senior-A student who has earned 120 or more quarter hours of credit.

Appendix C

Graphical Representation of Actual Sampling Strategy for Discussions Included in Analysis



UOA = unit of analysis; Disc. = discussion; Discussion UOA provided as example for one section; Total UOA = 4,243

Appendix D

Research Assistant Agreement

MEMORANDUM OF AGREEMENT

This Memorandum of Agreement is made and entered into as of April 27, 2016 by and between Valera Hachey, Researcher (651-285-0921, hach0014@umn.edu), and Hope Mxxxxxxxx, Research Assistant (xxx-xxx-xxxx, hmxxxxxxxx@gmail.com). This Memorandum of Agreement sets forth the understanding of the parties related to the duties and responsibilities of the Research Assistant in relation to the Researcher's Ph.D. Dissertation at the University of Minnesota.

1. BACKGROUND OF STUDY. The study will explore the success (or lack thereof) of nontraditional students in online courses and the utility of asynchronous online discussions in these courses. A qualitative study will be conducted using content analysis based on a particular theory of community in online environments.

2. PURPOSE. The purpose of this agreement is to establish a cooperative research relationship between the two parties in the areas discussed below.

3. UNDERSTANDINGS. The parties set forth their understandings under this Agreement with respect to the following:

    - Confidentiality: Research Assistant agrees to keep all research information confidential by not discussing or sharing the information in any format; keep all research information secure while in her possession; return all research information to Researcher when research tasks are completed; and erase any research information stored in an electronic format.
    - Intellectual Property: It is understood that any findings, publications, etc. will be owned solely by the Researcher, and the Research Assistant shall not be listed in the authorship.
    - Duration of Agreement: There is the potential for up to 3 phases of coding in the study for approximately 2,000 units of analysis overall. The first 25% will be coded, after which the Research Assistant's work will be done if there is an interrater reliability level of at least 75%. If not, we will conduct negotiated coding and code the next 25% of the units of analysis. At which point the Research Assistant's will be complete if we have reached an interrater reliability level of at least 75%. If we have not, the Research Assistant will code the remaining 50% of the units of analysis.

- Time Frame: Each 25% of coding is expected to take approximately 1 month. Therefore, if we begin in May the time frame would be as follows:
    - First 25% of coding – May
    - Possible second 25% – June
    - Possible remaining 50% – July and August
    - This timeframe is somewhat flexible based on when we start and the renegotiation (as needed) of time needed to complete the phases of coding.
- Remuneration: For each 25% of coding, the Research Assistant will receive $300. This will be paid within 1 week after each phase of coding is completed. In detail:
    - First 25% of coding – $300
    - (If needed) Second 25% of coding – $300
    - (If needed) Final 50% of coding – $600
- Training: Research Assistant will participate in a training protocol for the coding instrument conducted by the Researcher. This should not take more than 2 hours. The training will include:
    - Review of the framework, including original article by Garrison et al.
    - Review of coding protocol developed by Garrison et al.
    - Practice coding session and review
- Dissertation Availability: Upon completion of the final dissertation, the Researcher will provide a copy to the Research Assistant.

IN WITNESS WHEREOF, each individual signing below hereby represents and warrants that she/he is willing and able to execute and deliver this Agreement on behalf of herself/himself.

_____

Valera Hachey – Researcher [DATE]

_____

Hope Mxxxxxxxx – Research Assistant [DATE]