UNDERGRADUATE BUSINESS STUDENT PERCEPTIONS OF TEACHING PRESENCE IN ONLINE CLASSES

by

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B.S., Philippine School of Business Administration, 1990
M.B.A., Asian Institute of Management, 1992
Ph.D., International Academy of Management and Economics, 2006

AN ABSTRACT OF A DISSERTATION

submitted in partial fulfillment of the requirements for the degree

DOCTOR OF PHILOSOPHY

Department of Curriculum and Instruction
College of Education

KANSAS STATE UNIVERSITY
Manhattan, Kansas

2015

Abstract

The purpose of this study was to examine undergraduate business student perceptions of teaching presence in order to scale up online learning to improve access to quality education. This study also responded to Senate Bill 520, calling for the improved online course quality. The data were obtained from 437 undergraduate business students (response rate 79.17%). A non-experimental, cross-sectional survey design was used, incorporating the Teaching Presence Scale and Lukow's Attitudes Towards the Use of Technology Survey. Teaching Presence was the theoretical framework.

Data analysis regarding the participants' personal characteristics indicated that their perceptions of teaching presence were not influenced by age. A statistically significant difference was found in the participants' perception of teaching presence by gender ($p<.05$), as well as instructional design, and course organization. Data analysis regarding participants' contextual characteristics indicated that perceptions of teaching presence were not influenced by course duration. However, a statistically significant difference was found in the participants' perception of teaching presence based on class level, $p<.05$. Significant differences were found in communication, assessment and feedback. Data analysis of technographic characteristics found no statistically significant influence on participants' perception of teaching presence.

Recommendations for the research setting were in the areas of learning environment engagement, online teaching pedagogy, online course materials development, communication and feedback, faculty development and student technology resource and support. Future research on perceptions of teaching presence from the instructor's perspective, student characteristics in terms of race and ethnicity, impact of audio and video feedback, and expansion of the student population to other disciplines were recommended.

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Major Professor
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List of Definitions

For the purposes of this study, the following key terms and definitions are provided to serve as reference:

Asynchronous interaction is interaction between one or more individuals that does not occur in real time (e.g., email, online discussion board, and online blogs). One person posts or sends a message, then participants respond by posting responses at a time of their choosing.

Canvas is a commercial, web-based learning management system developed by Instructure, http://www.canvaslms.com/

Blended learning is learning accomplished through courses taught via a combination of face-to-face and online learning methods [used interchangeably with Hybrid Learning]. Sloan-C defines blended courses as 30 to79% of course content delivered online (Allen & Seaman, 2011, 2013).

Collaboration refers to students working with other students in their learning environment to improve their understanding of the topics and learning materials provided to them.

Cognitive presence is a sense of identity created through student – content interactions in the learning environment.

Course Management System (CMS) refers to a web based software application, also known as a learning management system (e.g., Canvas, Moodle, D2L and Blackboard).

Data Unit refers to the unit of text reviewed in the students' responses to the open-ended questions. In this research, a data unit refers to phrases no longer than 4 words, excluding articles, conjunctions, and prepositions.

Face-to-Face refers to the method of traditional learning, where the instructor and learners meet on a regular basis in a physical campus location.

Functional (communication), for the purposes of this study, is a form of communication that can manifest in the online learning environment through administrative emails such as class-wide emails and announcements, content summaries, or course schedule alerts.

Hybrid courses are courses taught via a combination of face-to-face and online learning methods [used interchangeably with Blended Learning]. The Online Learning Consortium defines hybrid courses as 30 to 79% of course content delivered online (Allen & Seaman, 2015).

Immediacy is the sense of direct access to someone or something. In the case of instructor immediacy, this refers to the sense of direct access to the instructor.

Impaction (otherwise known as campus-wide impaction) means that a campus has exhausted existing enrollment capacity in terms of the instructional resources and physical capacity of the campus. Because the campus receives more eligible applicants during the initial admission application filing period than can be accommodated, the campus must therefore restrict enrollment to the campus for a specific enrollment category (i.e., first-time freshmen or transfers).

Interaction refers to communication among instructor, students and content for the purpose of collaboration and learning.

Interactive describes communication behaviors in the online learning environment that include continuing a threaded discussion, personal contact, explicitly referencing an individual and/or their online contributions, complimenting/expressing appreciation, feedback, and availability for interactive communication via email, phone, or online chat tools (Gwynne, 2013).

Learning refers to the interactions among instructor, students and content for the purpose of confirming and constructing knowledge (adapted from (Akyol & Garrison, 2008).

Learning Management System (LMS) is a web based software application also known as a course management system (CMS) (examples: Blackboard, Canvas, and Moodle).

Online courses are courses taught with all or most content delivered online via Internet tools; Online Learning Consortium defines online courses as more than 80% delivered online (Allen &Seaman, 2015).

Online Learning/Online education is a learning method where no face-to-face meetings are scheduled. Students are expected to complete 100% of their course work through online delivery methods.

Online learner refers to any full-time or part-time student who is completing academic studies via the online learning environment.

Perceptions are students' views or thoughts on the elements of the learning environment.

Social presence is the degree to which participants in a course feel and are perceived as real and connected to their peers using electronic communication media and other types of computer mediated communication (Tu & Isaac, 2002).

Synchronous interaction is interaction between one or more individuals that occurs in real time (e.g., real-time online chat, online instant messaging, and telephone calls). One person communicates a message and receives an immediate response.

Web-enhanced course refers to a traditional, face-to-face course that incorporates some web-based technology. The Online Learning Consortium applies the term web-enhanced to courses where 1 to 29% of content is delivered online (Allen & Seaman, 2015).

Wi-Fi refers to wireless access to the Internet via Wi-Fi enabled electronic devices.

Acknowledgements

I would like to acknowledge, with deep gratitude and appreciation, the continuous encouragement and the valuable time given to me by Dr. Rosemary Talab. Her confidence in my abilities kept me determined to work towards my goal. I am also grateful to my Committee members: Dr. Roger McHaney, Dr. Laurie Curtis, Dr. Be Stoney, and Dr. Haijun Kang, for their thoughtful and valuable input on my work. Also, I would like to thank Dr. Carol Shanklin for her kind support and understanding. Ms. Betsy Edwards was always available to respond to my ETDR queries. I would also like to extend my thanks to all the College of Education professors who taught me during my coursework. I would like to thank Dr. Jennifer Lukow for letting me use her ATUTs survey for making some modifications of the instrument, as well as Dr. Randy Garrison, for letting me use the Teaching Presence Scale within the CoI framework.

My deepest appreciation goes to my husband and my best friend, Felix. His immense encouragement, patience, and support while I was working on my degree helped sustain my passion for learning. Felix and our two girls, Zea and Yona, have been extremely patient and supportive of my academic pursuit. They cheered me on and kept my spirits up whenever I felt worn-out. For that, I thank them.

I truly appreciate all the support I received from everyone during this arduous journey. I hope that my achievements would make you all proud me.

Dedication

This dissertation is dedicated to my family. My husband, Felix Lim, and my two daughters, Zea Makani Lim and Yona Makani Lim.

Chapter 1 - Introduction

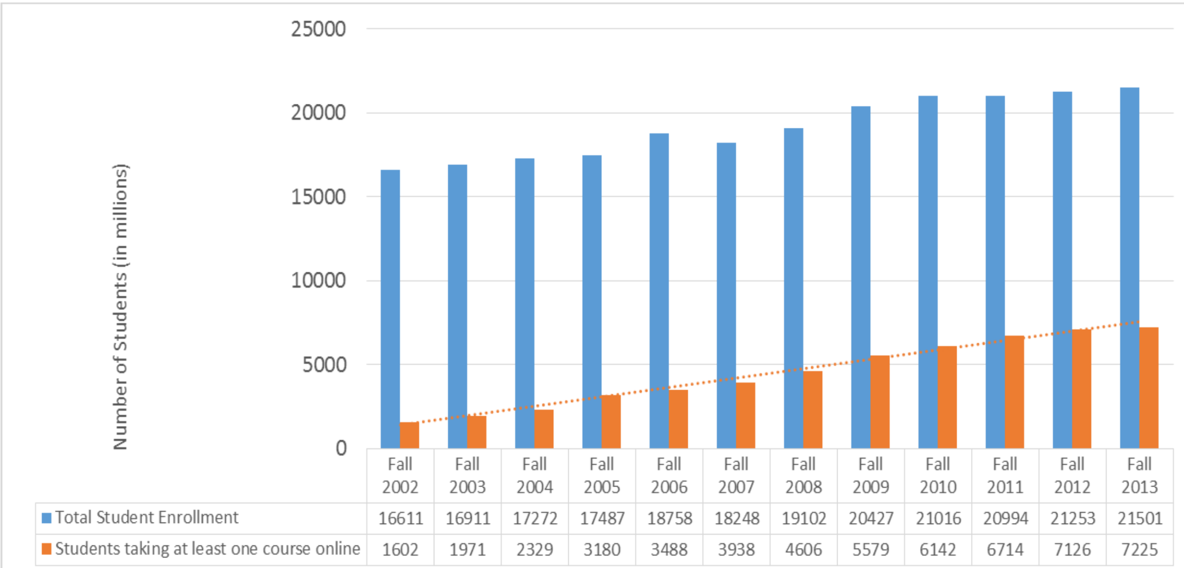
Chapter Overview

This chapter provides an overview of the study's research problem. It begins with a discussion of the growth of online learning in the United States and in the State of California, followed by a discussion about the economy and access to higher education in the state. The next section focuses on the California public higher education system and the current challenges it faces. Particular focus was placed on the research setting because of its role as a key workforce provider to the Silicon Valley economy. The theoretical framework for the study is introduced, followed by the statement of the problem, purpose of the study, significance of the study, and the research questions. Limitations and delimitations of the study are provided, along with the definition of terms and acronyms used in the study.

Growth of Online Learning Nationwide

Online learning enrollment has been growing at an annual rate of 16.4% from 2002-2014, while the total student enrollment for higher education has increased at an average annual rate of 3.7%. A most recent survey conducted by Babson Survey Research Group and the College Board (Allen & Seaman, 2015) revealed that the number of students taking at least one online course already surpassed 7.2 million, an increase of almost five million from when the study was started 2002. A trend chart for total and online enrollment is given in Figure 1.1:

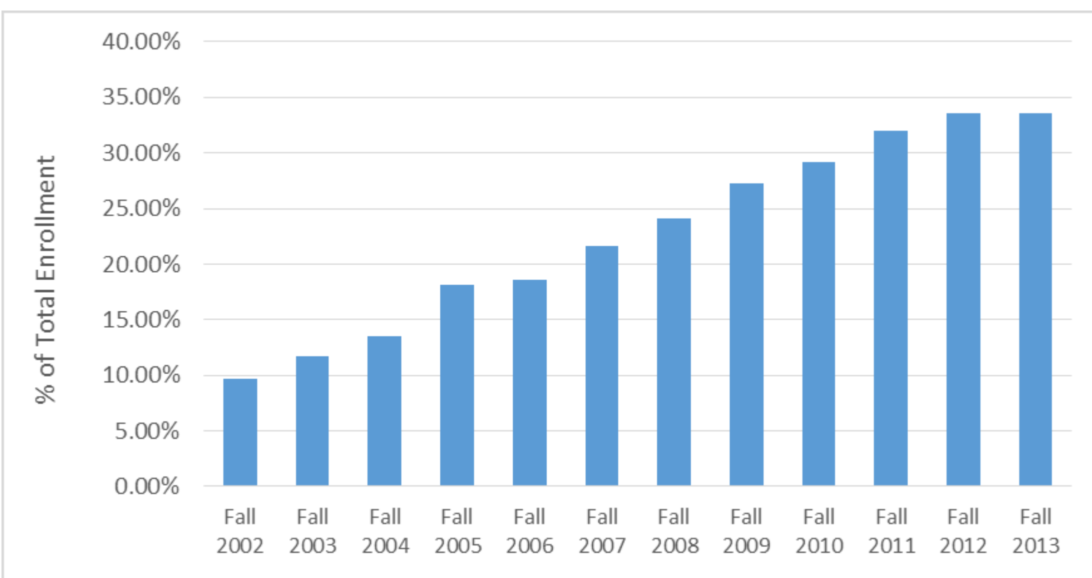
Figure 1.1: Total and Online Enrollment Trends in Degree-Granting Postsecondary Institutions (Fall 2002 to Fall 2013) (Allen & Seaman, 2015 p. 19)



Other key findings of the study:

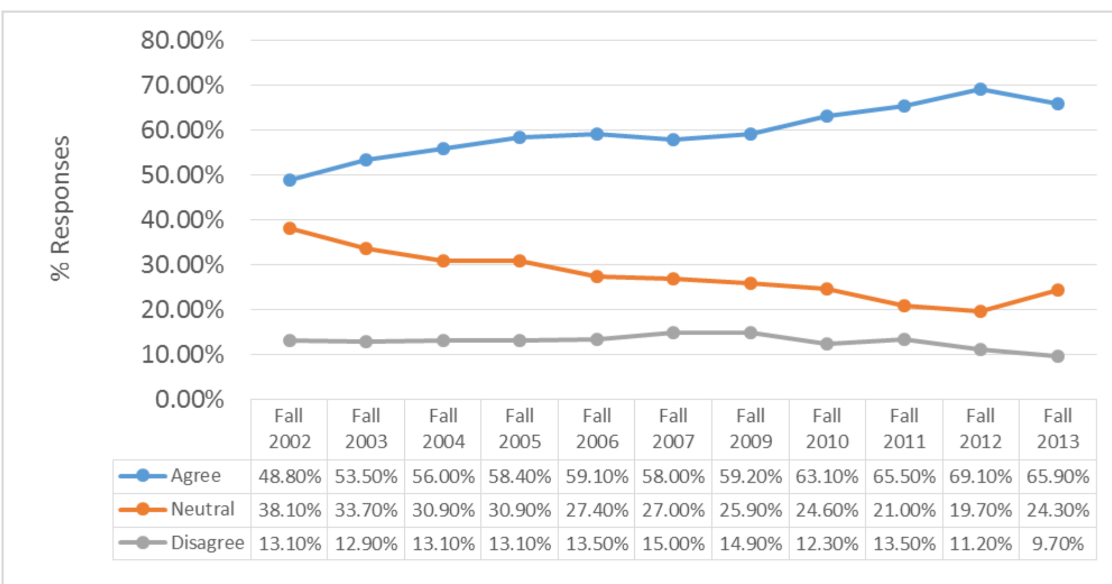
- 33.6% of students in higher education had taken at least one course online (Figure 1.2)

Figure 1.2: Online Enrollment as a% of Total Enrollment (Fall 2002 to Fall 2012) (Allen & Seaman, 2015, p. 16)



- The observed growth rate of the number of students taking at least one course online was lower than previous online growth rates, but still higher than the increase in overall higher education enrollments.
- 74% of academic leaders rated the learning outcomes in online education as same or superior to those in face-to-face instruction.
- 90% of academic leaders believed that it is “Likely” or “Very Likely” that majority of all postsecondary students will be taking at least one online course in five years’ time.
- 66% of chief academic leaders indicated that online learning is critical to the long-term strategy of their academic institution (Figure 1.3).

Figure 1.3: Responses to “Online Education is Critical to the Long-Term Strategy of my Institution – 2002-2013 (Allen & Seaman, 2015, p. 12)



Decades ago, online learning was not seen as a likely alternative mode of learning that would displace traditional forms of education (EDUCAUSE, 2015; Keohane, 2013). Today, the outlook is very different. Successful and robust online courses are being delivered and many more are in the process of development (Allen & Seaman, 2011, 2013, 2015; Anderson & McGreal, 2012; DeSilets, 2013; Hosler & Arend, 2012). Many educators feel confident that online learning will continue to account for a larger share of the way instructors teach and students learn in the coming years (DeSilets, 2013; Gwynne, 2013; Keohane, 2013).

According to EDUCAUSE Learning Initiative (2013), advancements in technology will continue to influence and impact online learning. Digital bandwidth, computers and digital devices continue to evolve, and online learning will progress as well. In addition, EDUCAUSE (2015) indicated that:

> Higher education [currently] faces a range of well-known challenges, and online learning is likely to provide some of the solutions over the coming years. [Academia] has the opportunity to try out some of the solutions on a small scale, to see and measure the results, and to work judiciously to apply those programs in areas that could stand to benefit the most from them. The innovations of online learning have the potential to provide considerable enhancements to traditional face-to-face learning, as well as hybrid environments. (p. 6)

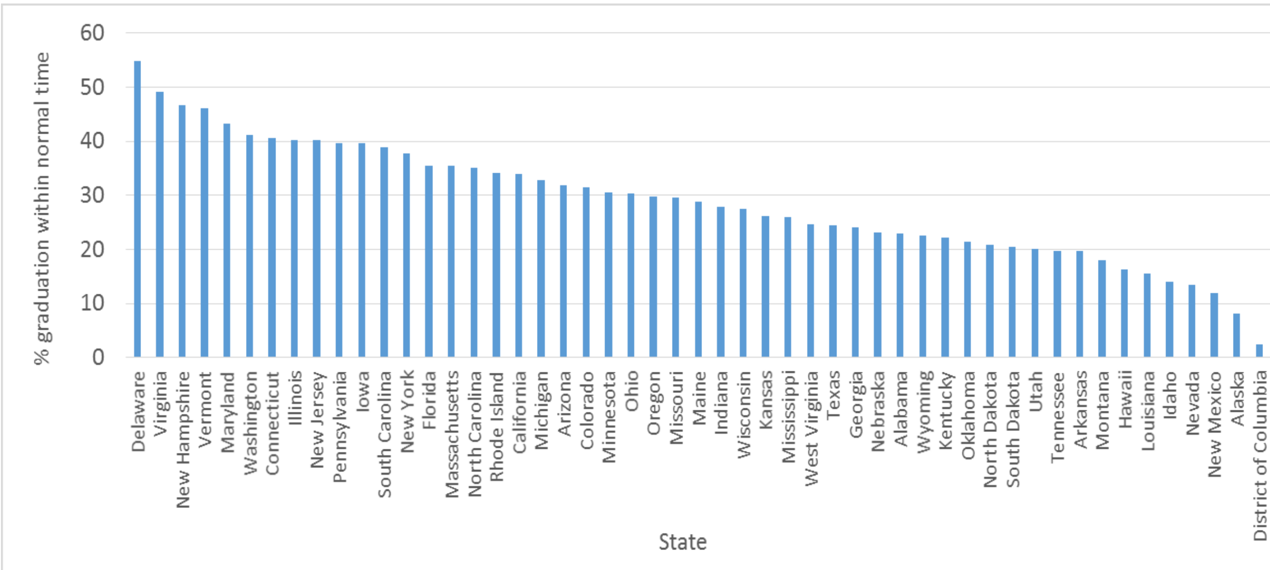
The advent of the Internet and the upsurge in the use of technology in education over the past decade has made it possible for colleges and universities to offer online courses. Research had shown that online learning has become one of the most popular methods for delivery of course content because it provides more scheduling flexibility to address the time constraints of students in higher education (Allen & Seaman, 2015; EDUCAUSE, 2015; Hogarth, 2010; Torrisi-Steele & Drew, 2013; Comey, 2009; Alexander & Levine, 2008; King & Cerrone, 2012; Köse, 2010). More importantly, online learning gives students a modern skill set that many employers find desirable in potential employees (Chamberlin, 2014). These skills include online communications, research ability, digital literacy and computer use. Online learning also helps develop self-discipline, motivation and initiative, which are real world skills that employers value and look for in potential hires.

The California Economy and Higher Education Access

California's dynamic, knowledge-based economy is envied the world over. The growth of the state's economy increasingly demands greater numbers of highly skilled and educated workers. Baldasarre, Bonner, Petek and Shrestha (2012) conducted a Public Policy Institute of California (PPIC) statewide survey (n=2,503), and found that nearly all Californians indicated that the "state's higher education system is very important (73%) or somewhat important (23%) to the quality of life and economic vitality of the state over the next 20 years" (p. 15). More than six in 10 people across political parties, geographic regions, and demographic groups agreed that higher education is extremely important to California's future (Baldasarre, Bonner, Petek & Shrestha, 2012).

PPIC research revealed that the state will have a shortage of 1 million college-educated workers by 2025 (Johnson, 2014). This sentiment was supported by 49% of all Californians who recognized that the state will face a shortage of college-educated residents needed for the jobs of the future (Baldasarre, Bonner, Petek & Shrestha, 2012). Economic projections for the state suggested that by 2025, 41% of jobs in California will require at least a bachelor's degree (Johnson & Sengupta, 2014; Reed, 2008; Johnson, 2009). However, California has lagged behind other states in college attendance and graduation (Figure 1.4). The state ranks 18th in graduation rates among all the states, despite it being one of the nation's top economic and employment centers. Given the current higher education graduation trends, the state's population is unlikely to supply these highly educated workers. PPIC's population projections indicated that just 35% of adults in 2025 will have at least a bachelor's degree.

Figure 1.4: Graduation Rates by State – 100% of the Normal Time (Selingo, 2013)

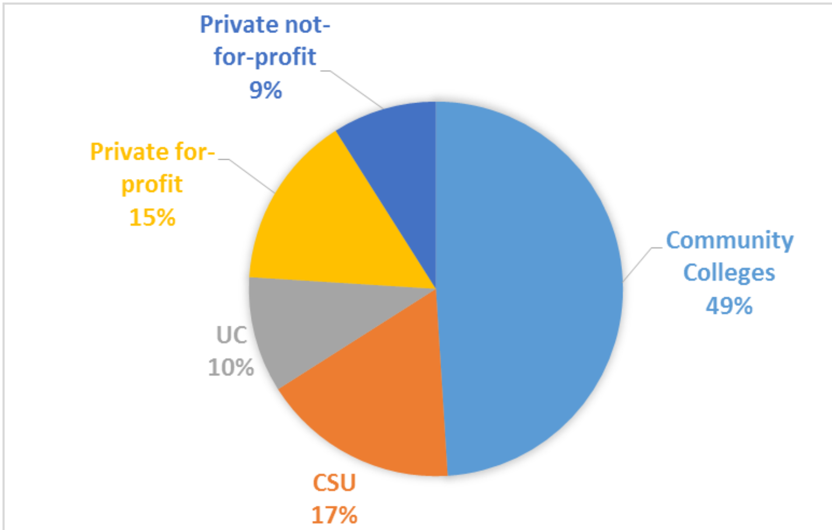


This gap between economic demand and population supply is known as a "workforce skills gap". Policy experts stated that this gap can only be resolved in two ways: (1) by improving Californians' educational outcomes or (2) by lowering the quality of jobs in the state. Clearly, the latter is not a preferred strategy for the state and its residents.

Growth of Online Learning in California

The state of California's policies regarding higher education are critical to the state's future, and will largely determine the supply of college graduates available to the state's public and private employers. Higher education in California is largely a public endeavor, with almost 80% of all college students enrolled in a public higher education institution (Figure 1.5).

Figure 1.5: Student Distribution between Private and Public Institutions in California (Johnson, 2014)

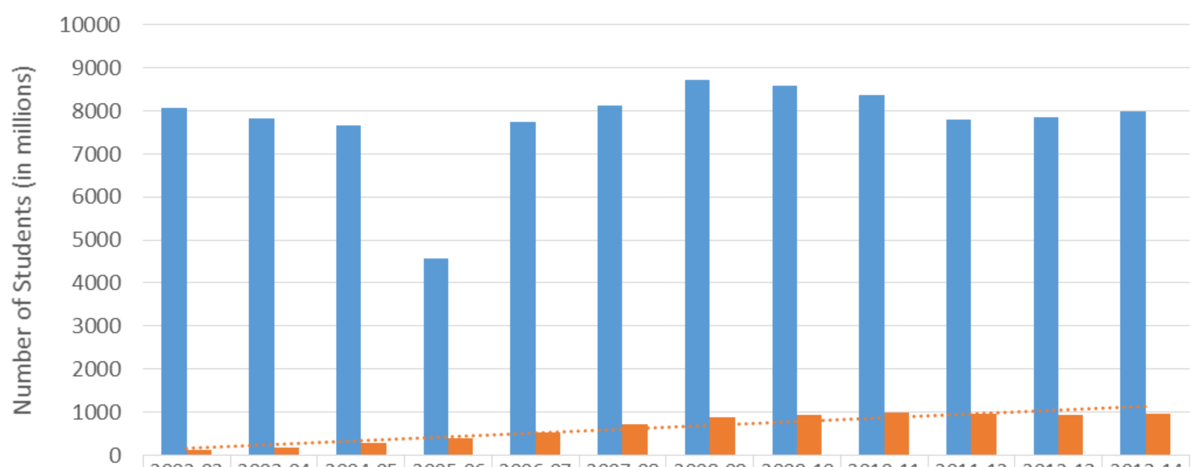


California's budget crisis had many consequences. One of the most troubling has been the erosion of access to higher education (Johnson, 2014). For instance, last fall, about 500,000 undergraduate students, nearly a quarter of the entire student body, were on a waiting list to get into a class. As costs of attending college have risen and access to higher education has declined, state policymakers have been looking to online learning as a way to better serve students, increase access and promote degree complete in a more cost-effective manner (Mitchell, Palacios & Leachman, 2014). According to Mitchell, Palacios and Leachman (2014), all across the nation, public funding for higher education "remains well below pre-recession levels" (p. 1) leading to tuition fee increases and spending cuts that could lead to a deterioration of the quality of education. This comes at a very inopportune time because of the need to have an educated workforce to power the nation's economy. In fact, California is one of the 48 states that are spending less per student that it did before the recession (Mitchell, Palacios and Leachman, 2014).

In the 2013-2014 budget for the California's public colleges and universities, the governor of California provided $56.9 million dollars over 55 months, beginning in December 2013, towards the Online Education Initiative (OEI). This funding was allocated to the state's three public education sectors: the University of California (UC), the California State University (CSU), and the California Community Colleges (CCC) to promote online learning (Johnson & Mejia, 2014).

Online learning is a relatively new phenomenon, but has already generated a great deal of interest in policy and higher education circles in California. Online learning has grown tremendously throughout the world in the last decade, including California (EDUCAUSE, 2015; Johnson, 2014). Online learning enrollment in public higher education had grown remarkably in California over the years, reaching almost 1 million students in 2015, up from only 114,000 students in 2002 (Figure 1.6).

Figure 1.6: Total number of enrollments – traditional and online in the state of California (2002-15) (CCCCO, 2015; Johnson, 2014):



	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Traditional	8074	7811	7672	4566	7736	8111	8730	8592	8379	7791	7861	7986
Online	114	168	276	399	526	728	893	929	990	958	943	955

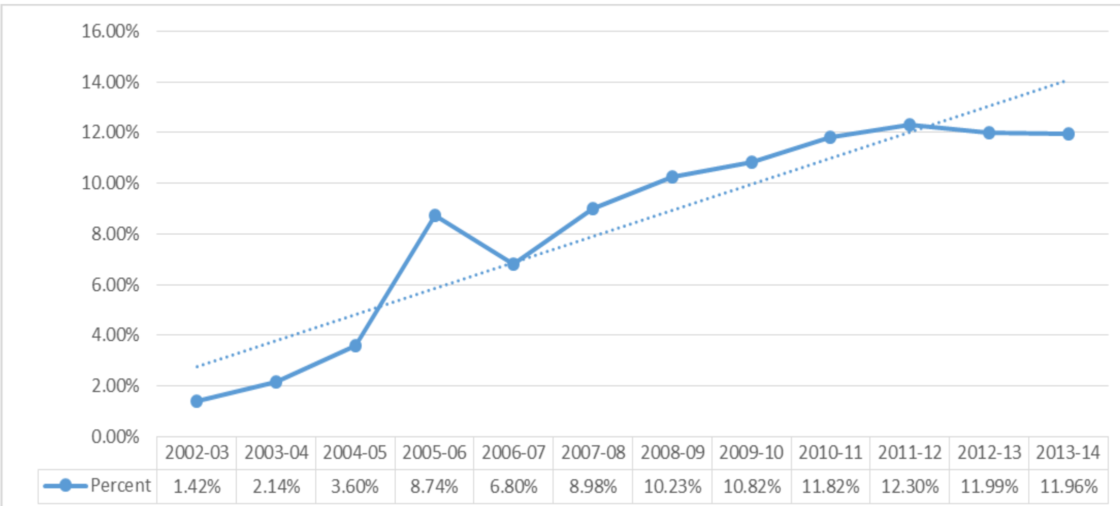
Obviously, the scarcity of traditional courses has been a contributing factor to the huge increase in online learning. In fact, almost 530,000 community college students took at least one credit course online in 2013 (Johnson & Mejia, 2014). Over the past ten years, online course enrollment has increased by 840,000 students, while traditional course enrollment has declined by almost 90,000 students (Johnson, 2014, Johnson & Mejia, 2014) (Table 1.1).

Table 1.1 Enrollment by Course Modes in California (Traditional and Online Courses): 2002-03 to 2011-14 (CCCCO, 2014; Johnson, 2014)

Academic Year	Traditional Courses	Online Courses
2002-03	8,074,195	114,393
2003-04	7,811,191	167,538
2004-05	7,671,969	249,373
2005-06	7,566,281	399,075
2006-07	7,735,746	526,320
2007-08	8,111,267	728,328
2008-09	8,718,936	892,874
2009-10	8,592,497	929,470
2010-11	8,378,777	990,303
2011-12	7,790,510	957,888
2012-13	7,860,922	942,556
2013 -14	7,986,022	955,063
Total increase (decrease) from 2002-2014	(88,173)	840,670

Online course enrollment as a share of all enrollments increased from 1.4% to 10.7% from 2002-2014 (Figure 1.7):

Figure 1.7: Online Course Enrollment as a Percentage of Total Enrollment from 2002-03 to 2011-2012 (CCCCO, 2014; Johnson,, 2014)



California Public Higher Education System Challenges and Solutions

California's public higher education system includes three branches: the University of California (UC) system, the California State University (CSU) system, and the California Community College (CCC) system. The public higher education sector is the third largest area of state spending after K–12 education and health and human services. The California public higher education system serves more than 3.5 million students, with more than 244,000 students in the UC system, nearly 450,000 students on CSU campuses, and more than 2.9 million attending community colleges (Table 1.2):

Table 1.2: Comparison across the Three Branches of California's Public Higher Education System**:**

Branch	Admission	Number of campuses	Students (estimate)	Faculty and Staff
University of California (UC)	Top 12.5% students from state's graduating high school class (University of California, 2015)	10	244,000	138,000
California State University (CSU)	Residents of California who have a GPA of 3.0 and above in "a-g" classes after 9th grade (California State University, 2015)	23	450,000	45,000
California Community College (CCC)	Any California resident possessing a high school diploma or equivalent (CCCCO, 2015).	112	2.9 million	18,923

Recently, public higher education in California has sustained considerable reductions in state funding (Mitchell, Palacios, & Leachman, 2014). Although some state cost areas have experienced limited budget cuts over the past several years, higher education does not enjoy the same funding mandates and legal protections as other state services such as K–12 education or prisons and corrections. Higher education institutions have the ability to generate revenues through student fees, thus making it an easier target for budget-cutting than other programs. As a consequence, the state's public colleges and universities had been forced to make difficult choices to make up for cuts, including increasing student fees significantly and eliminating courses. All of these happened at the same time that the PPIC research showed that the state will face a severe shortage of much needed college-educated employees, approximately 1 million, by 2025.

To address this issue, California's two most powerful state politicians had set in motion an initiative to push public institutions to get creative with inexpensive and efficient degree offerings. Senate Bill 520 was introduced to amend the Education Code provisions, support online learning, and provide increased opportunities for students to take online courses. Steinberg (2014) offered the following the proposals in Senate Bill 520:

> The need for this online [learning] lifeline for students is critical. Last fall [2013], 80% of the state's 112 community college campuses reported waitlists for classes. On average, that equates to about 7,000 enrolled students forced onto a waitlist at each campus. Only 16% of CSU students, and 60% of UC students, are finishing their degrees within four years due in large part to impacted classes. (p.1)

Most public higher education administrators from UC, CSU and CCC agreed that the best way to address the impaction challenge was to dramatically increase the number of online courses, accompanied by adequate academic support services, offered to students to provide them access to the courses they need to graduate. Online learning holds great promise to alleviate California's burden. It could be a means to improve student access to a college education while maintaining the California public school system's reputation for quality higher education (Steinberg, 2014). All three branches of California's system of higher education offer online courses now, but in a fragmented way. Senate Bill 520 would set rigorous standards, include protections against cheating and ensure that students get the faculty interaction they need (Steinberg, 2014). Online learning would help clear the bottleneck in the system and allow students to graduate on time, which would cut costs significantly. This bill is primarily focused on courses at CSU and the community colleges, where the need is greatest.

Research Setting Online Learning Challenges and Promises

The research setting was a public university located in Silicon Valley and one of the oldest public institution of higher education in the West Coast. It is one of the 23 campuses of the California State University (CSU) System and is currently the top provider of business graduates to Silicon Valley. The CSU trains the majority of California's leaders and policymakers. Approximately 64% of Californians with master's degrees in public administration studied at the CSU, as well as 35% of those with bachelor's degrees (California State University, 2015). In addition, 49% of Californians with bachelor's degrees in city, urban, community, and regional planning studied at the CSU (California State University, 2015).

The university has matured into a comprehensive university offering rigorous course work and research opportunities to nearly 30,000 undergraduate and graduate students in its eight colleges. The university contributes to Silicon Valley enterprises by educating the teachers, nurses, engineers, business leaders. The university is immensely proud of the accomplishments of its more than 225,000 alumni, two-thirds of whom live and work in the California Bay Area (California State University, 2015). A recent U.S. News & World Report (2014) study ranked the university among the top 15 public master's degree granting universities in the Western region, with more than 7,000 graduates annually.

The university has a strong reputation for academic quality, student engagement, and outstanding graduates from both its undergraduate and graduate programs. This reputation continues to generate an increasing interest among qualified students. Applications for admission to the university in the fall 2015 semester set new records for the third year in a row. However, severe budget restrictions across California and throughout the CSU system continued to limit the university's ability to serve all eligible applicants with the quality of educational experiences that its students and community expect and deserve (California State University, 2015).

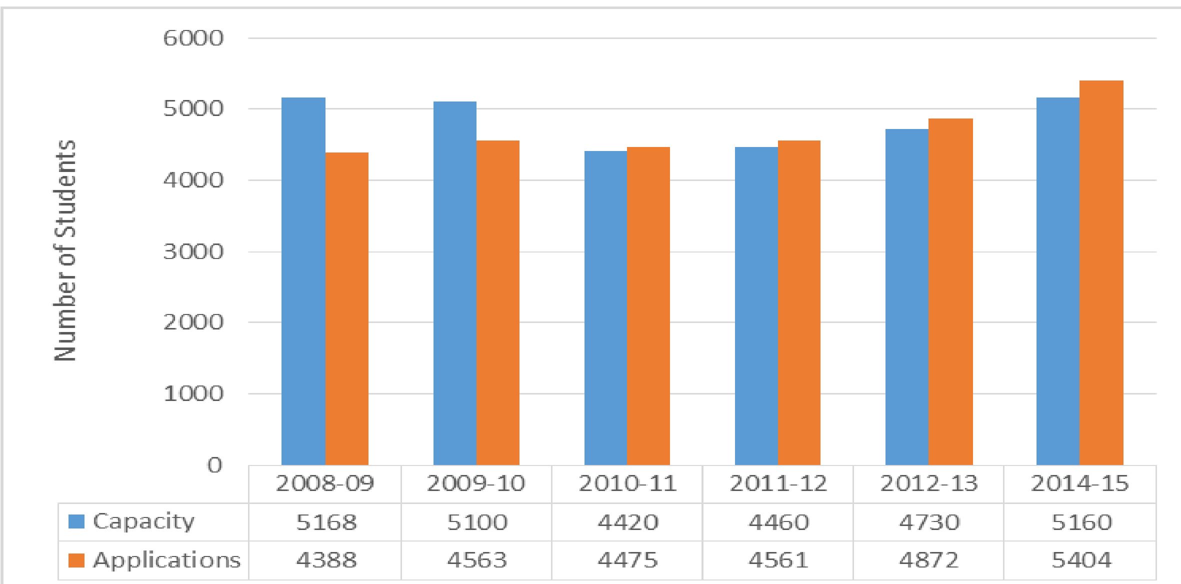
As of fall 2013, the entire university was designated as “impacted”. According to the California State University website (2015), “an undergraduate major, [college] or the entire campus is designated as impacted when the number of applications received from fully qualified applicants during the initial filing period exceeds the number of available spaces” (p. 1). When impaction happens, the college or campus administrators are then authorized to use supplementary admission criteria to screen applications. For campuses that have major impaction, such as the research setting, students can still be admitted to the campus in an alternate major or may eventually admitted to an oversubscribed major if they meet the supplementary admission criteria. For more than three years before the declaration of impaction, the university had implemented numerous changes to increase degree completion, shorten time to degree, use scarce resources more efficiently, better manage the number of students across all majors and levels, continue providing preferential access for local students, maintain diversity and breadth among the student population, and improve student preparation for college success.

However, during the 2012-13 academic year, it became increasingly apparent that the university had to enroll resident students at levels that significantly exceeded available resources and assigned enrollment targets. These excess enrollments, which were projected again for academic years 2014-15, and 2015-16, occurred despite program impaction admission guidelines that had been in place specifically to help keep enrollments within the university’s capacity. As a result, conversations on enrollment management practices continued throughout the year among key stakeholders in the university: the President’s Cabinet, the Joint Enrollment Planning

Committee, the Deans and Academic Affairs leadership, and the CSU Chancellor's Office, among others.

The College of Business was one of the colleges that became impacted earlier than the rest of the university. The college had already declared impaction at the start of the Academic Year 2010-2011 for all majors (Figure 1.8).

Figure 1.8: College of Business Student Capacity vs. Student Applications from 2008-09 to 2014-15



The university is an integral part of the economic ecosystem in Silicon Valley. With continued impaction, there could be serious supply issues in terms of qualified workforce in the coming years. To address this concern, the university had taken initiatives to increase the number of its high-demand courses, and offer these through online learning modality. The goal of online learning at the research setting is to provide better access to courses as needed. These online courses were offered side-by-side with traditional courses. This approach had a two-pronged objective: (1) to accommodate students to complete their studies and/or advance to upper division; and (2) to enable students who may not be able to commute to campus, such as those who are working full-time or are located in another geographical area.

Undergraduate online business courses at the research setting were developed together by faculty members and instructional designers. Instructors were required to develop course materials that were adaptable for online learning. The College of Business wanted to make sure that the courses delivered online are at par, if not better, with those delivered face-to-face. In light of the current educational technology and trends, and the need to provide quality education for students who must take online courses due to a shortage of course offerings, teaching presence needed to be considered.

Several studies showed that instructor-student interaction is essential in any educational experience, regardless of the learning environment, i.e., traditional face-to-face, online education or blended learning (Anderson, Rourke, Garrison, & Archer, 2001; Andresen, 2009; Daly, Moolenaar, Bolivar & Burke, 2010; Dennen, Darabi, & Smith, 2007; Eyal, 2012; Joo, Lim, & Kim, 2011). Teaching presence is a critical element in any educational process. An effective learning environment should be supported by various kinds of interactions between teachers and learners (Moore, 19890) because while interaction between instructors and students is explicit in the traditional on-ground classroom, this is not always the case in online learning environments (Comey, 2009).

Theoretical Framework - Teaching Presence

Teaching presence is defined as “the design, facilitation and direction of cognitive and social processes for the purpose of realizing personally meaningful and educationally worthwhile learning outcomes” (Anderson, Rourke, Garrison, & Archer, 2001, p. 5). This section discusses the importance and meaning of teaching presence in any learning environment and how this meaning changes in the context of online learning. In the traditional face-to-face learning environment, students regularly see the instructor and have the opportunity to constantly interact the instructor and with each other. The online learning environment is very different – it is more fluid and complex, wherein the learning community is composed of an instructor who is not physically present and students who work in isolation. An issue that needed to be addressed is the nature and quality of the teaching acquired through the online learning process in comparison with traditional face-to-face learning environment.

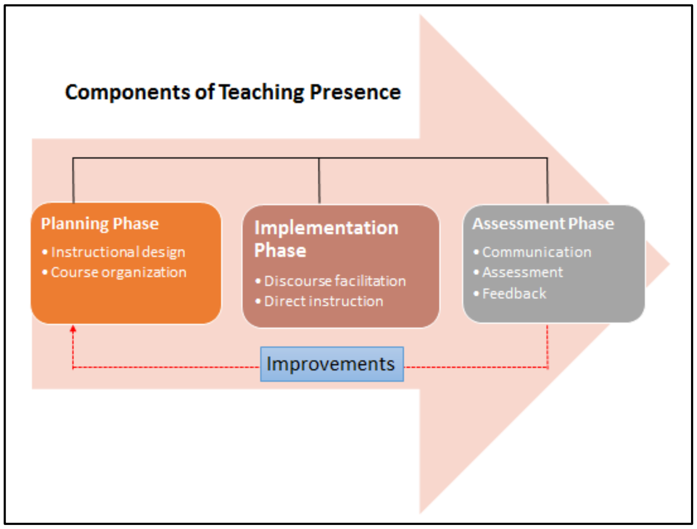
The Three Components of Teaching Presence

Teaching presence involves the three critical components of planning, implementation and assessment (Anderson, 1979; Akyol & Garrison, 2008; Swan & Shih, 2005). These components are manifested through three sub-components (Anderson, Rourke, Garrison, and Archer, 2001; Saba & Shearer, 1994; Andresen, 2009):

1. Planning
    a. Instructional design
    b. Course organization
2. Implementation
    a. Facilitated discourse
    b. Direct Instruction
3. Assessment
    a. Communication
    b. Assessment
    c. Feedback
    d.

These three main components and its sub-components encompass the teaching process (Figure 1.9):

Figure 1.9: The Three Components of Teaching Presence in Phases



Phase 1: Planning - Instructional Design and Course Organization

Teaching presence commences even before the course begins through the instructional design process wherein the instructor gets involved in the curriculum and content development (Shea, Li & Pickett, 2006). There are two sub-components in the planning stage: instructional design and course organization. The instructor plans and prepares the course of study, constructs the learning process, creates the structure and puts the assessment system in place. The instructor also designs the interaction components of the course to align with the learning outcomes. The instructor thinks through and designs the learning activities and lessons that would engage students and stimulate interaction. In this phase, the instructor makes the decision on the pedagogy and selects the manner of delivery that would be most appropriate to deliver the learning outcomes of the course: face-to-face, blended or online (Kumar, 2012; Cook-Wallace, 2012). Examples of activities within this phase include building course materials such as lectures, multi-media presentations, recording video or lecture captures; designing course activities such as group work, cases and exercises; creating the schedule for course completion; and providing students with guidelines and tips on how to use the different types of media effectively.

This initial planning phase is critical because it allows the instructor to think through and put a system and structure in place within the course to make sure that the students are able to learn what they should be learning. It places the student learning in the proper context by articulating the goals and directing the learners to focus on specific pieces of information. Teaching presence starts with planning which involved instructional design and course organization. It does not end at the implementation of the lesson plan in the classroom. To be effective, some type of assessment of learning has to happen at the end of the instruction cycle.

Phase 2: Implementation – Facilitated Discourse and Direct Instruction

Teaching presence "continues through the course, as the instructor facilitates discourse and provides direct instruction when required" (Anderson, Rourke, Garrison, & Archer, 2001, p. 5). During the implementation phase, there are two sub-components that have to be taken into account: discourse facilitation and direct instruction. In implementation, instructors provide direct instruction to the students and also act as facilitators of learning by moderating online discussions and encouraging student interaction with their peers and the course content (Anderson, Rourke, Garrison, & Archer, 2001; Simonson, Smaldino, Albright & Zvacek, 2003). If the course requires papers or research projects to be submitted, instructors also act as mentors and guides to the students through the coursework.

There are several different indicators of teaching presence during the implementation phase. Some of these include the actual presentation of the materials, interacting with the students, acknowledgement of student participation, responding to student queries, summarizing student discussions, creating an environment for collaborative learning between students, regularly posting questions about the course contents and introducing relevant knowledge from various sources (EDUCAUSE, 2015; Simonson, Smaldino, Albright, & Zvacek, 2003; Shea, Vickers, & Hayes, 2010; Dennen, Darabi & Smith, 2007). Depending on the type of coursework and knowledge delivery, the instructor's role throughout the course could vary from being a lecturer to a facilitator, or even a mentor (Shields, 2013).

Phase 3: Assessment - Communication, Assessment and Feedback

The process of teaching presence assessment 'ends' with the assessment (evaluation and review), and this is usually done after the course has ended. The assessment phase is composed of three sub-components: communication, assessment and feedback. Communication and feedback play key roles in assessment. Instructors are able to assess learning outcomes through communication with the students. Students, on the other hand, know if they are achieving the course learning outcomes through feedback from the instructors. There are two types of assessments that need to be conducted: student performance and achievement of course learning outcomes. Students' coursework are measured against the course objectives and based on their accomplishments, a grade is given to reflect the level of their performance. The more important measurement is the assessment of learning outcomes. Assessments of learning outcomes help determine if the students were able to learn what they were supposed to and if the learning objectives of the particular lessons were met. Assessments also give educators and indication of the effectiveness of the delivery of instruction (Irlbeck, Kays, Jones & Sims, 2006). If learning objectives were met and students were able to acquire the knowledge, then perhaps the planning (instructional design and course organization) and implementation (direct instruction and facilitated discussion) were effective in delivering knowledge. However, if the majority of the students were not able to exhibit the level of competency required in the learning outcomes, then it might be worthwhile to re-evaluate the entire process and improve on certain areas.

Teaching Presence in the Online Environment

Teaching presence in online learning can be viewed from the perspective of engagement with the students wherein educators "know and respond with intelligence and compassion to students and their learning" (Rodgers & Raider-Roth, 2006, p. 266). Teaching presence is not just manifested in the physical presence of the instructor. It occurs through various means: course materials, such as the syllabus, course schedule, the choice of reading materials, content presentation, discussions, assignments (Chang & Smith, 2008). Other means, such as assignment feedback, email responses, and messages (Kearsley, 2000) between instructor and students could also serve as positive indicators of teaching presence. Based on these definitions, it can be argued that teaching is a practice that demands presence both in the background through course design and organization within the teaching environment, as manifested in planning and preparation of the course, and in the foreground, through direct instruction and facilitated discussion, whether face-to-face, blended, or online.

In an early study, Short, Williams and Christie (1976) claimed that teaching immediacy and presence were affected by the type of communication media used. For instance, video would have a higher social presence than audio. Influenced by the work of Short, Williams and Christie (1976), early research on Computer Mediated Communication (CMC), suggested that CMC was antisocial and impersonal (Walther, 1996; Walther, Anderson, & Park, 1994; Powers & Mitchell, 1997). However, as technology evolved, researchers who experienced CMC began to argue that a user's personal perception of presence is more important than the capabilities of the communication medium (Garrison, Anderson & Archer, 2000; Gunawardena, 1995; Swan, 2003). The literature on teaching presences suggests that students create and maintain a sense of presence with their instructor and peers through self-disclosure, continuing discussion threads, replying to posts, asking questions, expressing opinions and emotions, and other types of interaction (Gunawardena & Zittle, 1997; Akyol & Garrison, 2008; Swan, 2003; Tu, 2000; Swan & Shih, 2005).

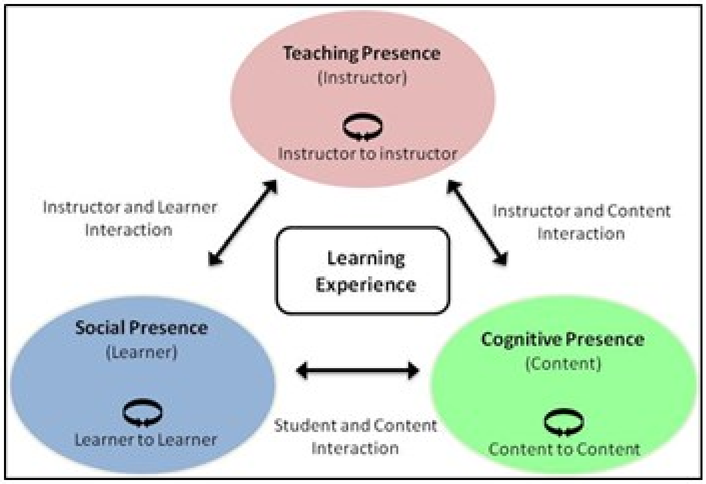
Research has also shown that teaching presence:

1. Is a predictor of student satisfaction in online environments (Gunawardena, 1995; Gunawardena & Zittle, 1997; Richardson & Swan, 2003; Swan, 2004);
2. Is directly related to robust learner-to-learner interaction (Tu, 2000; Pollard, Blevins, Connor & McGovern, 2103); and
3. Plays a key role in collaborative learning (So, 2005; Lear, Isernhagen, LaCost, & King, 2009).

It has also been established that there is a concrete, consistent and strong relationship among student perceptions of teacher immediacy and teaching presence (Moore, 1989, Short, Williams and Christie, 1976, Swan & Shih, 2005). According to Moore (1989), interaction is a critical element in any educational process (Figure 1-10).

The challenge in online education is that while interaction is always explicit in the classroom due to the face-to-face relationship established between instructors and students, this is not always the case in online learning environments (Comey, 2009). The relationship between teaching and learning can be described in very simple terms: Good teaching leads to good learning (Rodgers & Raider Roth, 2006) and very often, good learning is equated with consistent and meaningful interaction with the instructor.

Figure 1.10: The Three Types of Presences in the Online Learning Environment (Moore, 1989)



Research has shown that teaching presence is vital in any educational experience, regardless of the learning environment: traditional face-to-face, online education or blended learning (Anderson, Rourke, Garrison, & Archer, 2001; Andresen, 2009; Daly, Moolenaar, Bolivar & Burke, 2010; Dennen, Darabi, & Smith, 2007; Eyal, 2012; Joo, Lim, & Kim, 2011).

John Dewey (1938) suggested that educators must make his/her presence felt within the learning environment by connecting with the learners at all levels: through the content, pedagogy and the student themselves. While Dewey (1938) might have sounded like he espoused the formation of an in-depth relationship with each student, it is important to differentiate teaching presence from personal relationships. This is particularly true when the lines of communication between instructor and students are almost always open, as everyone is "just an email away". Noddings (2003) further refined Dewey's definition of student engagement by distinguishing teaching presence from personal relationships. According to Noddings (2003):

> I do not need to establish a lasting, time-consuming personal relationship with every student. What I must do is to be totally and non-selectively present to the student - to

> each student - as he [she] addresses me. The time interval [of the interaction with the student] may be brief but the encounter is total. (p. 180)

Noddings (2003) refinement is important to note especially in the current online learning environment where most students expect instructors to respond almost immediately to emails and messages, and online posts.

With emerging online educational models, Fried (2013) observed that the instructor's role may be rendered redundant. This perception could be due to the non-traditional delivery of the course content in online learning. In the traditional face-to-face environment, the instructor is usually expected to lecture on topics and facilitate discussions within the classroom every time the class meets (Allen & Seaman, 2013, 2015; 2014; Baker & Taylor, 2010). In the online environment, teaching presence is less observable because the instructor and the student hardly meet each other face-to-face. There are instances when students finish their degrees without ever meeting their instructors. Actual lectures are now being replaced with pre-recorded lectures, online videos, other media-rich materials, classroom and personal communications and discussions. Discussions are often posted online for other students to view and respond to. However, if little teaching presence in the course, in terms of the course construction, delivery assignments, feedback, etc., there could be a perception by students that the course is on "auto-pilot" and that teaching presence is virtually non-existent.

This study sought to explore issues that had emerged from the research on teaching presence in online learning. It framed teaching presence and its pivotal role in facilitating the success of the online learning experience, recognizing that teaching presence is considered as the primary catalyst for the formation of both social presence and cognitive presence (Wang, 2012; Shea & Bidjerano, 2010).

Statement of the Problem

Online learning, unlike the traditional face-to-face learning environment, relies on network technology to deliver knowledge, information, and instructions to students (Alarcia & Bravo, 2012). Although research has followed the growing academic interest in online education, there are still questions about the quality and effectiveness of this approach (Allen & Seaman, 2015; Keohane, 2013; King & Sen, 2013; Stephens, 2012; Wildavsky, 2012; Wilson & Stacey, 2004; Ke, 2010).

Given that the research setting university is located in one of the most technologically innovative areas in the world, the need to better understand how best to deliver quality education to students in a reduced higher education budgetary outlook through online education was emphasized. If current trends continue, research suggests that by 2025, only 35% of working adults in California will have bachelors' degrees (Johnson, 2014; Johnson & Sengupta, 2014; Selingo, 2013). This equates to a shortage of approximately one million college graduates for the region.

Policymakers in the State of California determined that increased access to online learning was an important step in supplying educated professionals for the employment demands of the state's changing economy. The College of Business at the research setting university is a significant workforce provider for Silicon Valley. College leadership at the research setting needed to find solutions on how to be able to provide quality courses in a reduced fiscal environment in order to meet workforce demands with graduates that possesses employer-valued skills and knowledge.

Greater knowledge of student perceptions of the elements of teaching presence in online learning will enable leaders at the research setting to better respond to student, college, and university system demands for quality education. A better understanding of teaching presence in the online learning environment could help instructors design more meaningful courses that: (1) increase student learning, retention, and engagement for course and program completion; and (2) enhance development of employable knowledge and skills for the workplace.

Purpose of the Study

This research sought to examine undergraduate business student perceptions of teaching presence in online courses in order to provide insights into how instructors can enhance teaching presence through its three components: (1) planning (instructional design and course organization); (2) implementation (direct instruction and facilitated discussion); and (3) assessment (communication, assessment and feedback) in the online learning environment. This study intended to provide information about the changing demographic, and contextual and technographic characteristics of the undergraduate business online learner in relation to their perceptions of teaching presence. Open-ended questions on teaching presence components were asked of the students to further explore these components.

This study responded to Senate Bill 520, which aimed to increase the scale of online learning as a means of improving access to education while maintaining California's reputation for higher education. In addition, the study sought to explore the issues that had emerged from the research on teaching presence in online learning. It was framed around the importance of teaching presence and the role it plays in enhancing the online learning experience.

Significance of the Study

The study took place at a public university in Silicon Valley, considered to be the global center of technology. As costs of attending college continue to increase and access to public higher education in the California State College system declines, policymakers and university administrators in California view online learning as a way to better serve student needs, increase access to education, and promote completion of their undergraduate degrees. For online courses to be cost-effective alternatives to traditional face-to-face courses, they must be less expensive and comparable in quality to face-to-face courses, in terms of delivering learning outcomes.

This study focused on business undergraduate student perceptions of teaching presence in online learning. It is expected that the results of this research will begin a dialogue among instructors and college administrators on how to enhance teaching presence to better engage students in their learning for the purposes of enhanced learning outcomes and understanding. In so doing, instructors will be able to develop courses that increase student employable knowledge and working skills.

Research Questions

This study investigated the perceptions of undergraduate business students on teaching presence in online learning. The research centered on a central research question: What are undergraduate student perceptions of teaching presence in online courses based on their personal, contextual and technographic characteristics? Three research questions were developed to investigate this central question and were designed to look at the categories of the variables separately. In addition, open-ended questions on each teaching component were included in the survey. The fourth research question qualitatively investigated the relationships between students' personal, contextual and technographic characteristics through these open-ended questions.

Research Question 1: Is there a significant relationship between student personal characteristics (age and gender) and their perceptions of online teaching presence?

Null Hypotheses:

H_o 1.1. There are no statistically significant differences between student age and perceptions of online teaching presence.

H_o 1.2. There are no statistically significant differences between student gender and perceptions of online teaching presence.

Research Question 2: Is there a significant relationship between student contextual characteristics (student class level and course duration) and their perceptions of online teaching presence?

Null Hypotheses:

H_o 2.1. There are no statistically significant differences between student class level and perceptions of online teaching presence.

H_o 2.2. There are no statistically significant differences between course duration and perceptions of online teaching presence.

Research Question 3: Is there a significant relationship between student technographic characteristics (technology skill level, technology use and attitudes towards technology) and their perceptions of online teaching presence?

Null Hypotheses:

H_o 3.1. There are no statistically significant differences between student technology skill level and perceptions of online teaching presence.

H_o 3.2. There are no statistically significant differences between student technology use and perceptions of online teaching presence.

H_o 3.3. There are no statistically significant differences between student attitudes towards technology and perceptions of online teaching presence

Research Question 4: What are the relationships between students' personal, contextual and technographic characteristics?

Limitations of the Study

This study was limited to the College of Business in one university within a system of the California State University. It would have been preferable to have access to a larger sample of undergraduate students from different majors. This would have allowed a more diverse sample with students from a wider range of disciplines, educational background, level and interests. However, this researcher's purpose was not necessarily to generalize to a larger population but to provide a richer and deeper description of a particular situation involving undergraduate business students.

Another limitation was that survey data for this study were self-reported. This had the potential for bias because participants might not have written objectively about their perceptions of teaching presence, their learning experiences and their satisfaction with the courses. There was the possibility that participants overstated or understated their level of perceived teaching presence, satisfaction and learning acquired.

Delimitation of the Study

This study was limited to the population of undergraduate students taking online courses in the winter and spring 2015 semesters in the College of Business in a California state university.

Acronyms

ATUTS – Attitudes Toward Use of Technology Survey

CCC – California Community Colleges

CoI – Community of Inquiry

CMC - Computer Mediated Communication

CSU – California State University

PPIC – Public Policy Institute of California

UC – University of California

Chapter 2 - Review of the Literature

Chapter Overview

This chapter begins with the growth of online learning in public postsecondary education, followed by a discussion on the research about the benefits and challenges of online learning. Relevant research and publications on teaching presence and its three components are presented, as well as selected dissertations. Research on selected student characteristics (personal, contextual and technographic), as they relate to online learning and presences, are presented following the section on publications. Finally, the chapter ends with an overview of best practices in online learning.

Growth of Online Learning in Public Postsecondary Education

Online learning is not new to postsecondary education. It has evolved from the term "distance learning", which began as correspondence learning in the 1800's (Simonson, Smaldino, Albright & Zvacek, 2003 p. 13). In the last decade, online courses and online learning initiatives had greatly increased (EDUCAUSE, 2015). Several factors, such as the costs of higher education, development of employable skills in the workplace, and the changing roles of learners and instructors had converged and impacted the growth of online learning (EDUCAUSE, 2013).

The advent of technology brought with it new innovations in education and ways of thinking about teaching and learning. An increased focus was placed on the potential of these technology innovations to increase student access to education and learning (Wildavsky, 2012; Stephens, 2012; Köse, 2012). Online learning also made it possible to provide access to educational resources, which were not made available in the past. Another trend that had significant impact on the growth of online learning in postsecondary education was increasing student enrollment at a time when public funding for higher education had steadily decreased (California State University, 2015). This phenomenon placed public universities in the challenging position of responding to reduced budgets while accommodating swelling student enrollments (Denna, Dodds, Fleagle & Patterson, 2014; Betts, Hartman & Oxholm, 2010). Valenti (2015) observed that there is a need to efficiently address the cost of higher education while addressing quality concerns, and online learning offered a way to accommodate this need. Costs for physical campus expansion and maintenance had increased substantially over the past decade (Denna, Dodds, Fleagle & Patterson, 2014; Betts, Hartman & Oxholm, 2010), and online learning presented an alternative to reduce the need for increased physical infrastructure.

The rising pressure on higher education to account for what and how well students are learning was also a factor that needed to be considered seriously. As the costs of education continue to rise, colleges and universities are increasingly held accountable for the quality of teaching and for the relevance of subject matter to the real world (Kirshtein & Wellman, 2014; Denna, Dodds, Fleagle & Patterson, 2014; Betts, Hartman & Oxholm, 2010). Consequently, public university administrators had increasingly explored additional innovative strategies for cutting costs without sacrificing education quality. The challenge in implementing online learning, particularly in the research setting, is to weather the current fiscal challenges while creating opportunities to reexamine the core values of higher education and encourage learner-centered educational practices (Vaughan, 2007; EDUCAUSE, 2015).

In recent years, there had been significant growth in the enrollment numbers in online courses, compared with the traditional course offerings (Allen & Seaman, 2015; Anderson & McGreal, 2012; DeSilets, 2013; King & Sen, 2013). More and more students were becoming online learners and to respond to this, universities had increasingly offering more hybrid/blended and fully online courses. Online learning helped alleviate the problems commonly associated with completing a college degree. This mode of learning helps develop skills needed for the workplace. According to EDUCAUSE (2015), the new models of online learning are "increasingly able to provide the kinds of learning people need, at a cost they can afford, and in a way that fits their schedule and other life commitments" (p.3). While majority of people believe that college degrees are necessary to advance in life, many are reassessing the value of higher education and thinking hard about the costs of obtaining the degree compared with the benefits it could potentially bring. Thus, online learning became a more attractive option because it helped drive down the costs of learning, while leveraging the "learning ladder, with an increased ROE – Return on Education" (EDUCAUSE, 2015, p. 3) on the part of the students.

Technology is changing the landscape of education and administrators are now more committed to finding new approaches to deliver knowledge using emerging educational technologies. As online learning continued to grow, it had become more viable and accepted as a legitimate means of completing a degree (Valenti, 2015; Kirshtein & Wellman, 2014). Knowing students' perceptions of the learning environment and interactions would provide essential understanding to design such student-focused learning environments.

Benefits and Challenges of Online Learning

The development and increase in the use of technology has played a major role in the popularity of online courses in colleges and universities. As with all other learning models, online learning has its own benefits and challenges. An examination of the literature revealed that the benefits of online learning fell within four areas: flexibility, access, student engagement, and interaction (EDUCAUSE, 2015; Alexander & Levine, 2008; Hargadon, 2008; McLoughlin & Lee, 2008, Siemens, 2008; Bersin, 2004).

The role of the instructor in an online learning environment is more challenging compared to the traditional face-to-face mode (Bradley, 2010; Cook-Wallace, 2012). In the online learning environment, the roles that online instructors assume could vary between pedagogical and course manager; social leader and catalyst; and technology consumer and technical expert. In any learning environment, expectations from instructors are similar – they are expected to be a resource of knowledge as well as a facilitator of learning, whose task is to guide and support the students in their learning (Burnett, Bonnici, Miksa & Kim, 2007). The instructor is also responsible in creating the necessary structures to support students in their learning. The delivery of these expectations presents an increased level of challenge for both the learners and instructors.

Studies showed that the current generation of learners prefers online or blended formats because it affords greater time flexibility, freedom and convenience to work on their courses (Hogarth, 2010; Torrisi-Steele & Drew, 2013; Comey, 2009). Online learning provided students the ability to interact more with the instructors because of the numerous opportunities available for communication (Comey, 2009; Folley, 2010), i.e., emails, online discussion forums, and posts on social media. Set up correctly, the online learning environment enabled students the ability to express themselves through the creation of digital content such as online media, podcasts, and video casts (Burch & Nagy, 2007; Bersin, 2004; Hansen, Manninen, & Tiirmaa-Oras, 2006) and sharing these with the instructor and their peers. Research suggested that in online learning environments, students felt that they had more time to reflect and refer to relevant course materials when working online than in the classroom (Hargadon, 2008; Harriman, 2008, Ho, Lu, & Thurmaier, 2006; Hogarth, 2010).

Although research had followed the growing academic interest in online learning (Allen & Seaman, 2015; 2014; Fried, 2013; Keohane, 2013; King & Sen, 2013; Stephens, 2012; Wang, 2012; Wildavsky, 2012), there were still questions about the quality and effectiveness of this approach. As the field of education moved from traditional learning modes to new approaches, it would be worthwhile to pay attention to the relationship between teaching presence and student learning and engagement. Students enrolled in any course, whether traditional face-to-face, hybrid or blended learning, or online learning environment, generally expect to have some sort of interaction with their instructor (Lear, Isernhagen, LaCost, & King, 2013). Interaction fosters learning (Cao, Griffin, & Baj, 2009), and in this context, teaching presence becomes a critical factor in the success of the online learning experience. Teachers should recognize that as the learning environment changes, the context of their roles as instructors would also change (Pollard, Blevins, Connor & McGovern, 2013).

The combination of the availability of high quality online content and emerging technologies in education allows educators to become facilitators of learning rather than lecturers. Since asynchronous learning environments lack physical teaching presence, instructors needed to have their presence felt in other ways. Instructors could manifest their teaching presence through the course design, course organization, direct instruction and facilitated discussions (Burch & Nagy, 2007), and through communication with the students and providing them with feedback (Belair, 2012). Instructors need to put in place a system for functional communication that would allow online learners to communicate with the instructor and with each other to compensate for their non-physical presence (Wilson & Stacey, 2004). This way, online learners would feel less isolated and more supported in their learning.

Online learning has its challenges and, often, these are in the areas of technology competence, student expectations and motivations, and time management (Torrisi-Steele & Drew, 2013; Rothrauff, 2011; Simonson, Smaldino, Albright & Zvacek, 2003, Sorden & Munene, 2013). It is required that all the participants in the course, the instructor and students, possess the minimum technology skill level to effectively participate in the class. An instructor who does not have adequate technology skills would find it very difficult to design an effective online learning course (Belair, 2012; Alexander & Levine, 2008). On the part of the students, not having the required technology skill set would likewise pose a challenge in terms of going through and keeping up with the course (Köse, 2010; Vaughan, 2007).

According to Bennett et al (2011) and Torrisi-Steele & Drew (2013), motivation and expectations are other areas of challenges in online learning. The flexibility and ease of access afforded by online learning may be advantageous, but at the same time, these also fostered a lack of motivation for students to finish coursework. The lack of student motivation could come from difficulty with managing time during the weeks when the class does not meet face-to-face (Holenko & Hoić-Božić, 2008). Without good time management skills, many students found out too late that they had lagged behind in coursework. In addition, many students felt that meeting less in class meant that they also did not need to devote time to accomplish coursework (Valenti, 2015). Vaughan (2007) further explained that “a number of these students [did] not perceive time spent in lectures as ‘work,’ but they definitely [saw] time spent online as ‘work’, even if it [was] time they would have spent in-class in a traditional course” (pp.85-86).

The Community of Inquiry Framework for

Teaching Presence in Online Learning

The Community of Inquiry (CoI) was first introduced by John Dewey and then later by C.S. Peirce (Dewey, 1938; Seixas, 1993). It was then more broadly defined as a group of individuals involved in knowledge formation and process of empirical inquiry into problematic situations (Dewey, 1938; Seixas, 1993; Garrison, Anderson and Archer, 2000). The CoI emphasizes that knowledge is necessarily embedded within a social context and therefore requires some inter-subjective agreements among those involved in the process of inquiry for there to be legitimacy (Seixas, 1993). According to Lipman (2003), Peirce limited the use of the CoI concept to a community of scientists. However, Dewey made the CoI more applicable to the educational setting. Lipman (2003) argued that a classroom is a type of CoI, which leads to "questioning, reasoning, connecting, deliberating, challenging, and developing problem solving techniques" (p.20). In this setting, instructor and students are engaged in active inquiry, which is the fundamental concept of the CoI (Lipman, 2003).

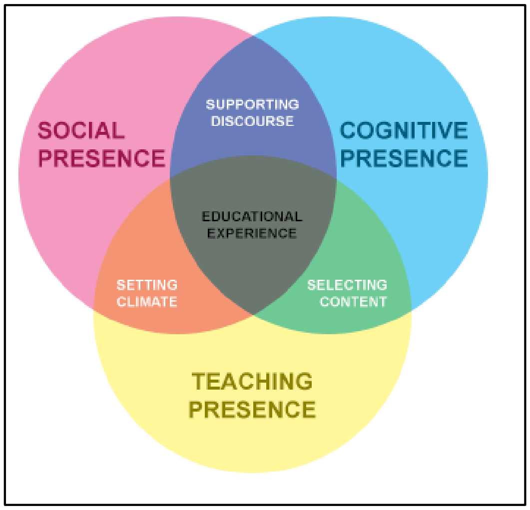
The ideas of Dewey and Lipman were expanded and applied to online learning contexts in a project that originated at the University of Alberta. The current CoI framework was initially developed by Garrison, Anderson, and Archer (2000) and emphasized the importance of three presences in online learning. The central construct of the CoI framework is that educational experience occurs at the confluence of three distinct types of presences: social, cognitive and teaching presence (Garrison, Anderson & Archer, 2000). In the 1990's internet-based, asynchronous learning was in its infancy. Most educators were skeptical of this new modality and needed to be sure that there was sufficient quality in the online learners' educational experience that resulted from the use of this new modality.

The CoI framework, based on collaborative constructivist learning principles, suggests that learning occurs as a result of interaction through social, teaching, and cognitive presences with and among the members of the learning community (Shea, Vickers & Hayes, 2010). According to the literature, both interaction and collaboration are critical for the communities to evolve in the online learning environment. The CoI framework supports the intentional development of these learning communities through preset conditions to help students to collaborate and learn in that environment (Shea & Bidjerano, 2009). Thus, it is essential to know the constructivist teaching and learning strategies to gain a more comprehensive understanding of the relationship between the three presences and how these foster a quality learning environment.

The CoI framework presents the entire learning process and behaviors for knowledge construction with the educational experience at its core (Shea & Bidjerano, 2009). Garrison, Anderson and Archer (2000) described the interactions among the different presences in the framework as "crucial prerequisites for successful higher education experience" (p. 87). Each of the presences include different but related sub-elements or categories of interaction within the presence, and these categories identify and represent the different kind if interactions happening within that presence. Thus far, the COI framework has been valuable in emphasizing the fact that knowledge is necessarily embedded within a social context and requires interaction among those involved in the learning process (Shields, 2013).

Garrison, Anderson and Archer (2000) were the first to make the distinction between social presence and teaching presence. They developed the Community of Inquiry (CoI) as a theoretical framework explaining the online learning experience in terms of the interactions between the three overlapping presences: social presence, teaching presence, and cognitive presence (Figure 2.1).

Figure 2.1: Community of Inquiry (CoI) framework (Garrison, Anderson & Archer, 2000)



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

In any learning environment, students had traditionally expected to learn from their teachers through direct instruction and interaction with the contents of the course. However, as they progress through the course, they may discover that they also learn from their classmates. This peer-to-peer learning does not occur accidentally. The instructor designs the course and put the pedagogy in place that would foster cognitive, teacher, and social interaction. Teaching presence during the course delivery is important to facilitate learning, particularly in an online learning environment in which peer-induced participation is lacking. The instructor has to simulate the same classroom-type environment by facilitating discussions through posting leading questions to engage students to participate in class discussions and through other methods. At the same time, the instructor is also expected to provide timely and supportive feedback on submitted coursework to let the students know about their progress in learning and whether or not they are on the right track. These are some types of interactions in which teaching presence is felt by the students, which leads to a more effective and meaningful online learning experience.

Research on Teaching Presence and Online Learning

This section examines teaching presence, interaction, and the impact of teaching presence on student learning. While most of the studies included in this section examined student satisfaction or perceptions of learning by students rather than actual measures of such achievement (e.g., grades), it is worthwhile to note that students may perceive learning to had occurred even when their actual grades demonstrated performance that was not indicative of such learning or mastery of concepts. The grades that students received were an outcome measure based upon mastering certain skills and criteria and measured by performance.

The following criteria were developed to help determine whether an article should be included or excluded in the literature review. Studies were included if they met at least 3 out of the 5 following criteria:

1. Teaching presence was the major construct of the study
2. The teaching presence scale was used as the survey instrument. This could be part of the CoI instrument
3. The study reported on at least two of the independent and dependent variables that were included in this study
4. The study used repeated-measures type methodologies
5. The sample used for the study was undergraduate business students

Although there has been much research in the area of online learning, teaching presence and its three components, there is a dearth of studies on the perceptions of business students on teaching presence in online learning. A representative list of research studies relating to teaching presence in online learning are shown in Table 2.1.

These studies were reviewed because they reported results on the components of teaching presence. The publications served well as references for the teaching presence theoretical framework in terms of a general conceptual framework. However, they were not included in the literature review because these did not meet all the criteria specified for inclusion in this study.

Table 2.1: Studies of Teaching Presence in Online Learning

Researchers	Year	Method	Area of Study	Results
Garrison, Anderson, & Archer	2000	Qualitative	Grounded theory research of graduate programs	Resulted to the creation of a coding template as a tool for identifying teaching presence factors as part of the CoI framework.
Anderson, Rourke, Garrison, & Archer	2001	Qualitative	Instrument development for analyzing teaching presence in online discussions	Significant differences among teachers in online courses when teaching presence were measured using a coding template led to the conclusion that teaching presence is affected by several variables.
Picciano	2002	Quantitative	Interaction, teaching presence, social presence and performance in online courses	A direct relationship was found between perceived interaction and positive perception of teaching presence.
Shea, Li & Pickett	2006	Quantitative	Teaching presence and students' sense of learning community	High levels of instructional design, organization and organization correlated to high levels of student engagement and learning

Teaching Presence, Instructor Immediacy, and its Impact on Student Learning

Immediacy is the sense of direct access to someone or something, and in the case of *instructor immediacy*, this refers to the sense of direct access to the instructor. As early as 1978, researchers began examining the concept of "instructor immediacy", a precursor to teaching presence, and found that it affected student learning and satisfaction (Andersen, 1979). A later study by Moore and Kearsley (1996) shed more light on interaction concepts, though it was with face-to-face students. They found a significant relationship between teacher immediacy and student satisfaction. Moore and Kearsley (1996) concluded that higher levels of satisfaction among students lead to a greater engagement with their learning and develop motivation to learn more about it. Although the courses studied were face-to-face, the results gave insights into the importance of communication within online and blended courses and the impact of student-instructor interaction in courses delivered online. The authors concluded that the more teachers communicate with students, the more students felt that professors cared about them and were invested in their academic success.

Baker (2010) examined both teaching presence and instructor immediacy and how they impact student learning, cognition, and motivation by collecting data from undergraduate and graduate online students in a face-to-face university setting (N=699). This group consisted of 443 females and 256 males, and included 416 undergraduates and 283 graduate students. He collected 377 (n=377) complete surveys from the students (response rate – 54%). His study inquired about instructor behaviors which developed a closeness between instructor and student, i.e. praise, self-disclosure, humor, feedback, etc., and teaching presence to see if there was a correlation between these variables and affective learning, cognition, and motivation. Using multiple linear regression, he discovered that that teaching presence was a statistically significant predictor for the outcome variables of student affective learning, cognition, and motivation. Baker (2010) used several instruments to measure affective learning, cognition, and motivation. These tools include included the Affective Six-Scale Measure of Affective Learning, the Learning Loss Scale, and the Motivation Scale. He initially used Pearson Correlation to determine possible relations between instructor immediacy and teaching presence.

He found a statistically significant correlation ($r = .75$, $p < 0.1$) between the two factors. Baker (2010) then used multiple linear regression analysis to determine whether the linear combination of instructor immediacy and teaching presence caused significant variance in student affective learning. The test results showed that there were statistically significant relationships between instructor immediacy, teaching presence and all the dependent variables of student affective learning, $F(2, 372) = 221.77$, $p < .001$, $R^2 = .56$; cognition, $F(2, 360) = 152.60$, $p < .001$, $R^2 = .46$; and motivation, $F(2, 371) = 114.79$, $p < .001$, $R^2 = .38$. However, while the overall regression models were significant in all the three tests, he discovered that instructor immediacy was not found to be a significant individual predictor for causing variance (affective learning, $t = .46$, $p = .64$; cognition, $t = 1.02$, $p = .31$; motivation, $t = .932$, $p = .35$). Baker (2010) discovered that teaching presence, as an individual variable, was the significant individual predictor of all three (affective learning, $t = 13.4$, $p = .00$; cognition, $t = 10.84$, $p = .00$; motivation, $t = 9.19$, $p = .00$). Based on his findings, Baker concluded that teaching presence had more of an impact on cognition and affective learning than teacher immediacy did (2010). He posited that this might be due to the higher number of instructional components present in teaching presence.

In his conclusion, Baker (2010) indicated that more research was needed as to how variables, such as teaching presence and learning, interacted. He also stated that teaching presence involved more instructional design tasks and communication than instructor immediacy did. He stated that further research on which instructional tools could enhance teaching levels to the greatest degree would be helpful to enhance student success in the online learning environment. Baker (2010) also mentioned that blended, hybrid and online learning environments would demand further research in the future.

Another study that examined all three presences of the CoI framework (cognitive, social and teaching) was conducted with online students to determine if these presences had changed over time. Akyol and Garrison (2008) conducted this intensive study with only 16 graduate students in an online course (N=16) during the fall term of 2007 at the University of Calgary. The course was delivered fully online using synchronous and asynchronous formats. Virtual office hours were also set up to increase accessibility to the instructor. Due to the complex nature of the research topic, Akyol and Garrison (2008) used multiple methods and multiple sources of data to understand group and individual learning. A set of learning activities, strategies and assessment tools that reflected all three elements of the CoI framework were developed for this course. The researchers used the CoI instrument to gather quantitative data. In addition to field observations, the researchers conducted intensive 1-on-1 interviews with students throughout the 9-week duration of the course. The data on teaching presence was coded for course design, course organization, facilitated discourse, direct instruction, assessment and feedback.

Akyol and Garrison discovered that over time, direct instruction and the feedback component of teaching presence rose significantly while the facilitated discourse or guidance needed by the teacher dropped as the course progressed (2008). A 3x3 ANOVA with repeated measures was conducted to explore if there were any changes in teaching posting patterns. The authors used these time factors: first 3 weeks, second 3 weeks and last 3 weeks). The results did not show any statistically significant time effect over teaching presence as a whole ($p = .272$). However, the results showed significant category effect on teaching presence, which means that the categories of teaching presence varied from each other ($p < .001$). A test of simple effects was performed to inquire about the relationship of time and the effect on the teaching presence components. The results showed confirmed the finding from the ANOVA 3x3 test. The category of "interaction effect", $F(4, 60) = 5.140$, $p < 0.001$, showed that the category effect varied with time.

The authors posited that perhaps direct instruction and facilitated discussions were more evident once the course was underway. Another explanation the authors proffered was that students might need less support in terms of the instructor facilitating the discussion once the course was well underway (Akyol & Garrison, 2008). It is worthwhile to note that in the courses they attended, students were required to take over the topic discussions only after the third week. This provided the instructor the opportunity to focus on direct instruction activities such as answering difficult questions, clearing up misconceptions, sharing new resources and content, refocusing and redirecting the discussion. All of these areas were responsibilities in which a content expert would help immensely, and these were areas where the instructor could have provided the greatest value.

In 2008, Arbaugh, et. al tested the validity of the CoI Model when they conducted a study with students from four institutions in the summer of 2007. The participating institutions were located in the United States and Canada. Participants in the study were enrolled students in graduate level courses in Education or Business. The survey was distributed to 688 students and 287 students completed it (response rate – 43%). The sample size for the study (n=287) was deemed adequate based on "Kass and Tinsley's (1979) recommendation of 5-10 participants per item" (Arbaugh, et al, 2008, p. 4). The instructors had varying levels of experience on online teaching. Some did not have any previous teaching experience while some already taught as many as 40 online classes.

The study utilized a survey that was sent by email to all of the students during the last week of the class and inquired about their perceptions of the learning environment, the course content, medium used, instructor behaviors, and satisfaction with the Internet as a means to deliver the learning. One of the dependent variables for the study was satisfaction with the delivery method for the course. Predictor variables were components of all three presences (cognitive, social and teaching) and included course design, feedback, dialogue, and direct instruction questions for the teaching presence section of the survey. These variables were taken from other groundbreaking studies, such as Shea's scales for teaching presence (Shea, Fredericksen, Pickett, & Pelz, 2003). Arbaugh's study was controlled for independent variables, such as age, gender, class size, student's previous experience in online courses, and course website usage (Arbaugh et al, 2008).

The study revealed significant correlations between all three presences cognitive, social, and teaching. A degree of association test using oblique rotation (direct obliminal in SPSS), with the default value $\delta = 0$ specified to limit reasonably the level of correlation, was conducted among the three presences. The results showed that while there was a correlation among the presences, teaching presence was more highly correlated to cognitive presence factors ($r = -0.479$) that was with all other components ($r = 0.349$).

Arbaugh (2010) wrote about another study with MBA students. In this study, surveys regarding perceived student learning were sent to 118 students (N=118). Out of 118 students, 88 completed the survey (response rate – 74%). This time, the survey included items on instructor immediacy behaviors with teaching presence items. The independent variables were taken from the teaching presence items in Garrison et al's (2000) survey tool and from Gorham's teacher immediacy scale. Arbaugh (2010) measured each survey item with a 7-point Likert-type scale, ranging from 1 (strongly disagree) to 7 (strongly agree). He used correlation analysis and multiple regression analysis to inquire about relationships between the variables. The item on instructor's emphasis on interaction had the highest t value (4.75, $p < 0.001$). However, Arbaugh mentioned a caveat in his study: because the sample size was small (n=88), there was an 80% chance of detecting R^2s of .17 and higher at a 0.05 alpha level (2010). Arbaugh noted that although the sample size was sufficient power to test the entire model, it was highly probable that significant correlations between factors might not have been detected.

Because the findings showed that students were affected by the presence of the instructor in the course and in discussions, Arbaugh recommended that instructors should put effort into planning and designing their courses long before the start of the class to allow them to participate more in the discussion when they were with the students (2010). This would also provide instructors with the opportunity to demonstrate the other teaching presence components, such as facilitated discussion, direct instruction, feedback and communication (Arbaugh, 2010).

Dissertations on Teaching Presence in Online Courses

After a search of the ProQuest database, the researcher could find only four dissertations pertaining to the perceived sense of teaching presence in online courses. Hersh (2009) studied human presence and social presence in online settings, wherein teaching presence was a major construct. In his study, Hersh defined human presence as human element (or touch) in online education environment (2009). This human interaction could be between instructor and student or between student and student. Laves' (2010) dissertation studied how teaching presence impacted students' perception of learning and sense of community in intensive online education courses developed and taught by instructors at a regional comprehensive university. Another dissertation completed by Benzigar (2014) examined the association of the perceptions on the different elements of the CoI and how these related to learning and satisfaction among undergraduate students. Poston's dissertation (2014) investigated whether or not online and hybrid courses were equivalent in terms of quality. She used teaching presence as the critical component in determining the quality of instruction.

Hersh (2009) found a gap in current empirical research at the community college level to support his premise that students performed better in online courses when they felt some sense of human presence. Hersh studied his concept of "human presence" in online learning to understand why online dropout rates in California community colleges were elevated. Hersh used two different samples for his dissertation. In the first sample, he surveyed 3,267 students enrolled in 64 traditional and online classes. There were 1,944 students who completed the survey (response rate – 59.5%). The second sample consisted of the 290 students who responded to his survey (response rate - 8.9%). Out of the 290 students, there were 145 enrolled in traditional classes and the other 145 were from classes with "human-design presence" (Hersh, 2009, p.116). Hersh (2009) felt that his sample size was sufficient for his study.

His study examined whether enhancing the traditional text-based online education model with rich media technologies could create a more enhanced and engaging learning experience. He further examined if this change helped "increase student satisfaction levels, course completion rates and academic achievement in [online] education" (Hersh, 2009, p.12). To strengthen online human presence, Hersh suggested that college educators infuse cutting-edge multimedia technologies into online courses using open-source Learning Content Management Systems (LCMSs), such as Moodle, rather than relying on static, text-based LCMSs such as Blackboard. The purpose of Hersh's 2009 study was "to compare student attitudes toward, class completion rates in, and student academic success in, two models of asynchronous online education" (p. 12).

Hersh assumed that students felt isolated in online course when instructors failed to fully motivate them and engage them in their learning. While his study did not particularly specify human presence to be teaching presence, he suggested that educators could integrate rich-media technologies into online course through the Learning Management System. In this experimental design, Hersh (2009) introduced interactive, media-rich modules onto the learning content. He designed his research questions to explore relationships as follows: (1) between the mean scores on the Distance Education Learning Experience Survey in students enrolled in the traditional environment with those students enrolled in the media-enhanced human presence environment; (2) between class completion rates in the two groups; and (3) between the final class Grade Point Averages (GPAs) of the two groups respectively.

The quantitative results of Hersh's (2009) research demonstrated that students enrolled in the media-enhanced environments had higher levels of course satisfaction and tended to complete them with higher academic scores than students in traditional environments. The results of his study indicated that a statistically significant difference existed between the mean scores of both groups to suggest that students were more satisfied in the media-enhanced human presence online classroom versus the traditional environment. The results further indicated students enrolled in the media-enhanced environment were more likely to complete the class than those enrolled in traditional environments. Students exposed to the media-enhanced human presence online classroom had a completion rate of 69% versus a completion rate of 64.2% for the traditional environment. In addition, participants in the media-rich environment had higher GPA's than the other group. Hersh (2009) reported "a 9.4% mean GPA difference between students enrolled in traditional [Group A] and human presence courses [Group B]" (p. 148). While Hersh's dissertation used teaching presence as the central construct, the focus of the study was on developing content with media-rich elements and delivering this through the Learning Management System. Other learner-instructor interaction elements, such as course design, discourse facilitation and direct instruction, feedback, communication, and assessment were not included in the study.

Laves' (2010) dissertation used a triangulation approach to study the connection between teaching presence and student learning. Laves (2010) believed that, while there had been numerous studies conducted to comparing the effectiveness of traditional face-to-face mode of delivery and online learning, there had not been much work on how instructors create teaching presence in online environments. This was specifically true for intensive online courses, which Laves (2010) defined as a course conducted in a "fairly rigid time constraint upon participants" (p 19). Laves (2010) used teaching presence as the central construct for her dissertation and proffered that "teaching presence is the glue that held a community of inquiry together…" (p. 16). A triangulation multilevel design was used, merging quantitative survey data from students' perceptions of teaching presence, observed learning, and sense of community with qualitative date from faculty. Laves (2010) conducted the research over the three-week winter term, using a student survey, a faculty survey, and faculty interviews. Laves (2010) combined two different surveys: the Teaching Presence Scale (TPS) and the Classroom and School Community

Inventory (CSCI) for her study. Out of the student population (N=1,213), 397 students responded (response rate – 32.73%). Of the faculty population (N=78), 32 responded (response rate - 41%). The quantitative phase was followed by intensive interviews and field observations of twelve faculty members.

Laves conducted a two-tailed Pearson correlation matrix between the three teaching presence components: instructional design and organization, facilitated discourse, and direct instruction, and students' perception of learning (2010). The results of her study showed small but significant correlations between the teaching presence components and students' perceptions of learning. She based her conclusion on "Gravetter and Wallnau's (2004) description of Cohen's (1988) interpretation of using r2 to estimate effect size" (Laves, 2010, p.111). This small effect size was r2 between 0.1 and .09, as described by Laves (2010). In her study only 7.5% of the variance was accounted for in the correlation between Instructional Design and Organization and perceived learning, giving an effect size of r^2=.075. The variance of 6.5% was explained by directed facilitation and perceived learning, with an effect size of r^2=.065. Consequently, Laves (2010) discovered a significant correlation between perceived teaching presence and perceived student learning, with the statistically significant factor being course length. Laves conducted a regression analysis to determine the correlations. Results showed that there was a significant correlation, $F(3, 382) = 18.859$, $p < 0.001$. Laves ran a second regression analysis with the same independent factor and the result also showed a significance ($F(3, 382) = 71.354$, $p < 0.001$.

Qualitative results from interviews with twelve members of the faculty revealed that all three components of teaching presence hold equal importance in creating teaching presence in online learning. After the responses of the faculty were coded, analysis of the text units (N=783) across the six themes showed a fairly even distribution among the themes. According to the faculty responses, direct instruction comprised 17.1% of the total (N=134), facilitated discourse 18.8% (N=147), instructional design and organization 24.6% (N=193), sense of community 23.8% (N=186), and course length 14.7% (N=115). The research also indicated that instructors feel that it is important to incorporate all of the teaching components in a course, regardless of the format (Laves, 2010).

Laves (2010) concluded that there were several factors contributing to student satisfaction and learning in intensive online courses. The factors she highlighted included demographic (age and gender) and contextual (access, employment and distance from campus) characteristics that could have affected and potentially contributed to student satisfaction and learning in online education courses.

Laves' (2010) study was examined because of the similarity of the theme and the approach used. The participants in Laves' (2010) study included students and faculty, with the latter group participating more intensively in the process by providing materials used in teaching, notes and artifacts in their courses. Instructors were also interviewed and were observed in the field. Laves collected multiple data points from both student and faculty. Laves (2010) approach was commendable, since the study gained insights from multiple perspectives. However, the study focused on collecting data exclusively from intensive online courses conducted during the winter 2009 semester.

Benzigar (2014) studied the perceptions of undergraduate online students, with the intent of advancing the understanding of the learners' views of the three types of interactions between the three presences. These interactions were student-to-content, student-to-instructor, and student-to-student. His study examined whether or not there were "alignment issues between instructor and student perceptions regarding the effectiveness of the delivery of the online course" (Benzigar, 2014, p.22). Benzigar (2014) assumed that undergraduate students preferred to have more social and teaching presences, rather than cognitive presence, in order to guide them in their learning.

Benzigar (2014) suggested using the CoI framework to develop higher quality online courses to enhance learning. He used a non-experimental quantitative survey design and surveyed N=600 students in fall 2012 from the College of Public Health at Kent State University. All the courses surveyed were designed based on the Quality Matters (QM) standards. Out of 600 students, 121 completed the surveys (a very low response rate – 20.2%). A little over half of the respondents (52.9%) were enrolled in online and face-to-face classes, and 67.8% had taken at least 2 or more online courses. The results of the research were presented as separate parts of the CoI framework, rather than as coordinated elements. The research focused on the validation of the associations between positive/negative perceptions and the different elements of the CoI framework. Benzigar (2014) used a simple frequency analysis and descriptive statistics to analyze the data he collected. The results of his study showed that the frequency responses to the survey items within the teaching presence components (13 survey items) were all above 50%. He combines the percentages of strongly agree and agree and reported levels of positive student perceptions above the 50% threshold. His frequency percentage calculations ranged from 51.3% to 85.1%. Based on his study, Benzigar (2014) concluded that the results of his research validated the existing literature on the value of the CoI framework as a tool to design interactions in online learning. Benzigar's research questions were similar to this researcher's themes, since two questions dealt with students' perception of teaching presence. However, the research was limited to the College of Public Health and the theoretical framework used for the study was the

CoI framework, rather than one component. In addition, the analysis that Benzigar (2014) conducted in his study did not analyze particular relationships between any student characteristics and the teaching presence components.

In 2014, Poston's dissertation examined teaching presence in online and hybrid learning environments. She used a quasi-experimental nonequivalent control group design in two separate group analyses to examine the effects that teaching presence had on students in online and hybrid courses. Poston (2014) analyzed archival data for the academic year 2012-13 and conducted an analysis of student grades and teaching presence in online and hybrid course environments. The independent variables in this study consisted of the number of forums, discussion postings, posted forum replies, and type of course. The dependent variables were final grades and responses to an end-of-course survey. The survey consisted of a three-item composite score of student responses to a survey taken at the end of the course. The composite score was developed into a teaching presence construct with either a high or low teaching presence. The results were used to conduct a binary logistic regression analysis. The survey was intended to measures the students' satisfaction with the course, with the learning materials, and the instructor.

Poston (2014) study included the grades of the entire population of a private, non-profit university (N=1,014) for her study. Half of this number (N=552) were grades from the hybrid course and the other half (N=552) came from online courses. She examined the final grades of students from hybrid and online courses and conducted a Shapiro-Wilk test to test whether the groups were normally distributed or not. Results indicated that the groups were not normally distributed. Approximately 56.5 % of the grades for hybrid courses were A's and 55.1% of the grades for online courses were A's. The Mann-Whitney U test performed showed that the differences in the median grade between groups were not significant, as u (552) = 150947, z = .30, $p > .05$. Both groups reported a median grade of “A” (4).

Out of 1,014 students, 749 student completed the survey (response rate – 73.87%). The composite scores from the survey were once again analyzed using he composite scores for both groups were analyzed using the Mann-Whitney U Test. n the median course evaluation responses for students taking online or hybrid courses. Mann-Whitney U results indicated that the groups were equivalent, as u (186) = 15685, z = -1.66, $p > .05$. The median course evaluation composite score was 14.00 for both groups.

Based on the results of the study, Poston (2014) concluded that there were no statistically significant differences between the median grades and teaching presence between the two modes of learning (Poston, 2014). However, Poston (2014) noted that the sample size she had for the study was too small to generalize her findings. She noted that the study was limited to one small private college and thus may not be applicable to other settings such as larger institutions or public universities (Poston, 2014). In her conclusion, she noted that in a traditional class, discussions could be facilitated spontaneously by starting with a few questions and then extending the conversation based upon the student responses in class (Poston, 2014). Poston’s (2014) finding may not be applicable to current online classes, as current technology now affords instructors and students to have the ability to do the same in an online environment. In an online class, technology plays a critical factor in creating high levels of teaching presence, but faculty need to be trained in the use of emerging technology and other online tools that will allow them to engage students in the online learning environment.

Summary

In summary, the preceding section addressed the theories that have shaped the research on teaching presence, instructor immediacy and its impact on student learning. Teaching presence, as defined by Shea, Pickett, and Pelz (2003 "is the design, facilitation, and direction of cognitive and social processes for the realization of personally meaningful and educationally worthwhile learning outcomes" (p.65). As one of the main functional components of the community of inquiry model, teaching presence was not an end in itself but rather the means to create cognitive presence that would help bring about positive learning outcomes. The studies showed that there were several factors contributing to students' perception of teaching presence (Hersh, 2009, Laves, 2010; Poston, 2014, Benzigar, 2014). While there have been several studies of teaching presence in online learning, there has not been adequate attention given to the possible relationships between the teaching presence components and its impact perceptions of teaching presence and learning. Instructors still grapple with the concerns over whether quality learning can and does occur in the online learning environment.

Research on the Three Components of Teaching Presence

Kearsley (2000) declared that "the most important role of the instructor in online [or distance] classes is to ensure a high degree of interactivity and participation [among the students]" (p. 78). Parker (1999) supported the pedagogical benefits of teaching presence, particularly the instructor's role in designing and creating the environment within which learning will happen. Encouraging discussion and interaction in an online learning environment might include the use of group discussions of complex issues, team projects and by making online discussions a significant part of the student's course grade.

Parker (1999) also observed that the instructor role took slightly different forms throughout the duration of the course. Before the start of the course, the instructor engaged in designing and organizing the course. At the start of each online course, the instructor was most likely to lead by example and direct the discussions. However, as the class progressed, the instructor usually assumed the role of facilitator rather than an academician who lectured to the class. At this time, the instructor then began to produce "no more than 20% of the class input" (Parker, 1999, p.18, and shifted to the role of a facilitator who organized and managed the discussion among the students. Parker also encouraged faculty to incorporate "real life" examples and inject some humor to foster a discussion-friendly climate. Teaching presence did not end here in this phase. Instructors also needed to provide feedback, comments and input on student coursework to let students know how they were doing in class.

This section discusses research on the three components of teaching presence, as well as their sub-components:

1. Planning phase
    a. Instructional design
    b. Course organization
2. Implementation phase
    a. Facilitated discourse
    b. Direct instruction
3. Assessment
    a. Communication
    b. Assessment
    c. Feedback

Planning: Instructional Design and Course Organization

In online courses, teaching presence was found to be most vital to facilitating social and cognitive processes (Akyol & Garrison, 2008; Allen & Seaman, 2015; Hall, 2013). Without teaching presence, there was no environment in which to help students develop. Teacher immediacy behaviors, also called teaching presence strategies, had been reported (Bangert, 2006; Hilmann, Willis & Gunawardena, 1994; Scott, 1994; Scott, 2003) to be valued by students in online courses. The use of teaching presence begins with the creation of well-designed, organized courses where discourse was clearly understood and encouraged. This is followed by creating an environment where students have the feeling that the instructor is engaged in the course through direct instruction.

In an early teaching presence study, Centra and Sobol (1974) focused on selected instructional faculty and student perceptions of interim courses at Rider College. Centra and Sobol (1974) developed a questionnaire that was distributed to the selected population. Both instructors and students were given the same set of questions, modified to fit the sample, student or faculty. Responses were received from 1,011 students out of 1,559 (response rate – 64.85%), and 106 instructors out of 172 (response rate = 61.63%). According to the researchers, these were deemed to be representative of the total student and faculty bodies. It was acknowledged in this study that there were more females (72%) in the sample than the overall student body. The distribution between male and female among the population taking interim courses at the time of the study was approximately half. Sixty-nine percent of student responses reported having a more favorable opinion of online courses by indicating these as academically "respectable". However, only 45% of the instructors believed this to be so.

Differences were observed in student perceptions by discipline, with higher ratings for courses in social sciences, education, sciences, and mathematics. The lowest ratings were reported by students from business courses. Centra and Sobol (1974) discovered that students preferred study abroad and classes that included field trips and other activities outside the confines of traditional learning contexts. Courses that faculty designed to have only discussions, seminars or workshops as learning materials were not viewed by students to be interactive, but rather as static lectures. Centra and Sobol noted that "thus, the [online] program seems least effective if it [was] merely a condensed version of traditional academic courses offered in traditional ways" (1974, p.238). The authors indicated at the end of the study that one of the limitations of the study was the gender representation in the sample. They noted that there could be a difference in the data collected if the sample had the same percentage distribution between genders as the population.

Messina, Fagans, and Augustine (1996) conducted a study at Burlington County College in the spring of 1995 to examine weekend online courses designed to attract new adult learners. Data were collected from 185 (N=185) students taking 11 intensive weekend courses. The methodology used for data collection included a telephone survey, in-class student surveys, college records of student characteristics and grades, faculty surveys, and teaching evaluations. Responses were collected from 91 students (response rate – 49.18%). The sample was made up of 59% women and 22% minorities, with an average age of 29. Both undergraduate and graduate students were representative of the overall student population at Burlington County. The researchers studied the relationships between student type and satisfaction with the three-weekend course design and organization, instructor satisfaction with the course design and organization, and the instructor qualities and course types that were judged more successful in that format. The researchers used a simple frequency distribution analysis in analyzing the results. A majority of the respondents (both faculty and students) reported satisfaction and increased interaction with each other and the content.

Their findings included that 66% of the students reported that they had greater interactions with their respective instructors and with their classmates in the weekend-long courses than they experienced in “regular” courses. Messina, Fagans, and Augustine (1996) reported that 53% of the students who reported more interaction with their classmates also reported that they learned more. Over 89% of the students responded that they would take another intensive course, because of the way the course was designed and organized, and this was cited as evidence of their intent to persist in such learning opportunities. The qualities students listed for effective instructors were: skilled in conducting small group activities; flexible; interesting; concerned about students; patient; vibrant, exciting, and stimulating; comical; well-organized, prepared, punctual; able to speak quickly and clearly, and quick moving; strongly focused; dedicated; and full of energy (Messina, Fagans, and Augustine, 1996).

Grant (2001) studied student learning and satisfaction of courses in logistics and services marketing delivered in an online block format. The focus of his research was instructional design and organization of the course. Grant (2001) used two courses taught in one-week blocks and compared student responses given by pre- and post-questionnaires. There were 32 students in the one-week logistics class. Following that class was a second on-week block course in services marketing. The second course was attended by 33 students. Twenty-students were enrolled in both courses. Grant (2001) followed a “customer” satisfaction theory that customers were satisfied if they scored their perceptions higher than their expectations. Grant (2001) argued that business majors benefitted from exposure to eek-long workshop-type learning situations since they mirrored the continuing education such persons would experience in the business world. The researcher studied the student repeats, those students who chose to take a second intensive course, separately from students who had no prior experience with one-week courses.

Grant's (2001) study used a Likert-scale for the questions on the pre-course questionnaire, and used a -2, 0, +2 scale on the post-course questionnaire to measure how much expectations changed from before the students took the course. The pre-course questionnaire included questions on expectations of work load for the week, amount of student interaction, amount of instructor interaction, increased knowledge, ease of understanding material, relevancy to their career, and overall expectations for the seminar. The post-block questionnaire replicated question categories of the pre-block questionnaire, however the scale was changed to determine students' perceptions relative to their initial expectations (-2 being "much less than expected", 0 being neutral, and +2 being "much more than expected"). This scale was selected based on "previous research in the area of service customer satisfaction" (Grant, 2001, p. 576). The pre-block questionnaire was administered at the beginning of the block in conjunction with other "housekeeping" items. The post-block questionnaires were conducted on the Friday of each block at the end of the day, before the students wrote the final examination and submitted their individual projects.

Students' overall perceptions showed an increase for courses between the pre- and the post- survey with +.75 (increase of 75%) for the logistics course and +.81 (increase of 81%) for the services marketing course. Negative perceptions occurred in specific categories such as "relevancy of speakers" in the logistics course and "want readings prepared" and "amount of actual lecturing" in the services marketing course. Students who took both courses, ended the first course with +.90 (positive 90%) increase in expectations, but for the second block the overall expectation and perception was only at +.45 (positive 45%), which still showed satisfaction but declined from ratings from the first block. Conceivably, there was a loss of the novelty effect or a "halo" effect for the first such course. The study compared the quality of work done in class, exams and projects, and final grade distributions in the one-week block courses to other six-week sessions taught by the instructor (Grant, 2001) and determined they were not significantly different. In his conclusion, the researcher indicated that the course design and organization prior to the commencement of the class helped make a positive impact on student learning.

In summary, teaching presence starts with planning, and this entails instructional design and course organization. Good course design, active facilitation of discussion, and regular feedback on coursework had been shown to directly correlate with students' positive perception of teaching presence (Arbaugh, 2000; Shea, Li, & Pickett, 2006; Betts, Hartman & Oxholm, 2010). Centra and Sobol, as early as 1974, reported that students preferred interactive materials when learning. They reported that students were more engaged if the learning materials are not static. In his study, Grant (2001) supported this contention by citing that faculty involvement at the planning stages of the course (course design and organization) actually helped create a positive impact on student learning.

Implementation: Facilitated Discourse and Direct Instruction

An important issue around the delivery approach of online versus classroom teaching concerns the theory of media richness. According to the media richness theory, communication through face-to-face interaction is more effective rather than through other media channels, such as emails, telephone or written letters (Daft & Lengel, 1986). Face-to-face interaction is much richer because it affords both teacher and the student the ability to communicate more effectively through verbal and non-verbal communication cues, such as gestures and facial expressions (Mehrabian, 1967; 1969; 1971), which may not be evident in other forms of media (Kearsley, 2000).

With the aid of emerging technology, instructors are now able to make teaching presence felt by communicating with the students through web conferences, emails, instant messaging, discussion forums or virtual reality worlds such as Second Life. Advancements in technology make it possible to produce the desired effect of the media richness theory to make communication more active and animated. Teachers are also now able to transform course content from static text into a media-rich format that is highly engaging, and interactive. All these technology tools help the instructor establish a more meaningful online teaching presence.

A study conducted by Shea, Li and Pickett (2006) demonstrated that high levels of instructional design, organization and organization correlated with high levels of student engagement and learning. The participants in the study equated the level of teaching presence with amount of discussion facilitation and direct instruction by the instructor (Shea, Li, & Pickett, 2006). Directed facilitation factors in the study included participants' feeling of connectedness to the course, keeping students on track during discussion, creating a climate of learning, facilitation by identifying areas of agreement, seeking consensus, having focused discussions, confirming understanding of concepts, reinforcing student contributions, injecting knowledge, presenting content, and demonstrating netiquette (Shea, Li & Pickett, 2006). Comey (2009) supported the theory that in online learning, the students' engagement in and perception of learning were directly related to the level of student-lecturer interaction during direct instruction. In the online learning environment, students feel the teaching presence the most during the active facilitation phase (Dennen, Darabi & Smith, 2007; Palloff & Pratt, 1999).

In traditional face-to-face learning environments, non-verbal communication cues and behaviors include facial expressions, gestures, body language, eye contact, mannerisms and movements (Anderson 1979; Wiener & Mehrabian, 1968; Richmond, Gorham & McCroskey, 1987). All these non-verbal cues and behaviors are conspicuously absent in online learning environment, particularly in the asynchronous learning modes. In addition to the lack of non-verbal cues, face-to-face lecture and class participation within a physical space are also missing. Creating immediacy during facilitation and instruction in the online learning environment entails exhibiting conventional verbal immediacy behavior such as using humor, sharing experiences and opinions, and engaging in conversations with the instructor and other learners (Boettcher & Conrad, 2010).

A study conducted by Baker (2010) focused on instructor immediacy and teaching presence, and their impact on cognitive learning, affective learning, and motivation. In the study, Baker (2010) used five different well-established instruments to measure the different variables. Data were collected through the online instrument from a diverse sample of undergraduate and graduate students (n=377) with varying degrees of online learning experiences. In the study, Baker (2010) collected data from undergraduate and graduate online students at a university (N=699). This group consisted of 443 females and 256 males, and included 416 undergraduates and 283 graduate students. He collected 377 complete surveys for the students (response rate – 54%). He inquired about instructor immediacy, instructor behaviors which develop a closeness between instructor and student, i.e. praise, self-disclosure, humor, feedback, etc., and teaching presence to see if there was a correlation between these variables and affective learning, cognition, and motivation. He found a statistically significant correlation ($r = .75$, $p < 0.1$). Baker (2010) then used multiple linear regression analysis to determine whether the linear combination of instructor immediacy and teaching presence caused significant variance in student affective learning. The test results showed that there were statistically significant relationships between instructor immediacy, teaching presence and all the dependent variables of student affective learning, $F(2, 372) = 221.77$, $p < .001$, $R^2 = .56$; cognition, $F(2, 360) = 152.60$, $p < .001$, $R^2 = .46$; and motivation, $F(2, 371) = 114.79$, $p < .001$, $R^2 = .38$. However, while the overall regression models were significant in all the three tests, he discovered that instructor immediacy was not found to be a significant individual predictor for causing variance (affective learning, $t = .46$, $p = .64$; cognition, $t = 1.02$, $p = .31$; motivation, $t = .932$, $p = .35$). Baker (2010) discovered teaching presence, as an individual variable, was the significant individual predictor of all three (affective learning, $t = 13.4$, $p = .00$; cognition, $t = 10.84$, $p = .00$; motivation, $t = 9.19$, $p = .00$). Based on his findings, Baker concluded that teaching presence had more of an impact on cognition and affective learning than teacher immediacy does (2010). Baker (2010), posited that this might be due to the higher number of instructional components present in teaching presence. Analysis from the study indicated that there was a statistically significant positive relationship between instructor immediacy and instructor presence, as well as a greater sense of presence when classes were conducted in a synchronous manner (Baker, 2010). In his study, Baker (2010) indicated that students perceive teaching presence through direct instruction and facilitation. The study confirmed that this positive relationship between instructor immediacy and teaching presence could be a significant predictor of student cognitive learning, affective learning, and motivation (Moore, Masterson, Christophel & Shea, 1996). However, it was also indicated that instructor immediacy in itself was not viewed as significant predictor for learning, instructor presence was (Palloff & Pratt, 1999; Roblyer, 1999). In the same study, Baker (2010) suggested that what he observed was an indication that teaching presence is more complex and had a higher degree of influence that just immediacy alone. This observation was supported by other researchers in their studies (Biocca & Harms 2002; Biocca, Harms, & Burgoon, 2003; Tu & Isaac, 2002; Lowenthal, 2009).

In summary, the research suggested that the quality and quantity of interactions with the students in the classroom are important for student learning in the online environment. The instructor's teaching presence through facilitated discussion and direct instruction together provide a necessary binding factor in helping the online learners to interact with the instructor and their peers. This helped online communities to be formed and encouraged students to function more closely as an integrated group (Arbaugh et al, 2008; Allen & Seaman, 2015; Rodgers & Raider-Roth, 2006). Most researchers agreed that learning activities that encourage dialogue can be integrated to establish immediacy and teaching presence (Burnett, Bonnici, Miksa & Kim, 2007; Moore, Masterson, Christophel & Shea, 1996).

Assessment: Communication, Assessment and Feedback

The third component of teaching presence is manifested through communication, assessment and feedback. Instructor and student interaction in this phase assume multiple configurations; instructor feedback on assignments, communication through email, students' involvement in online discussions, instructor's comments on student responses to online discussion, and even student grades. Arbaugh (2000) used the term instructor immediacy behaviors to describe communication between instructors and students that presumably helped students believe they were connected to and not isolated from an instructor. Such practices included: humor, calling students by name, and using encouraging and inviting language when providing feedback (Arbaugh, 2001; Moore, Masterson, Christophel & Shea, 1996).

In a research study, Wu and Hiltz (2004) examined asynchronous online discussions in blended courses. The researchers studied relationships between the use of online discussions and perceptions of teaching presence, instructor role, student motivation, and course enjoyment (Wu & Hiltz, 2004). The study included 116 students in three courses – two undergraduate and one graduate course -- during the spring 2002 semester at the New Jersey Institute of Technology. Independent variables included number of online learning courses taken, gender, and instructor role (whether the instructor dominated the discussions or not); the intervening variables included motivation and enjoyment. The dependent variable was perception of learning from online discussions. The researchers found a significant positive relationship between student perceptions of motivation and enjoyment in online discussions and student perceptions of learning (r=0.477, p<.01). Also, they found a significant correlation between the instructor role and motivation and enjoyment (r=0.370, p<.01) and between instructor role and perception of learning (r=0.332, p<.01). The students' answers to the open-ended questions of the survey were viewed to mean they liked online discussions and believed they enhanced their perceptions of learning, particularly when the discussion structure was clear and consistent and students received timely feedback from the instructor. These comments related directly to feedback as a component of teaching presence (Shea, Li & Pickett, 2006).

In his dissertation, Gomez (2005) researched student perceptions of learning and satisfaction through instructor use of Chickering and Gamson's (1987) seven principles of good teaching practice. The sample in his dissertation consisted of 173 graduate students enrolled in 40 education and humanities course offered online during the spring 2005 semester in a university. Gomez added the demographic items and two open-ended questions for examples of instructor applications of the seven principles. The seven principles of good teaching practice identified by Chickering and Gamson (1987) and used as predictor variables in Gomez' (2005) study included student-faculty contact, cooperation among students, active learning, prompt feedback, time on task, high expectations, and respect for diverse talents. Those principles of good teaching practice exemplified a constructivist teaching model similar to the concept of teaching presence as defined in the CoI framework developed by Garrison, Anderson, and Archer (2000).

Gomez (2005) found positive and statistically significant correlations between students perception of instructor use of the seven principles and students' perceived learning ($r=.51$, $p<.01$, two-tails) and with satisfaction ($r=.58$, $p<.01$, two-tails). The regression analysis was interpreted to mean that active learning was the best predictor of students' perceptions of learning ($\beta=.349$, 12%, $p<.05$) and satisfaction ($\beta=.385$, 14.8%, $p<.05$), and instructor feedback was a good predictor of satisfaction ($\beta=.312$, 9.7%, $p<.05$). Bullen (1998) discovered that some students needed consistent daily communication and interaction with the instructor online. On the other hand, there were also students who only expect the instructor to provide the learning structure, directions, and assessment of their work through timely, supportive and corrective feedback (Shea, Fredericksen, Pickett, & Pelz, 2003).

In summary, the researches pointed out that most problems relating to online learning often deal with the lack of communication and delayed feedback from the instructors and their classmates (Andresen, 2009; Christophel & Shea, 1996). Researches showed that this caused anxiety and irritation in some students and may have a negative impact on their participation and involvement in the online learning environment (Baker & Taylor, 2010). Thus, it becomes necessary that both the instructor and the students find a common way of effectively communicating with each other and to work out a feedback system that would minimize the feeling of isolation of the students whenever they do not receive any responses about their submitted coursework (Hall, 2013).

Summary of Findings of the Three Teaching Presence Components

The preceding section described research on the three main teaching presence components and its subcomponents. Most of the studies described in this chapter reported that students had positive perceptions of teaching presence that translated to more engaged learning. Good course design and course structure, coupled with active learning activities through discussions forums contributed to positive teaching presence. Students also reported higher engagement with the learning material when contents were presented in multi-media format. A key finding in the literature was the role of communication and feedback in students' motivation to learn. Communication between instructors and students helped students feel more connected to and not isolated from the online learning environment. The study of the research was seen to mean that good online teaching practice was important to student learning and satisfaction. In terms of guiding the students in their learning process within the online learning environment, the amount of guidance and communication really depends on the knowledge level and experiences of the students (Wilson & Stacey, 2004).

Teaching Presence and Online Learner Characteristics

A method to help explain the different student perceptions of teaching presence in online learning is to focus on student characteristics. Differing reactions to online learning settings had been associated with preferred learning style (Oblinger, 2012), differences in family and work responsibilities (Fall 2001), familiarity with technology and ability to work independently (Dupin-Bryant, 2004) approaches to discussion (Doll, 1993), and the nature of previous encounters with online learning (Powers & Mitchell, 1997). For example, students with greater work and family responsibilities had been found to perceive less community in online learning (Fall, 2011), regardless of the amount of interaction with the instructor. Students who were relatively new to the college environment, such as freshmen or transfer students, reported the most challenges with working independently in online courses (Oblinger, 2012). Very little research on the perceptions on teaching presence in online learning has been conducted.

In this study, student characteristics were studied in order to better understand diverse student perceptions on teaching presence in online settings. The variables were divided into personal characteristics, contextual characteristics, and technographic characteristics.

Selected Personal Characteristics of Students

One significant predictor of student achievement and completion rate was found to be a student's demographic and educational background (Moore & Kearsley, 1996). Adult students with previously obtained degrees were sometimes interested in receiving a degree in a different field to advance their careers (Nesler, 1999). One possible explanation might be that those students with more educational experience had more experience with success and thus, possessed a higher confidence level (Burton & Nesbit, 1996).

Age

Age is a typical demographic variable found in cross-sectional studies. The age of a student is important to this study because not all students are "digital natives." A digital native, or Net Generation member, is someone born near or after 1980, and is inherently comfortable with technology (Barton & Skiba, 2006). In her dissertation, Caskey (1994) studied business classes, using a random sample of 30 subjects in algebra and 45 in accounting. Caskey used two-tailed t-tests to analyze class grades, overall GPAs and age. She found a statistically significant difference in the average ages; students who elected to take intensive courses generally were older. Caskey concluded “that students, particularly older students, can achieve in an intense format and perform as well in subsequent courses as students who elect traditional formats.” (Caskey, 1994, p. 26).

In another study, Scott (1994; 2003) used the words “intellectual development” and referred to Perry (1970) who theorized that there were nine stages of intellectual development were dependent on the learner’s age. Scott (1994) did not measure the students’ level of intellectual development. Instead, she estimated it based on observations, and she also made assumptions based on her qualitative observations of age and preference of attributes. In that study, Scott (1994) suggested issues that might alter such relationships including: teaching presence, the degree of intensiveness of the course, student distracters such as work and family responsibilities, students’ age, students’ intellectual development, subject matter, and an instructor’s ability to connect effectively with students.

Age and intellectual development were linked by Perry (1970) when he identified nine stages of intellectual development, ranging from simple dualistic thinking to what he called relative thinking; when students believed that they were responsible for their learning. In Perry’s study, the higher level(s) of intellectual development took place in older college students. While Scott (1994; 2003) did not present evidence that those factors definitively affected the relationships between students’ perception of intensiveness and the presence of high quality course attributes, she believed that her study provided a step for future research into these factors.

Gender

Gender plays a significant role in perceptions about teaching presence in online learning. Gender differences had been found to contribute to differences in course completion (Herring, 2000). While recent research showed mixed results in terms of how gender plays a factor in factor in technology use (Mims-Word, 2012; Blum, 1999; Brunner, 1991; Rovai and Baker, 2005; Herring, 2000), this study still included gender as a variable, since it had a relationship to the perceptions of teaching presence in online learning.

In a study of 112 business majors in introductory accounting classes at a mid-South university, Rayburn and Rayburn (1999) compared exam grades and homework completion of students taking eight-week classes to those of students in 16-week classes. The researchers used ANOVA analyses on four factors, class (intensive or semester-length), gender, major (accounting or non-accounting), and past achievement (measured in cumulative GPA, 2.7 and higher or less than 2.7). The dependent variables included the total points on four exams, total points on multiple-choice portions of exams, and total points on the problem-solving portions of the exams. The authors found that students in the intensive courses performed as well on multiple choice exams as did students in the semester-length courses, but scored significantly lower on problem-solving (F=7.694, p<.01). The researchers contended that intensive courses were not advantageous for accounting majors because they did not foster the sought after problem-solving skills needed. Interestingly, their research showed that students in the intensive courses scored as well on multiple choice exams (F=0.151), and that there were significant main effects by major (F=9.031, p<.01) and achievement (F=26.790, p<.01) on total points earned but total points earned was not as strongly related to course length (F=1.993, p<.1).

In the study's conclusion, none of the secondary effects (gender, major, class levels) were significant with respect to total points earned in the course. The researchers claimed that accounting majors and those with higher past achievement performed better on the exams. While the researchers accepted the effect of p<.1 to be significant for their study, showing that intensive courses were related to lower exam scores, it was a much smaller correlation than they found for major and achievement.

In other studies, gender also appeared to influence the online communication dynamics. Studies showed that women were more likely to seek supportive communication environments in learning (Brunner, 1991; Burnham, 1988; Ryan and Hicks, 1997) and thus were likely to have significantly different expectations when it comes to frequency and nature of communication online with their instructors. Instructors attempting to enhance interaction must also keep in mind that messages from males engaged in threaded discussions tend to be more certain, confrontational, autonomous, controlling, and abstract than messages from females, which tend to be more empathetic, and cooperative (Blum, 1999). Arbaugh (2000) found that women participated more than men in class discussions and were more collaborative, while the men were more competitive. Herring (2000) found that female students participated more when the instructor actively promoted a civil and focused discourse. In other words, both gender and communication style influenced levels of interactivity and immediacy-producing behaviors, and were more consistent with female online communication than with male communication (Moore, Masterson, Christophel, & Shea, 1996).

Selected Contextual Characteristics of Students

Contextual characteristics, such as class level and course duration were found to be important factors in the reviewed literature related to online learning (Allen & Seaman, 2014; 2013; Petherbridge, 2007). Hall and Hord (1987) argued that context "is critical in understanding the [entire] process" (as cited in Petherbridge, 2007, p.64), since context is a factor that could create challenges and opportunities based on the given situation. In this study, the contextual characteristics included student class level and course duration.

Class Level

Class level refers to the classification a student receives from the university based upon credit hours earned. In the research setting, a freshman was someone who had completed less than 30 credit hours. A sophomore had completed 30 to 59 hours, a junior 60 to 89, and a senior, 90 or more hours. Class level is not synonymous with the year in school, as multiple years can exist within a single rank if the student is part-time or enrolls in the minimum 12 credit hours to be considered full-time. The researcher chose to include class level in the study as Johnson (2012) recommended the study of other class level besides first-year freshmen in his dissertation.

At the community college level, Johnson (2012) researched first-year business students' perceptions using a case study analysis of 18 first-year business students and three faculty members in an online course setting for his dissertation. As one of the first research dissertations at the community college level to explore the motivational factors through the perceptions and experiences of students and faculty, Johnson's research was able to find coded themes for each ARCS motivational category based on student perceptions.

Dupin-Bryant (2004) identified pre-entry variables related to retention and learning in a quantitative study of 464 students randomly selected from the student population taking online education courses during the spring of 2003 at Utah State University. A questionnaire was developed by the researcher that included items related to pre-entry variables such as cumulative grade point average, class level, number of previous online courses, and various types of computer training. The instrument was piloted during the fall 2002 semester and after appropriate revisions it was mailed to the random sample in the spring 2003. Persons agreeing to participate in the study at the conclusion of that semester provided the requisite enrollment data.

Dupin-Bryant (2004) reported that cumulative grade point average, class level, number of previous courses completed online and three types of computer training were best identifiers of students who persisted in online courses. Furthermore, successfully completing at least one online education course during a student's term in the university increased the likelihood that a student would complete another course. In this regard, it can be said that Dupin-Bryant's work reinforced the notion that success tended to breed success.

Course Duration

This section is a review of studies of intensive courses and semester-long courses and the differences in interaction. Those interactions occurred between among students and between students and instructors, Scott (1994) identified two themes, process and connectedness to teaching, and developed a list of attributes students believed contributed to a positive learning experience when taking an intensive course. Scott approached the issue with a qualitative comparison study of intensive and semester courses using the two types of classes (English and Marketing) at a single university. Observations of student and instructor participation and then interviews of 29 students and the respective course instructors formed the basis for data collection and subsequent conclusions.

Scott (1994) developed a list of factors she believed contributed to high quality learning experiences in both the intensive and semester courses: greater continuity of learning; greater concentration/focus on learning; non-prioritized learning; scheduling and planning; longer class sessions; mental investment and commitment; performance affected by fewer concurrent classes, short duration, retention and understanding, absences, procrastination; decrease in superfluous material, future learning and development; classroom relationships; student-teacher relationships; classroom atmosphere, instructor expectations; classroom diversity; and memorableness. Scott claimed that students preferred intensive or accelerated course formats when the above-cited learning experience attributes were present, but preferred semester length courses if those attributes were not present, because the stretched out time and shorter class periods of a semester-long course minimized the poor classroom experience (1994). It was concluded that, "[Students] experience intensive or semester courses positively or negatively depending on the presence of certain attributes. The greater the concentration of attributes within a class and the more process-oriented and connected the teaching and learning approach, the better the learning experience will be" (Scott, 1994, p. 465-466). The attributes identified by Scott were embedded in the interactions between students and their instructors, and between students and their peers, and formed the basis for Scott's claim that interactions were important to high quality intensive learning experiences.

In a study of 112 business and accounting majors in introductory accounting classes at a mid-South university, Rayburn and Rayburn (1999) compared exam grades and homework completion of students taking eight-week classes to those of students in 16-week classes. The researchers used ANOVA analyses on four factors, class (intensive or semester-length), gender, major (accounting or non-accounting), and past achievement (measured in cumulative GPA, 2.7

and higher or less than 2.7). The dependent variables included the total points on four exams, total points on multiple choice portions of exams, and total points on the problem-solving portions of the exams. The authors found that students in the intensive courses performed as well on multiple choice exams as did students in the semester-length courses, but scored significantly lower on problem-solving ($F=7.694$, $p<.01$). The researchers contended that intensive courses were not advantageous for accounting majors because they did not foster the sought after problem-solving skills needed. Interestingly, their research showed that students in the intensive courses scored as well on multiple choice exams ($F=0.151$), and that there were significant main effects by major ($F=9.031$, $p<.01$) and achievement ($F=26.790$, $p<.01$) on total points earned but total points earned was not as strongly related to course length ($F=1.993$, $p<.1$).

Selected Technographic Characteristics of Students

According to Mitra, Joshi, Kemper, Woods, and Gobble (2006), "technographics" is defined as "an expansion of demographics, that is, a set of personal computer-related demographics" (as cited in Hadjipavli, 2011, p. 65). Petherbridge (2007) stated that "technographics can include prior exposure to technology, categories of technology use, and a variety of factors that may address the technological characteristics of people" (p. 57). This study's selected technographic characteristics were prior instructional technology used in teaching, technology-related professional development, and attitudes toward teaching with technology.

Technology Skill

The new adage in the world of digital learning is that students possess a certain level of technology skill to thrive in this new environment and to maximize the benefits of this learning experience (Gynn, 2001). In his research, Cox (2004) studied the student attitudes toward the use of technology in higher and adult education courses to specify any differences in attitudes based on students' technology skills and learning styles. He used Lukow's ATUT survey to assess students' attitudes towards certain technologies and whether students viewed these tools as either distracting or facilitating in the achievement of the course learning objectives. 102 students participated in the study. The author did several cross-tabulations of the data collected to present a more granular distribution of the sample. ANOVA was used to determine whether students' technology skill was a factor in attitudes towards learning with technology. The results of the ANOVA did not show any significant results. This demonstrated that there was no relationship between technology skill and the attitude towards the use of technology for learning. These results support Lukow's (2002) contention that it does not matter if students had not or had been exposed to sufficient levels of technology in the past. In her study, Lukow (2002) surveyed 671 students enrolled in online courses. Out of the 671 students, 422 completed the survey (response rate – 63%). Multiple regression analysis was used to distinguish whether student attitude toward technology could be predicted by gender, class standing, major concentration, and learning style. The findings revealed that there were no significant differences. Lukow (2002) concluded that students had developed their attitudes toward technology long before they higher education. In another study, Susan Montgomery (1995) investigated the issue addressing diverse learning styles through the use of multi-media. One hundred forty three sophomores in a chemical engineering class were studied. The study was divided into two parts, and the first part was devoted to the studying different learning styles of the students. The author contended that one of the main challenges in engineering education was trying to meet the diverse needs of technology skills of students enrolled in the class

(Montgomery, 1995). She asserted that this was particularly challenging in big classes where the typical teaching mode is lecture-dependent, and one way to meet this requirement was to use multi-media software to publish more interactive lectures and meet the diverse technology skill levels of the students.

Technology Use

Alavi, Wheeler, and Valacich (1995) conducted a field experiment using a quasi-experimental design involving 120 MBA graduate students at two universities. The authors compared student groups using desktop videoconferencing for assignments to determine how or if that mode of interaction influenced achievement and satisfaction. The students were divided into 30 groups of four persons each, and then further subdivided into pairs. Some groups collaborated face-to-face, and other groups did so via videoconferencing but were from the same university and so they had opportunities to work face-to-face outside of class. The third treatment included groups that were combined from the two universities and only met via videoconferencing. Pre- and post-tests were used to measure declarative knowledge acquisition and critical thinking skills. A questionnaire was used to measure student satisfaction with the process and the emotional climate of the learning environment.

Alavi et al (1995) reported the groups using videoconferencing to communicate, regardless of location, exhibited higher post-scores on critical thinking skills tests than did those in the face-to-face and with local collaborative contexts. There were no statistical differences in knowledge acquisition among the three groups, nor were there any significant differences in satisfaction or perception of emotional climate. The findings were interpreted to mean that students in the online learning environments were as satisfied and emotionally comfortable as students who worked face-to-face.

Using technology in education has often been conjectured to be potential barriers to student learning. The personal sense of competence with computers and online technologies is known as educational technology readiness or online technology self-efficacy. Lim (2001) and DeTure (2004) studied technology use as a predictor of student satisfaction and learning. The research that Lim (2001) conducted was a quantitative study using an online survey distributed to online learners (N=235) taking an online course in the spring or summer of 1999. The study covered five universities. The researcher asked faculty teaching online courses at the same five universities to post the survey onto the online course or send the survey to their students via listserv. The questionnaire used was adapted from Eachus and Cassidy's Computer User Self-Efficacy Scale (1996, as cited in Lim, 2001). Lim (2001) also included a section to capture demographic data such as age, gender, academic status, years of computer use, frequency of computer use, computer training, Internet experience, and participation in workshops for online education, and preference for a training workshop for online learners. In addition, Lim (2010) used Marsh's (1988) General Academic Self-Concept Scale in the survey. The findings were interpreted to mean that a significant positive relationship existed between educational technology readiness and student satisfaction ($p<.001$), and the regression analysis was viewed to mean that students with higher computer self-efficacy were more likely to be satisfied with online education courses; 15% of the variability was explained by the predictor variables of computer self-efficacy, frequency of computer use, academic self-concept, and academic status. Lim also reported that computer self-efficacy was significantly correlated to the intent to persist with online courses ($r=.238$, $p<.001$); a student characteristic discussed in the next section.

Another study that included technology use as a predictor of student learning was conducted by DeTure (2004). He was also interested in cognitive styles, such as field dependence, as it related to student learning and self-efficacy. Six general education online courses with 161 students enrolled at a southern community college were selected because they represented a range from low interaction high structure to high interaction low structure. Seventy-three students participated in the on-campus meeting held at the beginning of the semester where the survey instrument was administered. Two surveys were used; the Group Embedded Figures Test (GEFT) to determine cognitive styles and the Online Technologies Self-Efficacy Scale (OTSES) (DeTure, 2004) and course final grades were used as the index of student learning. DeTure found no statistically significant relationship between educational technology readiness and final grades or between cognitive styles and final grades, leading the researcher to conclude that educational technology readiness was not a good predictor of student learning.

Attitudes Toward Learning using Technology

Hall and Hord (2010) stated that there was a positive relationship between attitudes toward innovation and the amount of experience in using technology (Petherbridge, 2007). Herbert (2006) conducted a study to determine predictor variables that were most influential in using technology for learning in online education courses. Respondents submitted 122 useable surveys (response rate - 25.1%). The institutional variables students ranked as most important in influencing their attitude towards learning using technology included: quality of online instruction, faculty feedback and faculty interaction. For those who did not complete the online course, the most common reasons why the course was not completed were time commitments and personal problems. Of special note was the information from students who reported the lowest scores for a course meeting their expectations. Thus it seemed that expectations might have influenced judgment, but in the absence of more information that issue remained unresolved.

Best Practices in Online Learning for Teaching Presence

Instructors intending to teach online courses need to identify best practices on how to engage students and encourage them to actively participate in the courses. Unlike face-to-face classes, teaching presence is not always explicit in online courses (Comey, 2009; Moore, 1989; King & Cerrone, 2012). Thus, it becomes imperative that the instructor manifest their teaching presence through the course structure, course design, course content and communication with the students (Burch & Nagy, 2007; Belair, 2012). When the physical presence of the instructor is reduced, as in the case in the online learning environment, a greater emphasis should be placed on compensating for the teacher's absence so that the learners would feel supported in their learning even if the instructor is not physically present. The following section outlines some best practices for online learning culled from the review of literature.

Instructional Design and Course Organization

One of the cornerstones of an effective online environment is the course design (Hogarth, 2010). Instructors needed to be prepared to commit extensive time and effort in designing the course for online learning. For many instructors who have begun teaching blended courses for the first time, it is usual to expect that a complete redesign of their courses will be necessary to prepare these courses for online learning (Ho, Lu, & Thurmaier, 2006; Bersin, 2004). It is important that instructors possess a mastery of subject matter they intend to teach to enable them to design their courses effectively, because online learning is not simply posting lectures online, letting students go through them, then evaluate what they know through quizzes and tests (Bennett et al, 2012; Walker, 2009; Burch & Nagy, 2007).

It is the instructor's responsibility to construct the learning process, the infrastructure, the interactive components, and the assessment system of the course. The instructor has to think through the course learning outcomes, and then design the learning activities and lessons that would engage students and stimulate interaction. In designing their course, instructors can build course materials such as lectures, presentations, video or lecture captures; design course activities such as projects, group work, cases and exercises; creating the schedule for course completion; and providing guidelines and tips on how to use the different types of media effectively (Grosseck, 2009; Hansen, Manninen,& Tirmaa-Oras, 2006; Bersin, 2004).

Communication through Direct Instruction and Feedback

Communication within a course has to do with instructor-student communication (Bennett et al, 2012; Moore, 1989). In an online learning environment, instructors communicate with the students by providing direct instruction to students both in face-to-face and online modes. In the online environment, instructors act as facilitators of learning by moderating online discussions and encouraging student interaction with their peers and the course content (Anderson, Rourke, Garrison, & Archer, 2001). Other ways to foster communication within the online learning environments include timely feedback on student contribution, acknowledgement of student participation, responding to student queries, summarizing student discussions, posting discussion questions about the course contents and introducing relevant knowledge from various sources (Simonson, Smaldino, Albright, & Zvacek, 2003; Shea, Vickers, & Hayes, 2010). Depending on the type of coursework required, and the mode of knowledge delivery, the instructor's role throughout the course could vary from being a lecturer to a facilitator, or even a mentor.

Chapter Summary

Over the last decade, there have been a growing number of studies looking at teaching presence to understand student perceptions of teaching and learning (Akyol & Garrison, 2008; Arbaugh et al., 2008; Archibald, 2010; D. R. Garrison, Anderson & Archer, 2000, 2010; Kumar, 2012; Shea & Bidjerano, 2009). Currently, there are only a few studies examining business students' perceptions of the different components of teaching presences. There is a belief among some educators, instructional designers, and course developers that instructor interaction enhances online learning and that students prefer more interactions with their instructors (Burnett, Bonnici, Miksa & Kim. 2007; Sorden & Munene, 2013; Swan, 2004). However, there is a need to conduct more research to understand student perceptions and expectations of each of these interactions so that educators would be better equipped to understand how to design conditions that enhance student learning in the online environment (Christophe, 1990; Chang & Smith, 2008; Rafaeli, 1988).

Online learning is becoming more accepted as a pedagogical method in higher education. Good course design, effective instruction and adequate communication and feedback are the three main components that need to be considered to make online learning effective. A good communications system has to be put in place to encourage instructor-student communication. These can be accomplished through the use of online discussion forums, emails, announcements, and feedback posts from peers and instructor. Designing a course with relevant activities and materials, and putting effective communication in place will positively impact the learning experience and will motivate students to get engaged with their learning. After the delivery of the course, it is important to assess it in its entirety to see what worked well and what did not.

The literature on student characteristics help instructors make decisions about the level of interaction and collaboration based on their perceptions of the online learning environment and the learners (Akyol & Garrison, 2008). With divergent research study findings, there was a need to better understand students' perceptions and expectations so that instructors would be in a better position to create and design the most appropriate online learning environments that will enhance student learning. Establishing a learning community through interaction between the students, instructor and content was recommended as an essential component for a successful online learning environment (Swan, 2004).

Previous research studies on online course interactions relied heavily on qualitative data and content analysis of the text-based interactions in the online environment. Studying students' perceptions could provide a better understanding of their expectations of quality of interactions in the online learning environment. With the development and the subsequent validation of the Teaching Presence Scale, quantitatively studying the effects of teaching presences in online learning has become much more feasible.

Chapter 3 - Research Design and Methodology

Chapter Overview

This section starts with a rationale for the research design used for this particular study. The target sample is described, along with the permissions secured to conduct the study. The survey tool is discussed, in addition to the data collection procedure and data analysis. A discussion of the instrument validity and coding procedures is included in this section.

Research Design

This study utilized a parallel triangulation design wherein qualitative questions were included to triangulate the quantitative study. This design was a good match for the study because it allowed the author form a more complete understanding of the research questions. Using a quantitative method with a qualitative component approach helped provide a more holistic picture of student learning, rather than using strictly a quantitative or qualitative approach. Combining the two sets of data together offsets the weaknesses inherent to using just a single research paradigm. It is a practical alternative where elements of quantitative and qualitative researches converge to provide a better understanding of the research problems (Creswell & Plano-Clark, 2013).

Research Setting

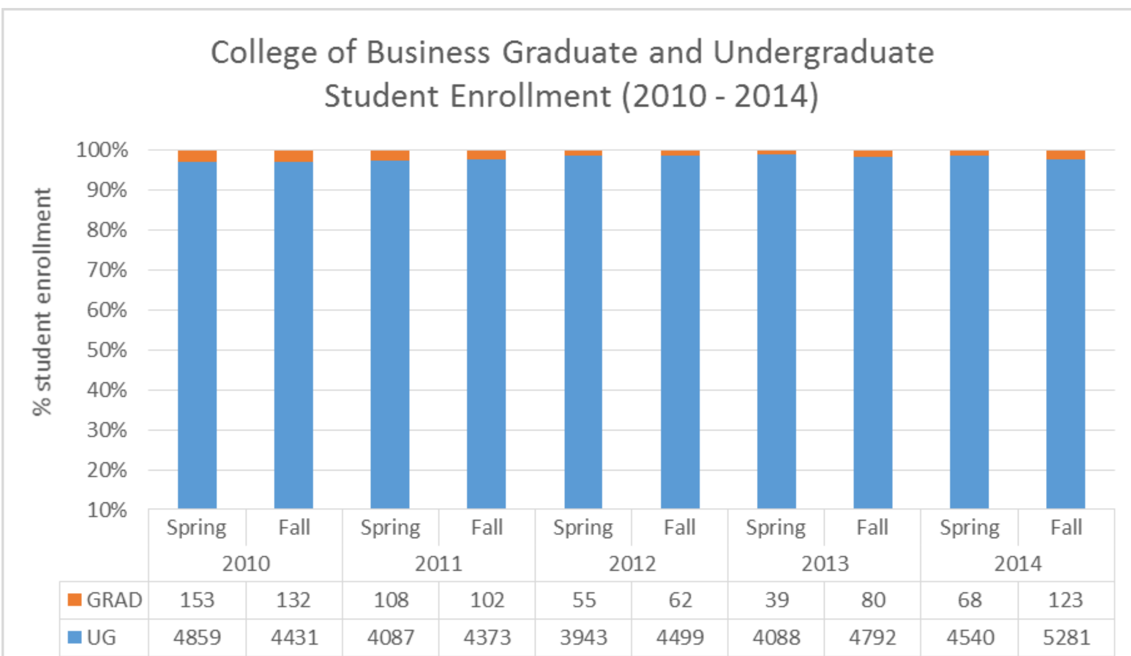
The research setting was one of the 23 campuses in the California State University System (CSU), located in the center of Silicon Valley. All campuses of the CSU have a significant impact in their local communities, in the region, and statewide. Each year, the CSU's campuses provide tens of thousands of job-ready graduates for California's workforce who lead the state's industries, providing new ideas and innovations that fuel California's economy. As integral partners in communities across the state, CSU campuses offer Californians the benefit of a wide spectrum of programs and services.

The research setting university is the top provider of engineering, science and business graduates to Silicon Valley, the world's high tech capital. A recent *U.S. News & World Report* survey (2014) ranked the university among the top 15 public master's universities in the West, and the College of Business among the top 40 schools in the nation offering bachelors and master's degrees. As the region's leading public university with more than 7,000 graduates annually, the research setting's graduates power all Silicon Valley industries and government agencies. The university is also the 4th largest Silicon Valley employer, and the 17th largest in Silicon Valley overall.

The College of Business and its Curriculum

The College of Business at the research setting is one of the eight colleges in the research setting and had approximately 17% of the total enrollment in the university. In the past five years (2010-2014), the average per semester undergraduate enrollment was 98% of total enrollment.

Figure 3.1: Undergraduate and Graduate Student Enrollment in the College of Business (2010 – 2014)



The College of Business provides undergraduate education through three departments and two schools. There are eleven areas of concentration within the business undergraduate program, as shown in Table 3.1.

Table 3.1: Undergraduate Business Program Concentrations (Lucas College and Graduate School of Business, 2014).

Concentration	Description
Accounting	Accounting is a recognized profession concerned with the measurement, analysis, interpretation and communication of economic data.
Accounting Information Systems	This dual concentration prepares students to lead successful careers that span the two disciplines of accounting and information systems design.
Corporate Financial Management	This concentration is designed to prepare the students for careers in corporate financial management in all forms of organizations.
Finance	Corporate finance courses are designed to prepare the student for financial analysis and planning as essential functions of a business enterprise in the three areas of financial decision-making: corporate finance, investments, and financial institutions.
Entrepreneurship	This concentration prepares students to be entrepreneurs and create their own business ventures or to become corporate innovators.
General Business	The general business concentration offers students a broad spectrum of courses to prepare them for careers in businesses and or companies.
Human Resource Management	This concentration prepares students for careers concerned with the acquisition, development, and effective utilization of the human resources of the individual organization and economic system as a whole.
International Business	This concentration prepares students for research and administrative positions with organizations engaged in conducting, regulating or monitoring business operations across national borders.
Management	This concentration is designed to prepare the graduates for careers in management in all forms of organizations: business and non-business, public or private, foreign or domestic.
Management Information Systems	The MIS concentration integrates the use of computer technology with an understanding of business functions.
Marketing and Decision Sciences	The marketing concentration focuses on developing competencies in the most dynamic aspect of business. In this field, all stages of a product's or service's development are studied, from the first idea to the end of the product's useful life.

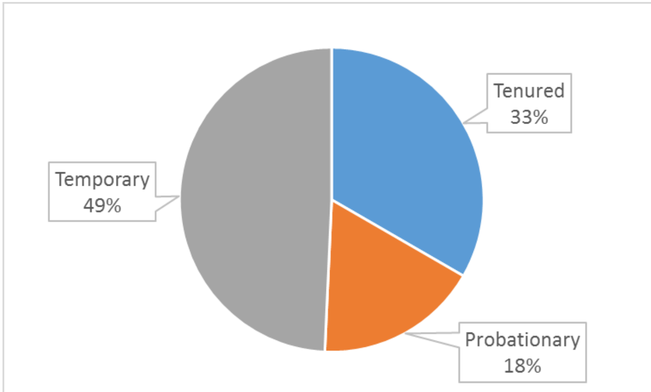
The undergraduate business program curriculum provides students with courses aimed to develop competencies in a number of key areas valued by employers: communication, teamwork, global perspectives, critical thinking, entrepreneurship, community service, and innovation. The curriculum aims to equip undergraduate students with authentic real-life skills that employers stated they valued in recruiting. All students, regardless of desired specialization, are required to go through an interdisciplinary core of lower division and higher division business courses prior to completing their degree. The undergraduate program at the College of Business is accredited by AACSB International (Association to Advance Collegiate Schools of Business) and WASC (Western Association of Schools and Colleges).

Faculty Members and Undergraduate Students

Faculty

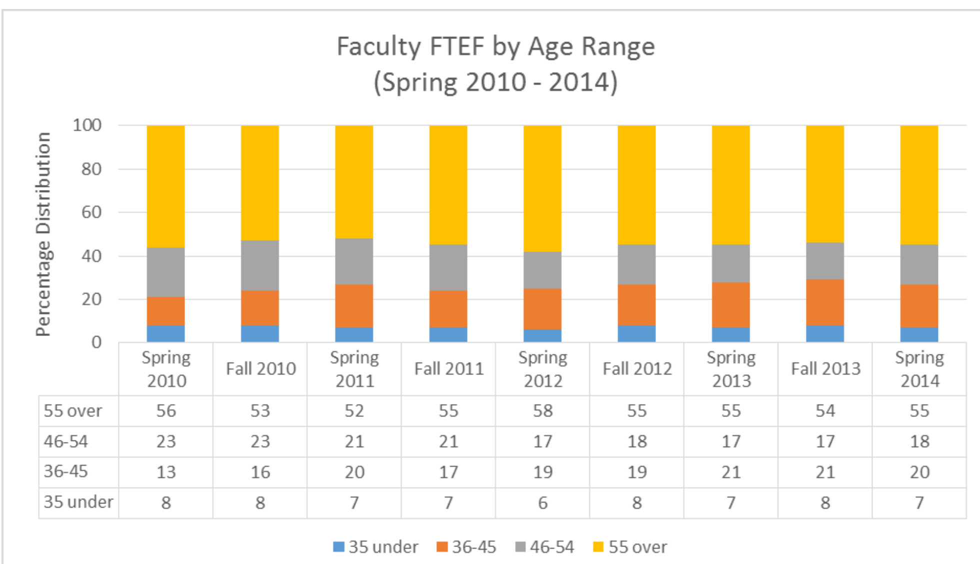
Faculty members are distinguished between "participating" and "supporting" faculty. Participating faculty are those who participate in all major aspects of the college beyond direct teaching involvement, while supporting faculty do not. The accreditation guidelines call for participating faculty to deliver at least 75% of the college's teaching and to deliver at least 60 % of the teaching in each discipline, academic program, location, and delivery mode (Lucas College and Graduate School of Business, 2014). As of AY 2014-2015, there were 138 faculty members in the College of Business in the following categories: tenured, probationary and temporary:

Figure 3.2: Faculty Headcount in the College of Business by Tenure Status (AY 2014-2015)



Faculty member age ranges are shown below in Figure 3.3. More than 70% of the faculty members were over 46 years old.

Figure 3.3: Faculty FTEF by Age Range in the College of Business



	Spring 2010	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012	Spring 2013	Fall 2013	Spring 2014
55 over	56	53	52	55	58	55	55	54	55
46-54	23	23	21	21	17	18	17	17	18
36-45	13	16	20	17	19	19	21	21	20
35 under	8	8	7	7	6	8	7	8	7

In the past two years, a series of faculty development workshops designed to train faculty members in the pedagogy of hybrid and online learning had been conducted to encourage instructors to redesign their courses for this mode of learning. The College of Business recently appointed a Director of Online Learning to lead the initiative to bring more courses online. The Dean of the College of Business had also allocated funds to provide faculty with resources and support to redesign their courses to give students more timely access to online courses in order to finish their degrees in time. In spring 2015, there were a total of nine online undergraduate business courses offered online. This number is expected to increase in the near future.

Undergraduate Students

Undergraduate students comprised 98% of the student body of the College of Business. The gender distribution was almost 50/50 (male and female), and almost 68% were within the 20-24 year old age range. The current generation of business undergraduates has lived with technology for almost all aspects of their lives, including learning. This generation of students is very comfortable with using the Internet and respond very well to the online education environment and the integration of various technologies into the learning space through innovative course designs (Allen & Seaman, 2015). This suggests that undergraduate business students may prefer variety and a non-linear format for content in courses. As such, certain learning models, such as online courses may be a good way to deliver knowledge. As faculty members adopt new academic technologies and learn how to effectively integrate these into their courses, there would be increased access to courses to help students complete their degrees within the normal timeframe.

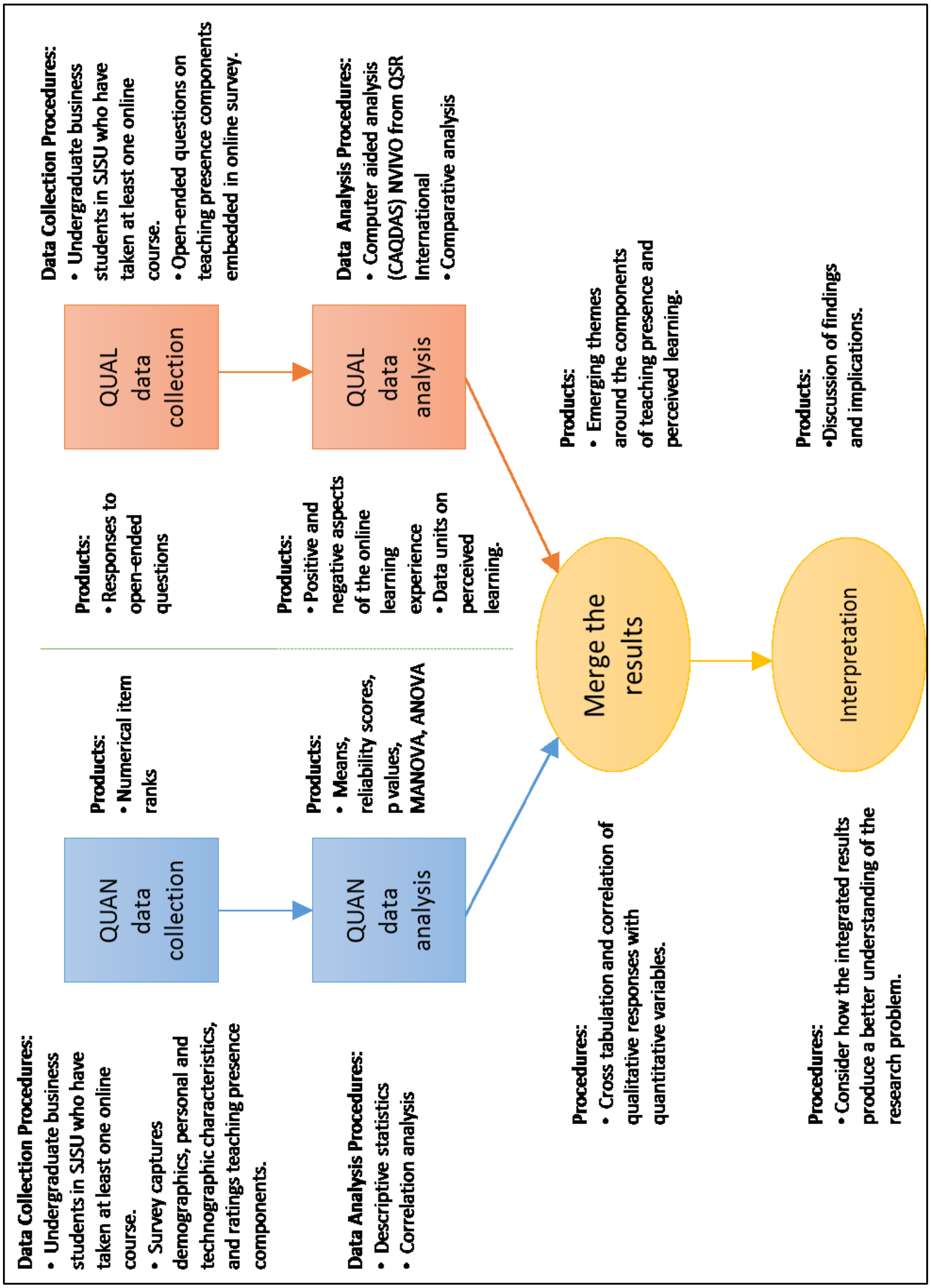
Research Design

The two survey tools that were used were the Teaching Presence Scale (TPS) and Attitudes Toward Use of Technology (ATUTS). This study utilized the parallel triangulation design wherein quantitative and qualitative data were collected at the same time, analyzed on its own merit, and then merged at the point of interpretation. The different types of information helped provide a more holistic picture of student learning. Augmenting the quantitative data with open-ended qualitative data offset the weaknesses inherent to using just a single research paradigm.

This study was conducted in four phases. Details of the study design were as follows:

1. **Timing**. Similar correlated sets of data were taken from each group of students. Quantitative and qualitative responses collected through an online survey conducted through SJSU Qualtrics.
2. **Weighting**. Equal priority was placed on both quantitative and qualitative data. Two sets of data (QUAN + QUAL) were concurrently collected then analyzed. The results of the analysis were compared and analyzed to come up with inferences and correlations. Equal importance was placed on the two strands of data to bring out the different facets of the student learning experience.
3. **Integration**. The integration point for the two different strands of data occurred at the end of the data collection and analysis phase. Both sets of data were collected concurrently. The distinct data sets helped triangulate the results of the study by "directly comparing and contrasting quantitative statistical results with [the] qualitative findings" (Creswell & Plano-Clark, 2013, p. 77). The two strands of data were compared, validated and corroborated to develop a better understanding of the research questions.

Figure 3.4 Research Design Flowchart



Population and Sample

The purpose of the study was to investigate business undergraduate online students' perceptions of teaching presence in online courses. Thus, the target population included all undergraduate students enrolled in online business courses during the winter and spring 2015 semesters in the College of Business at the research setting. The total enrollment for the online courses during the winter and spring 2015 semesters was 552 students (Table 3.2).

Table 3.2: List of Online Business Courses Classes Offered in winter and spring 2015

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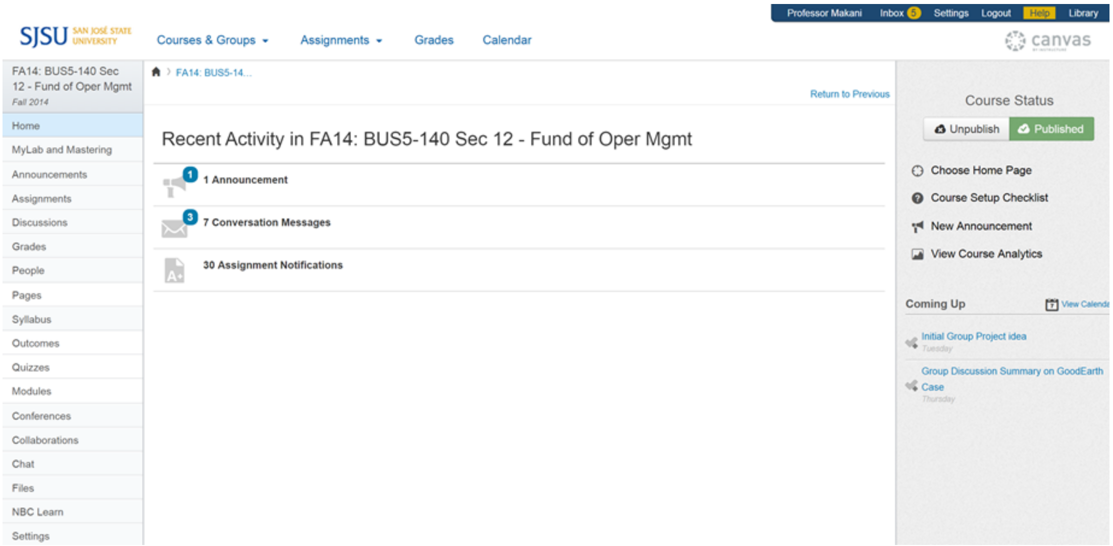
Course	Number of Sections	Number of Seats	Total Number of students
BUS2-130: Principles of Marketing	4	32,38,36,35	141
BUS2 134A: Consumer Behavior	1	31	31
BUS2 137A: Soft Skills	2	30,31	61
BUS2 138: Marketing Research	1	36	36
BUS2 190: Quantitative Business Analysis	2	33,35	68
BUS3-12: Money Matters	2	41,37	78
BUS3-140: Fundamentals of Operations Management	1	34	34
BUS3-187: Global Dimensions of Business	3	35,36,32	103
Total sections and expected students:	16		552*
Total Population*: **552			

The courses were delivered using Canvas Learning Management System hosted in San Jose State University. All the courses had the same structure, interaction tools and methods (Fig. 3.5).

Figure 3.5 Canvas (LMS) snapshot



Course instructors planned and created the course with design and development assistance from the instructional designers, including the principal investigator in her role as faculty-in-residence for eCampus. Instructors who were assigned to teach online were provided some training on Canvas. The training consisted of modules on Canvas introduction and how the different features are used for managing courses more effectively. All the courses included in the sample used some of the collaborative and communication features in the Canvas course management system, including quizzes, discussion forums, web conferencing, video and audio feedbacks, wikis, email, announcements, etc.

Research Questions

The central research question for this study was: What are undergraduate student perceptions of teaching presence in online courses based on their personal, contextual and technographic characteristics? Three research questions were developed to investigate this central question. The questions were designed to look at the categories of the variables separately. The fourth research question qualitatively investigated the relationships between students' personal, contextual and technographic characteristics. The qualitative element was covered by open-ended questions designed for each teaching component. These open-ended questions were included to expound on the quantitative component for this study.

Research Question1: Is there a significant relationship between students' personal characteristics (age and gender) and their perceptions of online teaching presence?

Null Hypotheses:

H_o 1.1. There are no statistically significant differences between student age and perceptions of online teaching presence.

H_o 1.2. There are no statistically significant differences between student gender and perceptions of online teaching presence.

Research Question 2: Is there a significant relationship between student contextual characteristics (student class level and course duration) and their perceptions of online teaching presence?

Null Hypotheses:

H_o 2.1. There are no statistically significant differences between student class level and perceptions of online teaching presence.

H_o 2.2. There are no statistically significant differences between course duration and perceptions of online teaching presence.

Research Question 3: Is there a significant relationship between student technographic characteristics (technology skill level, technology use and attitudes towards technology) and their perceptions of online teaching presence?

Null Hypotheses:

H_o 3.1. There are no statistically significant differences between student technology skill level and perceptions of online teaching presence.

H_o 3.2. There are no statistically significant differences between student technology use and perceptions of online teaching presence.

H_o 3.3. There are no statistically significant differences between student attitudes towards technology and perceptions of online teaching presence

Research Question 4: What are the relationships between students' personal, contextual and technographic characteristics?

Protection of Human Subjects

In accordance with the guidelines of the Kansas State University's Committee for Research Involving Human Subjects Institutional Review Board (IRB), an Application for Approval Form was submitted to KSU and the research setting prior to the start of the study. Both Kansas State University and the research setting's IRB modules had been completed and are presented in Appendices D to H. Collection of data commenced after receipt of IRB approval from both institutions. Research participants were informed that their identities and survey responses would be confidential to the researcher. Research participants were also informed that their participation in the survey was purely voluntary and that the results of the study would be available to them upon request.

Online survey results are currently stored in a password-protected device in a locked cabinet in the researcher's home office. No identifiable information was reported in the study. All survey results were stripped of identifying information and replaced with a coding system. Data was stored securely and only available to the researcher unless the participants specifically gave permission in writing to do otherwise. No reference was made to any students' identity in oral or written reports that could link them to the research study. Only aggregate data were reported in the dissertation. The data would be kept for ten years, until 2025, and would be destroyed or deleted on the eleventh year (2026).

Data Collection Methods

This study used a non-experimental, cross-sectional, closed and open response electronic survey questionnaire. According to the Research Methods Knowledge Base, "survey research is one of the most important areas of measurement in applied social research" (Trochim, 2006, p. 1). Surveys are very useful in addressing specific issues and in presenting measure and percentage distributions of variables (Creswell & Plano-Clark, 2013) through the use of small, targeted samples from the population. The survey was conducted online as research indicates a higher percentage of responses, compared with traditional paper surveys. The combination of closed- and open- ended questions in the survey were appropriate for this study, as it helped the researcher obtain a deeper understanding of students' perceptions of teaching presence. The survey was distributed using Qualtrics survey platform.

Survey Administration

Students enrolled in the winter and spring 2015 semester online classes in the College of Business at the research setting received the survey as an embedded link through their invitation emails. The survey was developed using Qualtrics and was also distributed using this cloud-based survey tool. Qualtrics is an online survey tool that is used at the research setting. It has a feature that tracks the target population through the use of the "Qualtrics Mailer" function. Sending out the survey using this feature allowed the researcher to track responses and send out reminder emails to those who had not taken the survey. Qualtrics also allowed the researcher to send thank you messages to those who completed the survey

The survey was made available at the research setting for six weeks. Each participant was allowed to take the survey only once using the unique link provided to the participant in the invitation email. Participants were also allowed to save their responses and go back to complete the survey at a later time. Once the survey was started, participants had two weeks to complete their responses. If participants did not finish the survey, reminder emails were sent to them on the 3rd, 7th and 12th day after they started the survey.

Students were informed of their options to exit the survey anytime, if they were no longer willing to take part in the study. Participants were sent follow-up email messages every week (a total of 5 emails) until the week when the survey ended, to remind them about their participation in the research study. Information in the e-mail included assurances of confidentiality, an opportunity to opt out of the study, and a link to the survey.

Data Analysis Methods

Analysis of data for the quantitative components involved the use of descriptive statistics to describe the sample, testing the hypotheses through both MANOVA and ANOVA and reliability testing. In addition, NVIVO was used to analyze the responses to the open-ended questions. The qualitative responses were used to interpret the quantitative responses of the students. This study sought to answer the following research questions:

Research Question 1: Is there a significant relationship between student personal characteristics (age and gender) and their perceptions of online teaching presence?

Research Question 2: Is there a significant relationship between student contextual characteristics (student class level and course duration) and their perceptions of online teaching presence?

Research Question 3: Is there a significant relationship between student technographic characteristics (technology skill level, technology use and attitudes towards technology) and their perceptions of online teaching presence?

Research Question 4: What are the relationships between students' personal, contextual and technographic characteristics?

Quantitative Measures

Results of the survey were exported from Qualtrics Survey System after the survey closed. The results were exported into SPSS for disaggregation. Responses to closed-ended questions were analyzed using descriptive statistics. A series of one-way multivariate analysis of variance (MANOVA) were conducted to determine statistically significant differences in responses based on participants' personal, contextual and technographic characteristics. Each of these characteristics was analyzed with each individual teaching component and its sub-component to determine the correlations. If the MANOVA results showed a significant correlation, an ANOVA test was conducted to determine which area the significance occurred.

The teaching components and the sub-components are presented in Table 3.3. There are seven sub-components that comprise the three main teaching components.

Table 3.3: Teaching Presence Components and Sub-Components

Teaching Presence Component	Sub-Component
Planning	Instructional design Course organization
Implementation	Facilitated discourse Direct instruction
Assessment	Communication Assessment Feedback

Independent Variables

Independent variables are those that stand alone and that is not changed by the other variables that are being measured in the study (Weisberg, Krosnick & Bowen, 1996). To explain further, an independent variable is the presumed cause, whereas the dependent variable is the presumed effect (LaFountain & Bartos, 2002). In non-experimental research, where there is no effect on a dependent variable (Kerlinger, 1986).

In this study, the independent variables were not actually controlled and manipulated, thus these variables could technically be referred to as status variables (e.g., gender, ethnicity, etc.).

The independent variables (status variables) in this study were:

- Demographic variables (age and gender)
- Contextual variables (student class level and course duration)
- Technographic variables (student technology skill level, technology use and attitudes towards learning through technology)

Dependent Variables

Dependent variables refer to factors that are being measured in a study and these variables usually respond to the independent variable. This variable is called such because it is "dependent" on the independent variable and is the response that is observed and measured. Dependent variables refer to the status of the outcome being studied. In very simple terms, while independent variables could cause a change in dependent variables, it is not possible to have a dependent variable to cause a change in the independent variable. In any study, dependent variables are those that "are not manipulated by the experimenter and so its value depends on the variables that [had] been manipulated" (Cozby, 2001, p. 72).

The dependent variable of interest in this study was: Student perceptions of teaching presence.

A summary of the independent and dependent variables used in this study and the data scales are listed in Table 3.4.

Table 3.4: Summary of Independent Variables and Dependent Variables

Variables	Data Scale
Independent Variables	
Age	Interval
Gender	Nominal
Course duration	Nominal
Course level	Ordinal
Technology skill level	Interval
Technology use	Interval
Attitude towards learning with technology	Interval
Dependent Variables	
Student perception of teaching presence	Interval

Descriptive Statistics

Demographic data in this study included age and gender. These demographic data provided information about the general characteristics of the participants in the study. Information about student class level and course duration was also presented to provide information on contextual characteristics of the students who participated in the study. Participants' technology skill level, technology use and attitude toward use of technology were also presented. In addition to the frequency of responses, the researcher also ran the data through SPSS to obtain the mean, median, and standard deviations for the measures of central tendency. The descriptive findings are reported in chapter four of this study.

Inferential Statistics

Inferential statistics was used in attempting to make inferences from the sample data to more general conditions. Since the subjects in the study were a sample of the entire population of undergraduate business students, inferential statistics was needed to draw conclusions that would extend beyond the immediate data alone. ANOVA or a non-parametric test was used to answer the demographic questions and report the differences in perceptions based on the sub-groups. ANOVA helps compare two means at the same time, but this method can only include one dependent variable in the analysis. To address this, a series of one-way multivariate analyses of variance (MANOVA) tests were performed to determine if significant differences exist among variables. Both ANOVA and MANOVA were used, because while the ANOVA method included only one dependent variable, the MANOVA method included multiple, dependent variables. MANOVA helped determine if the dependent variables were significantly affected by changes in the independent variables. It tested whether there were statistically significant mean differences among groups on a combination of dependent variables. MANOVA was also used to simultaneously test the relationship between several status variables and two or more dependent variables. In this study, there were multiple dependent variables. Therefore, it was appropriate to use MANOVA to determine the relationship between multiple variables concurrently.

Additionally, strengths of association tests to measure relationships were conducted. These tests indicated whether the relationships found in the sample was likely to exist in the general population. This study utilized Pillai's Trace as the preferred statistic. Although most statisticians favor Wilk's Lambda, Pillai's Trace test provides a more robust approach and is not highly linked to assumptions about normality of the distribution of the data. ANOVA analysis was conducted only for variables that showed significant correlations when MANOVA was conducted. For instance, it did not make sense to explore the strength of relationship between two variables when the initial Pillai's Trace test showed that the relationship was not statistically significant. The ANOVA results were used to confirm the significance of the correlations between the variables.

Validity and Reliability

When an instrument is used as part of the data collection process, the validity and reliability of that tool or instrument is important (Cozby, 2001; Creswell & Miller, 2000). It is not logical to use an instrument for research that was not truly measuring what the study purported to measure. This research relied on results analyzed after collecting data through the instrument to show support or a lack of support for the theory being studied (Moskal & Leydens, 2000). Thus, if the data collection methods are erroneous, the data that will be analyzed would also be erroneous.

It is important to understand the relationship of reliability and validity. Validity is requisite to reliability. If an instrument is not valid, then reliability is moot. In other words, if an instrument is not valid, then there is no point in discussing reliability because validity is required before reliability can be considered in any meaningful way (Moskal & Leydens, 2000). Likewise, if the instrument is not reliable, then it is also not valid.

In this study, reliability tests were conducted on the responses to the closed-ended questions of the study. The reliability of the survey instrument was tested using Cronbach's Alpha. Standards dictate that findings with alphas (α) of 0.70 or greater indicate acceptable reliability and those with 0.8 or higher indicate good reliability (Weisberg, Krosnick & Bowen, 1996).

The Survey Instrument

The instrument used for this research was a compilation of two different surveys: the Teaching Presence (TP) Scale, developed by Shea, Pickett and Pelz (2003), and Lukow's Attitude Toward the Use of Technology Survey (ATUTS) (Lukow, 2002). The TP Scale was used to measure students' students' perception of teaching presence and ATUTS was used to measure students' technographic characteristics: technology use and attitude towards technology. Permissions were obtained to use both surveys in this research. The entire TP scale survey was adopted for this research. However, the ATUT needed to be modified as the list of technologies listed in the original survey included course website, interactive CD-ROM, class listserv and DVD. These items were removed from the survey, as these technologies are not used in the research setting. The technology included in the survey based on the adopted ATUT survey tool were: email, chatting and IM, web conferencing, Canvas (the SJSU campus Learning Management System), and online discussion forums.

The Teaching Presence Scale

The internal reliability of the TP scale items was examined using means, standard deviations and Cronbach's alpha coefficients. The Cronbach's alpha for the entire TP scale instrument was found to be .90. In a later study, Shea, Li and Pickett (2006) also reported reliability coefficients for the teaching presence scale and its components, instructional design and organization and directed facilitation had Cronbach alphas of .98, .97, and .93, respectively.

The factor analysis revealed eighteen quantitative factors loaded onto the three components of teaching presence (Table 3.5):

Table 3.5: Factor Analysis of Teaching Presence Scale:

Teaching Presence Components and Sub-Components	Number of Items from Teaching Presence Scale
Planning • Instructional design • Course organization	7
Implementation • Facilitating discourse • Direct instruction	8
Assessment • Communication • Feedback • Assessment	4
Total:	**19**

Arbaugh and Hwang (2006), in their study of teaching presence in MBA courses, also found positive relationships between the components, with phi values of .73 between instructional design and organization and facilitating discourse, phi value of .78 between facilitating discourse and direct instruction, and phi of .69 between instructional design and organization and direct instruction. Arbaugh and Hwang (2006) validated the results reported by Shea, Pickett, and Pelz (2003) by virtue of finding unique factors for each of the three components of teaching presence. An in-depth analysis of the individual categories that make up the teaching presence was used to gain more insights into students' perceptions of teaching presence. The instrument used a 4-point Likert scale (1-4) that went from "strongly disagree" to "strongly agree."

The Attitudes Toward Use of Technology Survey (ATUTS)

Jennifer Lukow (2002) developed a survey to collect data regarding the attitudes of students toward technology. The survey was divided into three sections: (1) personal information; (2) personal use of computers; and (3) attitudes towards the use of technology. For the purposes of this study, the list of technologies was revised to fit the use of the research setting. The original list of technologies listed in the original survey included course website, interactive CD-ROM, class listserv and DVD. These items were removed from the survey, as these technologies are not used in the research setting. Permission to modify the survey was granted by Dr. Lukow.

Personal information. Demographic data was gathered from each research subject. For the purposes of this study, this section was not used, since the personal information collected were not the same as those needed for this study.

Personal use of computers. This section of the survey gathered data about the subjects' personal use of computers and related technologies. Eleven questions were asked and requested responses were as follows: (1) never – at no time do I use computers for this purpose; (2) rarely – less than 5 hours a week; (3) sometimes – more than five hours a week, but less than 1 hour a day; (4) often, more than 1 hour a day, but less than 4 hours a day; (5) frequently – more than 4 hours a day. This section provided examples of specific software for some questions. The data collected in this section provided background on the technology use of the subject (Lukow, 2002).

Attitudes toward the use of technology. The last section of the instrument addressed how subjects felt about the technologies used in their courses. The questions asked whether the technology facilitated learning or distracted from the achievement of course learning outcomes. The scale of responses ranged from -5 to 5+. A ranking of "0" means "undecided". The total of the responses in this section ranged from -70 to +70. The higher the subject's score, the more positive the attitude toward technology. On the other hand, lower scores indicated a more negative attitude. For the purposes of this study, the list of technologies was revised to fit the use of the research setting.

To test the reliability of the ATUTS, Lukow (2002) conducted a pilot study using the instrument. She conducted a study at Indiana University and 108 undergraduate students completed the survey. The students were enrolled in courses offered in the Kinesiology and Applied Health Science Departments of the Indiana University School of Health. Lukow (2002) created the ATUTS specifically to use for her study. Lukow (2002) first analyzed the reliability of the scales used in the personal use of computers and the attitude toward technology sections. This was done to check for the internal consistency of the items. Lukow (2002) measured whether all items were all measuring the same underlying construct. Cronbach's alpha was calculated for both scales. Lukow's tests resulted to a Cronbach alpha coefficient of 0.82 for Section 2: "Personal Use of Computers", and a Cronbach alpha coefficient of 0.84 for Section 3: "Attitude Toward the Use of Technology". These scales were considered reliable because both sections had Cronbach alpha coefficients above 0.70, which is the threshold scale for reliability to exist (Cronbach, 1971).

The 46-item survey for this study includes the 30 teaching presence scale items, 2 demographic items, 2 contextual items, 11 technographic items Table 3.6 shows the categorization of survey items by sections.

Table 3.6 : Categorization of Survey Items by Sections

Category	Survey Item Number	Total Number of Items
Section I (Teaching presence scale survey items)	1-30	30
Planning • Instructional design • Course organization	1-9	9
Implementation • Direct instruction • Facilitating discourse	10-21	12
Assessment • Communication • Assessment • Feedback	22-30	9
Section II (Demographic items)	31, 32	2
Section III (Contextual items)	33, 34	2
Section IV (Technographic items)	35-46	12
Technology skill level	35	1
Technology use	36-40	5
Attitudes toward use of technology	41-46	6
Total number of questions:		88

The online survey was delivered in five sections and tied to specific research questions in sections. Section I presented the Teaching Presence Scale, focusing on the components and sub-components of teaching presence, Section II included demographic questions, Section III collected information about contextual items, and Section IV covered technographic items.

Section I: The main focus of this section was students' perception of teaching presences. The questions on the Teaching Presence Scale were grouped based on the components and sub-components of teaching presence:

1. Planning
    - Instructional design
    - Course organization
2. Implementation
    - Direct instruction
    - Facilitating discussion
3. Assessment
    - Communication
    - Assessment
    - Feedback

For Section I questions, a 4-point Likert scale was used to record student responses for majority of the questions. There were also open-ended questions included at the end of each sub-section to capture more in-depth information on student perceptions of teaching presence.

Sections II, III, IV: The next three sections of the survey were used to study the differences in students' perceptions of presences based on their personal, contextual, and technographic characteristics. Depending on the questions, the responses were recorded with the appropriate scales.

The purpose of this study was to explore the perceptions of online students on teaching presence as those perceptions provide practical recommendations for instructors, course designers and developers to improve and redesign their courses to enhance learning in the online environment. The Teaching Presence Scale has been used in a considerable number of studies, and acceptable evidence exists to support that goal (Bangert, 2008; Arbaugh & Hwang, 2006; Laves, 2010). A matrix outlining the topic coverage of the three research questions is given in Appendix H.

Survey Open-Ended Questions

The open-ended questions in the survey provided the qualitative component portion of the study, which helped the researcher learn more about the central themes around the experiences of the research participants. The primary purpose of the open-ended questions was to understand the meaning behind what the subjects were saying (Stake, 2010; Patton, 2002) and to capture the nature of the quantitative responses and the story behind the participant's responses (Stake, 2010; Patton, 2002). The qualitative responses to the open-ended questions were used to further clarify the participant responses to closed-ended questions.

This study aimed to determine the level of perceived teaching presence and learning of undergraduate business students in an online learning environment. While analysis of quantitative data was central to the study, the study was enhanced by the students' qualitative responses about their experiences through the use of eleven open-ended questions. The primary purpose of the open-ended questions was to understand the meaning behind what the subjects were saying (Stake, 2010; Patton, 2002). In addition, this mode of data collection was important in capturing the nature of the quantitative responses and the story behind the participant's responses (Stake, 2010; Patton, 2002). Qualitative responses were collected through open-ended questions embedded in the survey instrument and recorded through Qualtrics.

The eleven open-ended questions embedded in the online survey are presented in Table 3.7, along with the teaching presence component and sub-component that each question addressed.

Table 3.7: Summary of Open Ended Questions

Teaching Presence Components and Sub-components	**Open-Ended Questions**
Planning: • Instructional design • Course Organization	8. Please give examples of how the way the course was designed helped you in your learning. 9. Please give examples of how the organization of the course topics helped you in your learning.
Implementation: • Facilitating discourse • Direct Instruction	14. How does your instructor keep the class engaged? 15. In what ways does your instructor guide the class towards understanding class topics? 20. Describe an instance when your instructor helped you learned a difficult topic. 21. Describe an instance when your instructor helped to focus the discussion that helped you learn.
Assessment: • Communication • Feedback • Assessment	26. When you submit assignments or post discussions and don't receive instructor comments or feedback, how does this change the way you feel about your learning experience? 27. Describe how important is it for you to have personal contact with your instructor during the course through email, web or phone. 28. Describe the optimal level of interaction with your instructor in an online course. 29. Describe how your instructor' presence impacts your learning experience. 30. What can the instructor do to improve his/her presence in your online course?

Open-Ended Responses Transcription and Coding

Before the responses to the open-ended questions were analyzed, the students' survey responses were transcribed and coded. The process of transcribing allowed the researcher to become acquainted with the data. Coding made it easier to compare the data and identify any patterns that require further investigation. Codes were created based on emerging themes, ideas and concepts, as well as recurring terms, phrases and keywords found in the data units. In this study, the researcher created categories of responses, then looked for other emerging patterns that arose out of the data analysis. During the data coding, the researcher moved from descriptive codes to more analytic ones to capture ideas and themes. All student responses were coded for meaning and context rather than through word-by-word, sentence-by-sentence, or paragraph-by-paragraph. This was the most appropriate approach, due to the amount of data that needed to be analyzed.

The most common procedure when a researcher notices a pattern emerging from the data being analyzed is to do a constant comparison. What this means is that every time a passage of text is selected and coded it should be compared to all the passages already coded. This procedure ensures that the coding is consistent and allows consideration of the possibility that either some of the passages coded in a certain way may not fit as well into that category and therefore might need to be coded differently, or that there are dimensions or phenomena in the passages that might well be coded another way as well. However, the potential for comparisons does not terminate at this point. Passages with similar or related codes can still be compared with other data units and examples from outside the data unit altogether, for instance, data found in the literature review (Creswell & Plano-Clark, 2013).

The researcher created several files for all the relevant qualitative responses collected from the survey. All files are protected with passwords and are stored in the researcher's password-protected hard drive for which only the researcher has access.

Ethical Considerations

The study required data from human subjects. Permission to collect data from individuals, community members and the sites was secured. The Kansas State University Institutional Review Board approval was obtained from both the research setting and Kansas State University's Committee for Research Involving Human Subjects for this study. In addition, particular attention and care had to be taken in order to guarantee the protection of the rights, needs, values, and wishes of the participants in the research (Creswell & Plano-Clark, 2013). Although some students participated in the study because the instructor requested them to do so, it was made clear to the students that their participation in the research was strictly voluntary. If students did participate in the quantitative phase, any traces of identifiable data were removed to protect their identity.

To safeguard the privacy of the student participants, these steps were taken to ensure the protection of their rights: (1) clear articulation and explanation of the research objectives and how the data collected would be used; (2) letters of consent were provided to all the participants; (3) all reports were made available to the participants to view, if they so wished; (4) when faced with choices on reporting data and findings, the participants' rights and interests were the top priority considered.

Student participants were also told that the results of this study might be published. However, no information that could identify the participants was included in this study. The researcher employed physical and digital means to ensure confidentiality of the information that was collected. All data collected was stripped of personal information and is currently stored in a password-protected device kept inside a locked cabinet inside the locked home office of the researcher.

Chapter 4 - Data Analysis and Findings

Chapter Overview

This chapter presents data in four sections. The first section provides the descriptive statistics of the closed-ended questions relevant to the participants' personal characteristics (age and gender), contextual characteristics (student class level and course duration), and technographic characteristics (technology skill level, technology use and attitudes towards the use of technology). This is followed by the section on the reliability of the participants' responses and descriptive statistics on the three teaching presence components: Planning, Implementation and Assessment.

The next section presents the quantitative measures of the survey data. It presents data and findings on research questions one, two, and three. Cronbach's Alpha was computed for the participants' responses to determine reliability of the data at N=437. The section then presents the MANOVA results for the three quantitative research questions, as well as data from the ANOVA tests, which were conducted post-hoc only if the MANOVA results showed a statistically significant difference. All three quantitative research questions were tested through null hypotheses.

The section that follows presents the responses to the open-ended questions of the survey data. This is followed by a discussion of the themes derived from the qualitative responses. It presents findings on the sub-components of teaching presence, instructional design, course organization, facilitating discourse, direct instruction, communication, assessment, and feedback. NVIVO was used to analyze the qualitative responses collected. The quantitative responses to the open-ended questions helped expound the quantitative responses of this study.

Finally, the last section in this chapter presents the merged analysis of quantitative data with qualitative components. It includes data and findings on both the quantitative and qualitative sections of the study.

Study Overview

The purpose of this study was to examine and understand the differences in undergraduate students' perceptions of teaching presence in online courses. The study made use of a survey instrument with closed-ended and open-ended questions, conducted online through Qualtrics. The quantitative data was collected using a combination of the Teaching Presence Scale (TPS) (Shea, Pickett, & Pelz, 2003), and Lukow's Attitude Toward the Use of Technology Survey (ATUTS) (Lukow, 2002). The qualitative information was collected using open-ended questions embedded in the survey instrument. The survey was sent to 552 students enrolled in online business courses. The response rate was 94.02% (519 responses were returned). Among the 519 responses, 82 were considered invalid for various reasons. Some of invalid surveys had missing demographic and contextual information such as student age, gender, class level and class duration, all of which were important information needed for the study. Other surveys were discarded because these were not finished or simply had demographic information, and nothing else. Each of the surveys was examined for completeness of information. There were only 437 usable surveys, rendering a response rate of 79.17%, which was appropriate for analysis.

Research Questions

This study investigated the differences in the perceptions of teaching presence among undergraduate business students through the central research question: What were undergraduate student perceptions of teaching presence in online courses based on their personal, contextual and technographic characteristics? The three research questions were designed to examine this central research question. Open-ended questions were included in the survey to clarify the results of the research questions.

Research Question 1: Is there a significant relationship between students' personal characteristics (age and gender) and their perceptions of online teaching presence?

Null Hypotheses:

H_o 1.1. There are no statistically significant differences between student age and perceptions of online teaching presence.

H_o 1.2. There are no statistically significant differences between student gender and perceptions of online teaching presence.

Research Question 2: Is there a significant relationship between student contextual characteristics (student class level and course duration) and their perceptions of online teaching presence?

Null Hypotheses:

H_o 2.1. There are no statistically significant differences between student class level and perceptions of online teaching presence.

H_o 2.2. There are no statistically significant differences between course duration and perceptions of online teaching presence.

Research Question 3: Is there a significant relationship between student technographic characteristics (technology skill level, technology use and attitudes towards technology) and their perceptions of online teaching presence?

Null Hypotheses:

H_o 3.1. There are no statistically significant differences between student technology skill level and perceptions of online teaching presence.

H_o 3.2. There are no statistically significant differences between student technology use and perceptions of online teaching presence.

H_o 3.3. There are no statistically significant differences between student attitudes towards technology and perceptions of online teaching presence

Research Question 4: What are the relationships between students' personal, contextual and technographic characteristics?

Descriptive Statistics

Characteristics of the Respondents

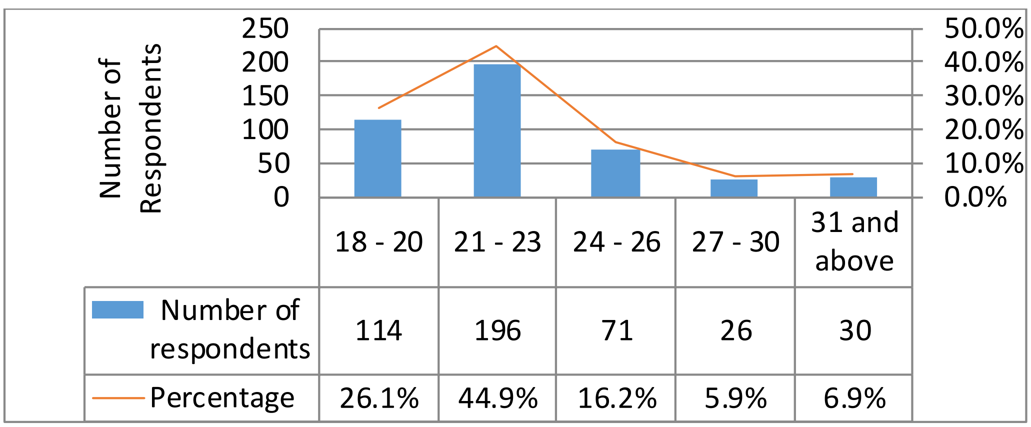
This study focused on the following student characteristics: personal (age and gender), contextual (course duration and class level), and technographic (technology skill, technology use and attitude toward the use of technology. Age is a typical demographic variable found in cross-sectional studies. Gender plays an important role in perceptions about teaching presence because gender differences had been found to account for variances in online course completion (Herring, 2000). Class level refers to the classification a student receives from the university based upon credit hours earned. Class levels used in this study were: freshmen, sophomore, junior and senior. Course duration is the length of the courses that the students took. In the research setting, there were three types of courses: the 2-week, 10-week, and 16 week online courses. Technology skill refers to the competency level of the student participants. The categories in this study ranged from Novice to Expert. Technology use is the level of usage that the participants had with different types of technology tools. Attitude toward use of technology measured the participants' evaluation of whether a particular tool helped facilitate their learning or distracted them from learning.

Personal Characteristics

The personal characteristics for this study's respondents were: age and gender. Presented in the section below are the tables and figures that show each of the personal characteristics of the respondents, with the number and percentage of study participants.

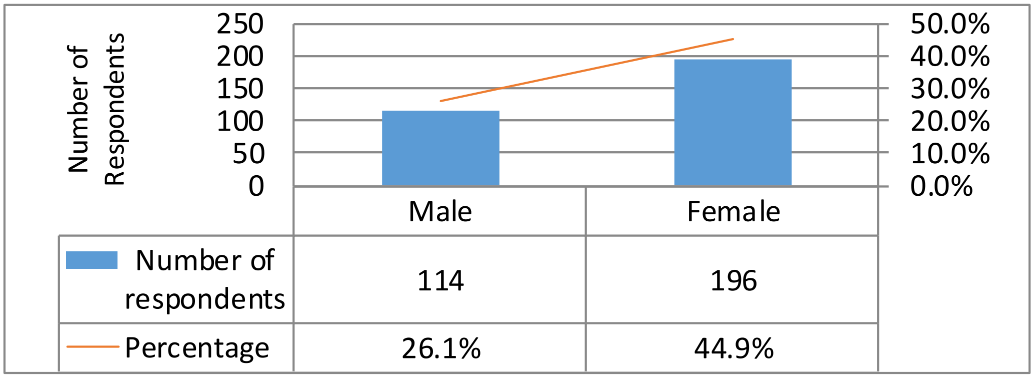
Age. The age range distribution of the study participants is shown in Figure 4.1. The majority of the participants (71%) were between the ages of 18 to 23. The remaining 29% were 24 years old and older.

Figure 4.1: Participants Age Range Distribution



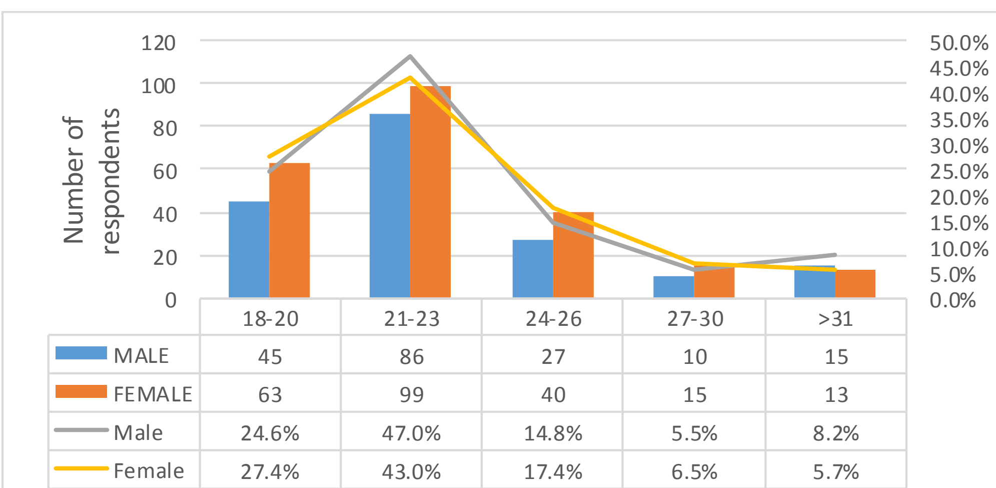
Gender. Figure 4.2 shows that 44.5% of the student participants were male, and 55.6% were female. There were more female participants in this study.

Figure 4.2: Gender Distribution



Age and Gender. A combined age and gender distribution is shown in Figure 4.3. This figure shows the distribution of the respondents based on their gender and age ranges. For age ranges 18-20 years old, 24-26 years old and 27-30 years old, there were more female respondents than males. For age ranges 21-23 years old and over 31 years old, there were more male respondents.

Figure 4.3: Age vs. Gender Distribution

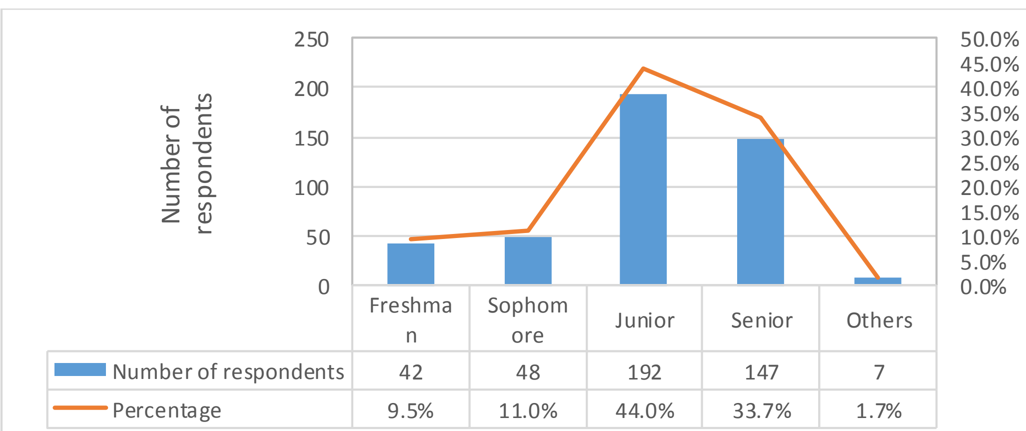


Contextual Characteristics

The contextual characteristics for this study's respondents were student class level and course duration. Presented in this section are the tables and figures that show each of the contextual characteristics of the student respondents, with the number and percentage of study participants.

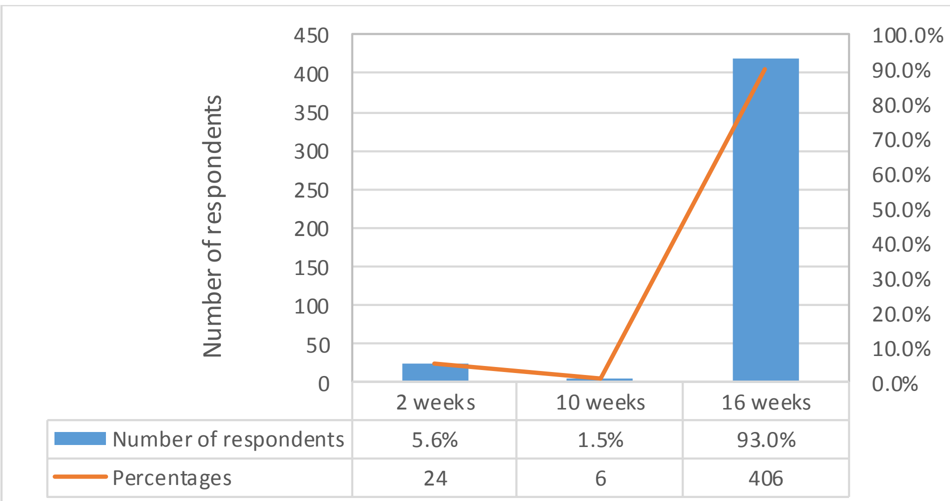
Student Class Level. The student class level distribution of the study participants is shown in Figure 4.4. The class level categories were: freshmen, sophomore, junior and senior. The highest percentage of respondents was juniors (44%), followed by seniors (33.6%). About 20% of the respondents were freshmen and sophomores. 1.8% or the respondents declared "Other".

Figure 4.4: Student Class Level Distribution



Course duration. Figure 4.5 shows that among the student respondents, 5.5% took the 2-week online course, and 1.6% of the students respondents were on the 10-week online course and the rest (92.9%) took the 16-week regular semester online course.

Figure 4.5: Course Duration Distribution



Based on the responses, 77% or the student respondents were juniors and seniors. A huge majority of those who participated in the survey (92.9%) were enrolled in the regular 16-week online course.

Technographic Characteristics

The technographic characteristics for this study's respondents were: technology skills, technology use and attitude toward the use of technology. For the technology use, students were asked to rate their skill level on the use of computers and their frequency of use of the different technology tools such as word processing, spreadsheet, email and communication (e.g., chat, SMS, IM), social media, and streaming video. For attitude toward the use of technology, students were asked to rate how they think technology influenced the achievement of learning objectives in their class. The technology included in the survey based on the adopted ATUT survey tool were: email, chatting and IM, web conferencing, Canvas (the SJSU campus Learning Management System), and online discussion forums.

Technology Skill. Figure 4.6 shows the technology skill level distribution of the student respondents. Students were asked to answer Q35: How would you describe your skill level regarding the use of computers? Students were asked to rank themselves from "Novice" to "Expert" based on a scale of 1 (Novice) to 5 (Expert). Most students (45.5%) placed themselves on Level 4, which was "above average". About 26.5% considered themselves possessing average technology skills. About 22.7% considered themselves experts, and about 0.5% considered themselves below average.

Figure 4.6: Technology Skill (Computer Use)

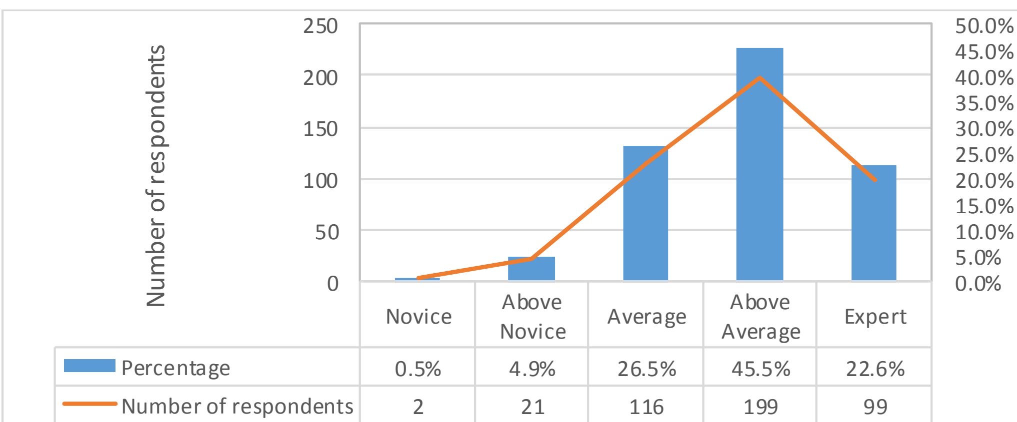
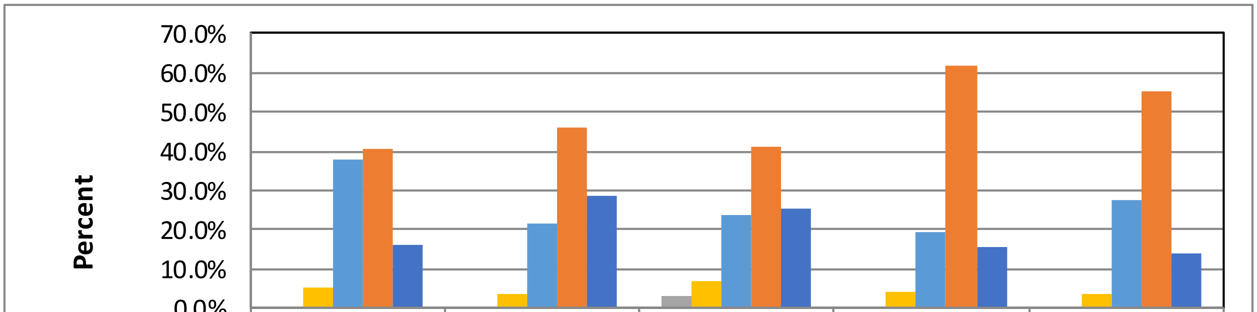


Figure 4.7 shows the levels of technology skills of the study participants by Age and Gender. Majority of the respondents (56% to 76%), regardless of their age ranges, indicated that they possess above-average to expert technology skills. The results also showed that a higher percentage of older students (27 years old and above) considered themselves as having above average technology skills.

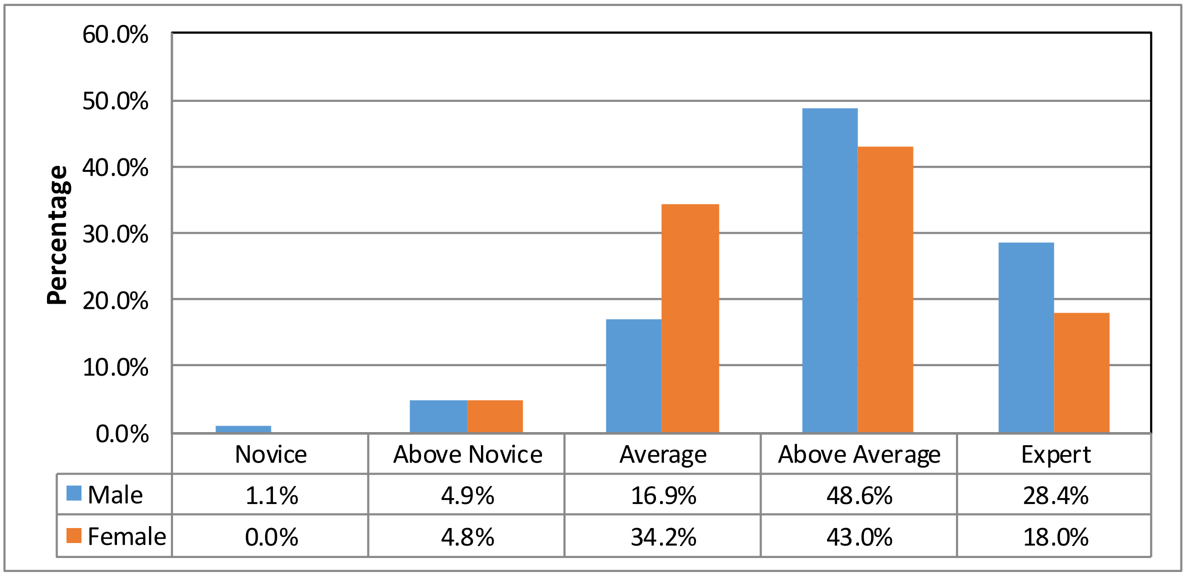
Figure 4.7: Levels of Technology Skills by Age Range



	18-20	21-23	24-26	27-30	>31
Novice	0.0%	0.0%	2.8%	0.0%	0.0%
Above Novice	5.4%	3.8%	7.0%	3.8%	3.4%
Average	37.8%	21.5%	23.9%	19.2%	27.6%
Above Average	40.5%	46.2%	40.8%	61.5%	55.2%
Expert	16.2%	28.5%	25.4%	15.4%	13.8%

Figure 4.8 shows levels of technology skills according to gender. 77% of the males considered themselves having above-average to expert technology skills. However, only 61% of the women considered themselves to have above-average to expert technology skills. Among the women, 77.2% indicated that they have average to above-average technology skills. 34.2% of the female student respondents considered themselves to have average technology skills, while among the males, only 16.9% considered themselves as having average technology skills. Students self-reported their technology skill levels so this might have created either under-reporting or over-reporting their skill levels.

Figure 4.8: Levels of Technology Skills by Gender



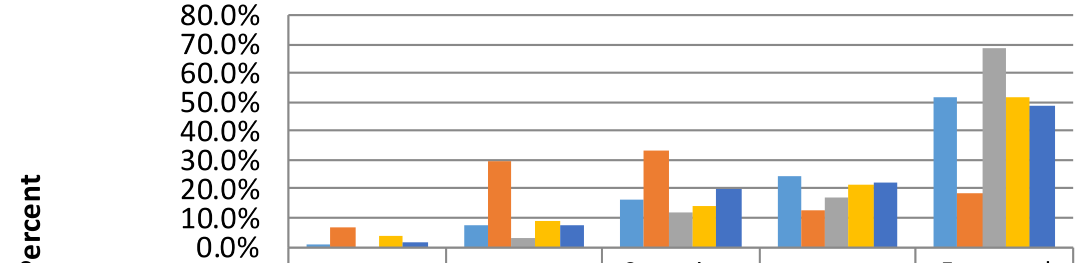
	Novice	Above Novice	Average	Above Average	Expert
Male	1.1%	4.9%	16.9%	48.6%	28.4%
Female	0.0%	4.8%	34.2%	43.0%	18.0%

Use of Particular Technology Tools. This section presents the students respondents' use of different technology tools. Q36, Q37, Q38, Q39 and Q40 asked students to indicate how frequently they use different types of technology tools. For these questions, this rating scale was used:

1 = Never: at no time do I use computers for this purpose
2 = Rarely: less than 5 hours a week
3 = Sometimes: more than five hours a week, but less than 1 hour a day
4 = Often: more than 1 hour a day, but less than 4 hours a day
5 = Frequently: more than 4 hours a day.

Figure 4.9 shows the distribution of students based on the frequency of use of each technology tool. Among the technology tools rated, email and communications were mentioned as the most frequently used tool with 68.5% of the respondents indicated that they use this tool frequently. Word processing and social media both came in second, with 51.6% of students indicated that they use this tool frequently. Among all the tools mentioned, the spreadsheet was indicated as the least-frequently used, with only 18.2% indicating that they use this tool frequently.

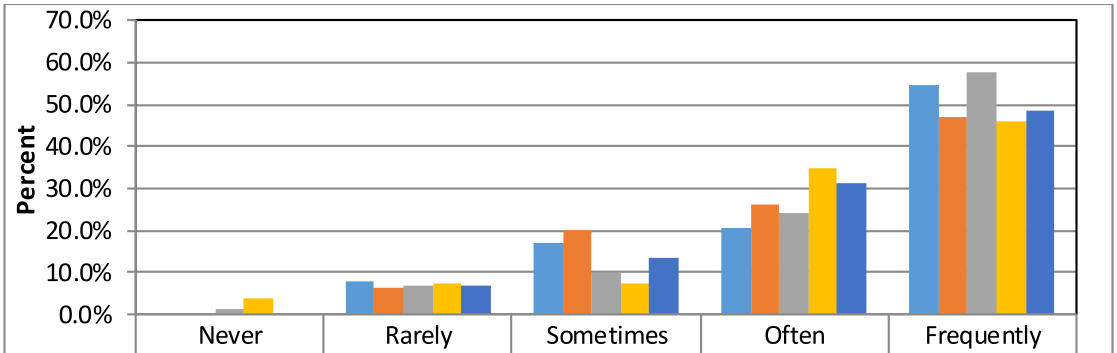
Figure 4.9: Technology Tool Use



	Never	Rarely	Sometimes	Often	Frequently
Word Processing	0.2%	7.3%	16.2%	24.7%	51.6%
Spreadsheet	6.5%	29.8%	32.9%	12.6%	18.2%
Email and Communications	0.0%	3.1%	11.6%	16.7%	68.5%
Social Media	4.1%	9.2%	13.8%	21.3%	51.6%
Streaming Video	1.9%	7.5%	19.6%	22.5%	48.4%

Figure 4.10 shows a more detailed breakdown of the Word Processing frequency of use by age range. Majority of the respondents, regardless of the age range, indicated that they use word processing frequently. For the age ranges 18-20 years old and 24-26 years old, more than 50% of the student respondents indicated that they use word processors frequently. For the other age ranges, 21-23 years old, 27-30 years old and >31 years old, more than 45% of students respondents indicated frequent use of word processors. This might be due to students using word processing software even when they were in their early education years. Almost all students had experience writing reports in high school and to do this effectively, they needed to possess word processing skills. Word processors are very familiar software and if students had used them before in K-12, then they did not need to acquire additional skills in college to be able to use it.

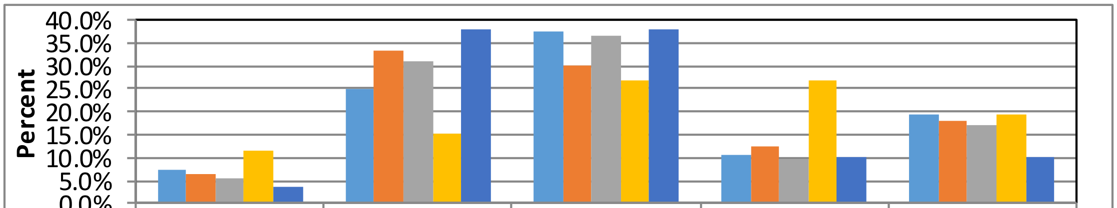
Figure 4.10: Technology Tool Use by Age Range - Word Processing



	Never	Rarely	Sometimes	Often	Frequently
18-20	0.0%	8.0%	17.0%	20.5%	54.5%
21-23	0.0%	6.4%	20.3%	26.2%	47.1%
24-26	1.4%	7.0%	9.9%	23.9%	57.7%
27-30	3.8%	7.7%	7.7%	34.6%	46.2%
>31	0.0%	6.9%	13.8%	31.0%	48.3%

Figure 4.11 shows a more detailed breakdown of the frequency of use for Spreadsheets. Unlike word processing, less than 20% of student respondents across all age ranges indicated that they used spreadsheets frequently. For students within the 18-20 year-old age range, 62.5% indicated that they only used the tool rarely to sometimes. For those in the 21-23 year-old age range, the percentage was slightly higher, with 63.1% of the respondents indicating that they used the tool rarely to sometimes. The percentage went higher for the next age range, 24-26 years old, with 67.6% of the respondents indicated a “rarely to sometimes” usage of spreadsheets. 75.8% of students aged 31 years and older responded that they used spreadsheets only rarely or sometimes. The only age group that indicated “frequent” use of spreadsheets was the 27-30 age range. 26.9% indicated that they used this tool “often”.

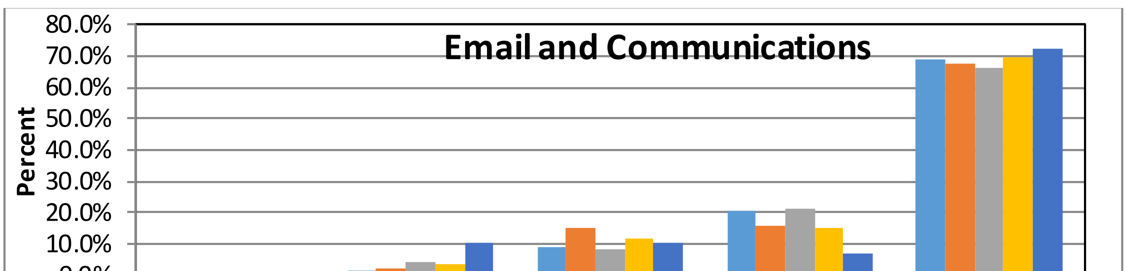
Figure 4.11: Technology Tool Use by Age Range – Spreadsheet



	Never	Rarely	Sometimes	Often	Frequently
18-20	7.1%	25.0%	37.5%	10.7%	19.6%
21-23	6.4%	33.2%	29.9%	12.3%	18.2%
24-26	5.6%	31.0%	36.6%	9.9%	16.9%
27-30	11.5%	15.4%	26.9%	26.9%	19.2%
>31	3.4%	37.9%	37.9%	10.3%	10.3%

Figure 4.12 show that a vast majority of the student respondents use technology for email and communications. Respondents across all age ranges were consistent. About 70% of the respondents in each age range indicated that they used technology frequently to communicate.

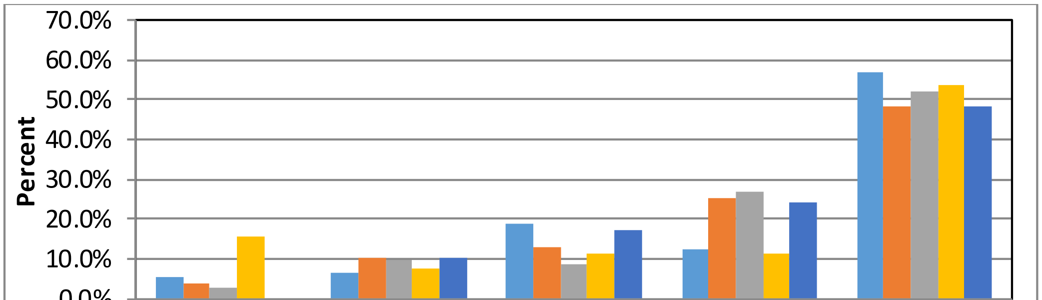
Figure 4.12: Technology Tool Use by Age Range – Email and Communications



	Never	Rarely	Sometimes	Often	Frequently
18-20	0.0%	1.8%	8.9%	20.5%	68.8%
21-23	0.0%	2.1%	15.0%	15.5%	67.4%
24-26	0.0%	4.2%	8.5%	21.1%	66.2%
27-30	0.0%	3.8%	11.5%	15.4%	69.2%
>31	0.0%	10.3%	10.3%	6.9%	72.4%

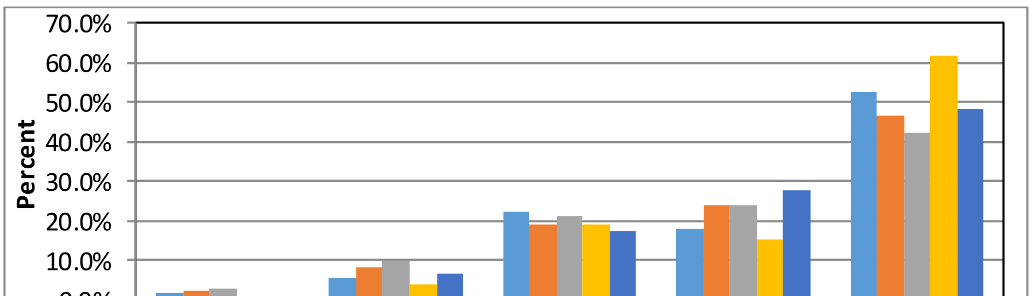
Social media and streaming video also appeared to be the most frequently used technology tool among the student respondents. Figures 4.13 and 4.14 show the frequency of use of these technology as indicated by the responses. About 50% of all students from each of the age ranges responded that they used technology frequently for social media. The percentages for frequent use of streaming video ranged from 42.3% to 61.5%, depending on the age ranges.

Figure 4.13: Technology Tool Use by Age Range – Social Media



	Never	Rarely	Sometimes	Often	Frequently
18-20	5.4%	6.3%	18.8%	12.5%	57.1%
21-23	3.7%	10.2%	12.8%	25.1%	48.1%
24-26	2.8%	9.9%	8.5%	26.8%	52.1%
27-30	15.4%	7.7%	11.5%	11.5%	53.8%
>31	0.0%	10.3%	17.2%	24.1%	48.3%

Figure 4.14: Technology Tool Use by Age Range – Streaming Video

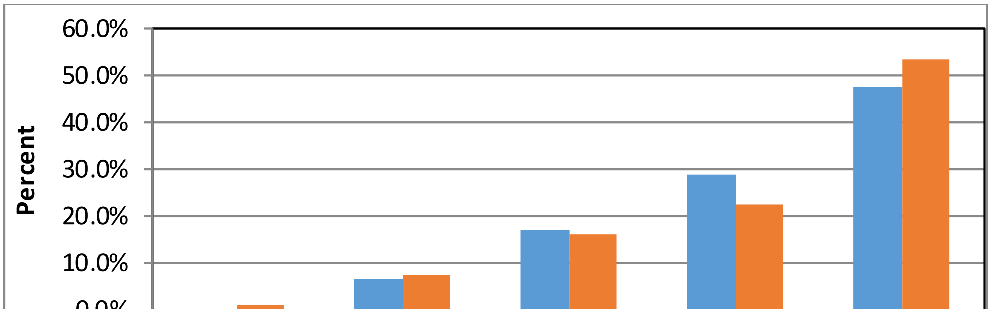


	Never	Rarely	Sometimes	Often	Frequently
18-20	1.8%	5.4%	22.3%	17.9%	52.7%
21-23	2.1%	8.0%	19.3%	24.1%	46.5%
24-26	2.8%	9.9%	21.1%	23.9%	42.3%
27-30	0.0%	3.8%	19.2%	15.4%	61.5%
>31	0.0%	6.9%	17.2%	27.6%	48.3%

Figure 4.15 shows the technology use for word processing based on students gender. More females (53.4%) responded that they used word processing frequently, compared with males (47.6%), a 5.8% percentage point difference. However, if “often and frequent” use were combined, the percentage for males and females were 76.5% and 75.7%, respectively. The

percentage point difference dropped to 0.8%, which meant that percentage of males and females who indicated "often and frequent" use of word processing as a technology tool was almost the same.

Figure 4.15: Technology Tool Use by Gender - Word Processing

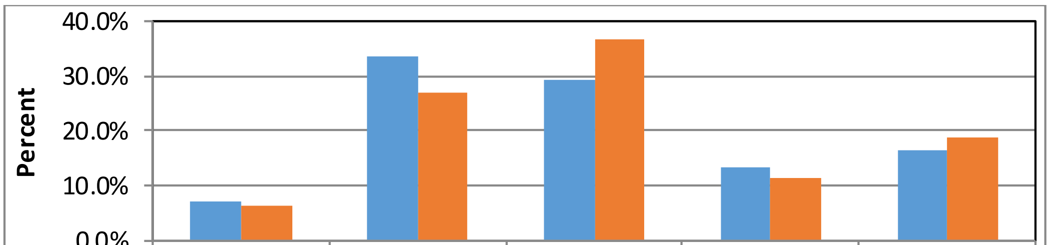


	Never	Rarely	Sometimes	Often	Frequently
Male	0.0%	6.4%	17.1%	28.9%	47.6%
Female	0.8%	7.6%	16.0%	22.3%	53.4%

For spreadsheet use, it was observed that the frequency of use trend across genders was consistent with the frequency of use across different age ranges. More students indicated using spreadsheets only "rarely or sometimes".

Majority of the respondents, 63.1% of males and 63.5% of females, indicated “rarely or sometimes” using spreadsheets. Only 30% of males and 29.3% of females indicated using this technology tool either often or frequently. This data is presented in Figure 4.16.

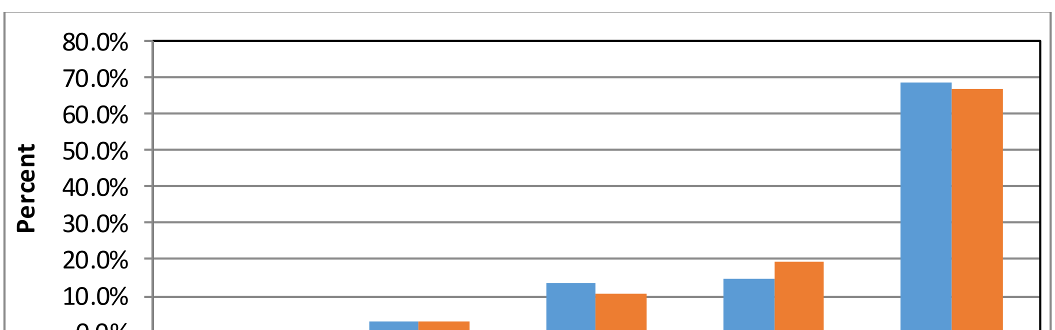
Figure 4.16: Technology Tool Use by Age Gender – Spreadsheet



	Never	Rarely	Sometimes	Often	Frequently
Male	7.0%	33.7%	29.4%	13.4%	16.6%
Female	6.3%	26.9%	36.6%	11.3%	18.9%

Among the technology tools, email and communication were the most frequently used regardless of gender (Figure 4.17). Sixty-nine percent of the male student respondents and 67.2% of the female respondents indicated that they used this tool frequently. None of the respondents indicated that this tool was never used.

Figure 4.17: Technology Tool Use by Gender – Email and Communications



	Never	Rarely	Sometimes	Often	Frequently
Male	0.0%	3.2%	13.4%	14.4%	69.0%
Female	0.0%	2.9%	10.5%	19.3%	67.2%

There was also a high percentage of use for social media and streaming video. Figure 4.18 show that 68% of males and 76.4% of females indicated that they use social media "often to frequently". Figure 4.19 shows that 69% of male student respondents and 71.8% of female student respondents' used streaming video "often to frequently". These results were consistent the findings of Pew Research Center (2014), where it stated that the current generation of college students are digital natives and are avid users of social media and streaming video (2014).

Figure 4.18: Technology Tool Use by Gender – Social Media

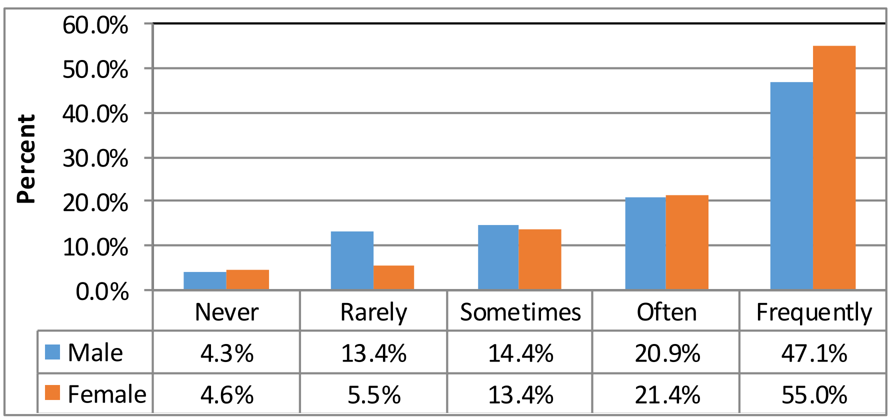
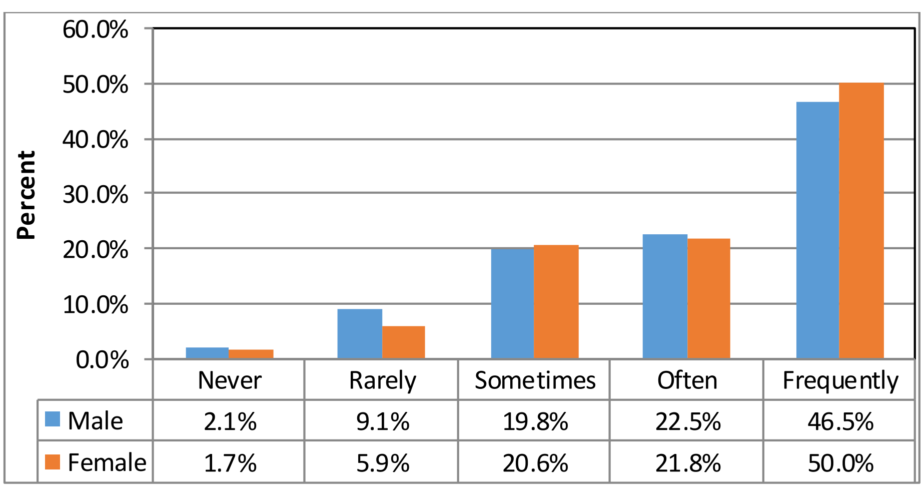


Figure 4.19: Technology Tool Use by Age Range – Streaming Video



Attitude Toward the Use of Technology (ATUT). Students were asked to identify their attitudes toward technology and how they thought it influenced their achievement of their course learning objectives. The technology tools included were: email, chatting and IM, web conferencing, Canvas (Learning Management System), online discussion forum and multimedia. Students were asked to rate each technology tool using the scale shown in Figure 4.20. A rating of -5 indicated that the tool generally distracted the student from achieving the objectives of the course (high distraction). A rating of +5 indicated the technology tool general facilitated the achievement of the course objectives (good facilitation).

Figure 4.20: ATUT Scale

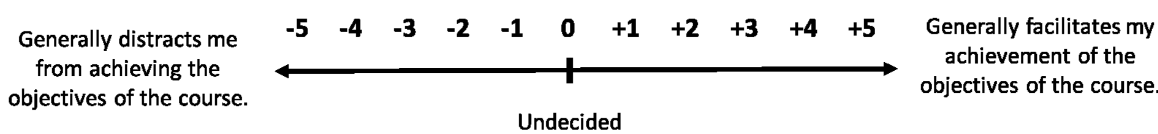
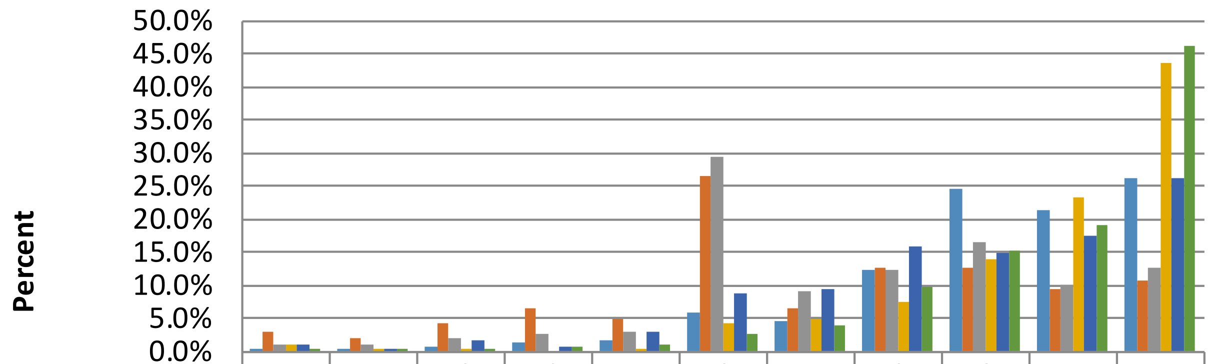


Figure 4.21 shows the respondents' attitude toward technology. None of the technology tools were perceived to be overly distracting to learning. Most of the tools were considered by the respondents to facilitate learning. Among the technology tools mentioned, it appeared from the responses that multimedia was the main tool that was perceived to facilitate learning the most. Email was the communication mode of choice for most faculty and this could be a contributing factor to explain why students saw this tool as something that facilitated their learning. While emails were very effective in helping people communicate with each other, it was also seen as a medium to get feedback from instructors. Emails and online discussion tied for third as the tools that were perceived to be most helpful in facilitating learning. Online discussion and multimedia were considered by students to be helpful in facilitating learning.

About 40% to 55% of all respondents across all age ranges perceived Canvas, the research setting's learning management system, to be a helpful technology that helped facilitate learning.

Figure 4.21: Attitude Toward Use of Technology (ATUT)



	-5	-4	-3	-2	-1	0	1	2	3	4	5
Email	0.5%	0.5%	0.7%	1.5%	1.7%	5.8%	4.6%	12.3%	24.7%	21.5%	26.2%
Chatting and IM	3.1%	1.9%	4.4%	6.5%	5.1%	26.6%	6.5%	12.6%	12.8%	9.4%	10.9%
Web Conferencing	1.0%	1.0%	1.9%	2.7%	3.1%	29.5%	9.2%	12.3%	16.5%	10.2%	12.6%
Canvas (LMS)	1.0%	0.2%	0.5%	0.0%	0.5%	4.4%	4.8%	7.5%	14.0%	23.2%	43.8%
Online discussion	1.2%	0.2%	1.7%	0.7%	2.9%	9.0%	9.4%	16.0%	15.0%	17.4%	26.4%
Multimedia	0.5%	0.2%	0.2%	0.7%	1.0%	2.7%	4.1%	9.9%	15.3%	19.1%	46.2%

Teaching Presence

Reliability of Participants' Responses

Descriptive statistics for teaching presence are presented in this section to show the reliability of the participants' responses. In order to explore perceptions of undergraduate students regarding teaching presence in the online environment, frequencies and percentages for each of the teaching presence components were calculated.

Table 4.1 provides the details about the teaching presence elements, categories and the survey items within the categories.

Table 4.1: Teaching Presence Components, Sub-components and Survey Items

Teaching Presence Components and Sub-Components	Number of Items from Teaching Presence Scale
Planning • Instructional design • Course organization	7
Implementation • Facilitating discourse • Direct instruction	8
Assessment • Communication • Feedback • Assessment	4
Total:	**19**

To check the reliability of responses for items in each of the categories, Cronbach's Alpha was calculated for each of the teaching presence sub-components and the entire teaching presence scale. Table 4.2 provides the summary of the reliability information for the teaching presence components. Instructional design and course organization had a Cronbach Alpha reliability coefficient of $\alpha = 0.846$. Facilitating discourse and direct instruction had a Cronbach Alpha reliability coefficient of $\alpha = 0.829$. Communication, feedback and assessment had Cronbach Alpha reliability coefficients of $\alpha = 0.787$. The alpha value for teaching presence, which include all the survey items, was $\alpha = 0.872$, suggesting that the items had relatively high internal consistency. Note that a reliability coefficient of .70 or higher is considered "acceptable" in most exploratory and social science research situations (Bruin, 2006).

Table 4.2: Summary of Reliability Statistics for Teaching Presence Components (Cronbach's Alpha)

	PLANING Instructional Design and Organization	IMPLEMENTATION Facilitating Discourse and Direct Instruction	ASESSMENT Communication, Feedback and Assessment	Teaching Presence (Entire tool)
Reliability Coefficient	$\alpha = 0.846$	$\alpha = 0.829$	$\alpha = 0.787$	$\alpha = 0.872$

Note: n=437

A closer investigation of the survey questions was conducted to discover the correlation of the questions with each other and to find out which survey item had the most impact on the reliability of the instrument.

Table 4.3 shows that for the 19 items, both reliability coefficients for the entire teaching presence scale had Cronbach's Alpha and Cronbach's Alpha based on standardized items, $\alpha = 0.872$ and $\alpha = 0.875$, respectively. These values were above the acceptable value of $\alpha = 0.70$. The finding supports the reliability and validity of the survey tool as applied to the research setting.

Table 4.3: Reliability Statistics for Teaching Presence

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.872	.875	19

Table 4.4 shows the reliability statistics for each item in the survey. Aside from removing the item on ID_acceptable behavior, all the other items would have brought down the Cronbach's Alpha for the entire survey ($\alpha = 0.872$). The removal of this item would cause α to rise to 0.878. Since the total correlation value was 0.231, this might lead the researcher to consider if this item should be removed for future studies.

Table 4.4: Reliability Statistics for Teaching Presence

Survey Item	Resulting Cronbach's Alpha if Item Deleted
ID_course_goals	.871
ID_course_topics	.871
ID_how_to_participate	.871
ID_due_dates_time	.872
ID_online_enviro	.870
ID_acceptable_behavior	.878
ID_pace_difficulty	.870
FD_helpful_guide_class	.863
FD_Ask_student_participation	.868
FD_student_explore_new_concept	.863
FD_keep_student_on_task	.859
DI_presented_content_or_questions	.862
DI_focus_on_relevant_issues	.864
DI_used_challenging_teaching_meth od	.860
DI_I_gained_much_knowledge	.861
CAF_provided_explanatory_feedback	.863
CAF_provided_meaningful_feedback	.861
CAF_help_revise_my_thinking	.863
CAF_provided_useful_info	.859

Descriptive Statistics on Teaching Presence

This section presents descriptive statistics of all the responses to the questions relating to the teaching presence components. Mean, median, standard deviation, and ranges were calculated and used to provide more details about the distribution of the responses collected from the participants on the teaching presence survey items.

Planning: Instructional Design and Course Organization

The tables in this section present the descriptive statistics for the 7 quantitative survey questions (1-7) that related to the first teaching component, planning, and its subcomponents, instructional design and course organization.

Table 4.5: Descriptive Statistics for Q1

Overall, the instructor for this course clearly communicated important course goals (for example, provided documentation on course learning objectives).

#	Answer		Response	%
1	Strongly Disagree		4	1%
2	Disagree		9	2%
3	Agree		166	38%
4	Strongly Agree		257	60%
5	N/A		1	0%
	Total		437	100%

98% of students agreed that their instructor clearly communicated important course goals.

Statistic	Value
Min Value	1
Max Value	5
Mean	3.57
Variance	0.33
Standard Deviation	0.58
Total Responses	437

Table 4.6: Descriptive Statistics for Q2

Overall, the instructor for this course clearly communicated important course topics (for example, provided a clear and accurate course overview).

#	Answer		Response	%
1	Strongly Disagree		4	1%
2	Disagree		13	3%
3	Agree		166	38%
4	Strongly Agree		253	58%
5	N/A		1	0%
	Total		437	100%

96% of students agreed that their instructor clearly communicated important course topics.

Statistic	Value
Min Value	1
Max Value	5
Mean	3.53
Variance	0.37
Standard Deviation	0.61
Total Responses	437

Table 4.7: Descriptive Statistics for Q3

Overall, the instructor for this provided clear instructions on how to participate in course learning activities (e.g., provided clear instructions on how to complete course assignments successfully).

#	Answer		Response	%
1	Strongly Disagree		4	1%
2	Disagree		22	5%
3	Agree		184	42%
4	Strongly Agree		223	51%
5	N/A		4	1%
	Total		437	100%

93% of students agreed that their instructor provided clear instructions on how to participate in learning activities.

Statistic	Value
Min Value	1
Max Value	5
Mean	3.45
Variance	0.43
Standard Deviation	0.66
Total Responses	437

Table 4.8: Descriptive Statistics for Q4:

Overall, the instructor for this course clearly communicated important due dates/time frames for learning activities that helped me keep pace with this course (for example, provided a clear and accurate course schedule, due dates, etc.).

#	Answer		Response	%
1	Strongly Disagree		4	1%
2	Disagree		9	2%
3	Agree		126	29%
4	Strongly Agree		297	68%
5	N/A		1	0%
	Total		437	100%

97% of students agreed that their instructor clearly communicated important due dates and times that helped students keep pace with the course.

Statistic	Value
Min Value	1
Max Value	5
Mean	3.65
Variance	0.32
Standard Deviation	0.57
Total Responses	437

Table 4.9: Descriptive Statistics for Q5:

Overall, the instructor for this course helped me take advantage of the online environment to assist my learning (for example, provided clear instructions on how to participate in online discussion forums).

#	Answer		Response	%
1	Strongly Disagree		9	2%
2	Disagree		35	8%
3	Agree		192	44%
4	Strongly Agree		197	45%
5	N/A		4	1%
	Total		437	100%

89% of students agreed that their instructor helped them take advantage of the online environment to assist them in learning.

Statistic	Value
Min Value	1
Max Value	5
Mean	3.37
Variance	0.49
Standard Deviation	0.70
Total Responses	437

Table 4.10: Descriptive Statistics for Q6

Overall, the instructor for this course helped students understand and practice the kinds of behaviors acceptable in online learning environments (for example, provided documentation on "netiquette" i.e., polite forms of online interaction).

#	Answer		Response	%
1	Strongly Disagree		9	2%
2	Disagree		44	10%
3	Agree		183	42%
4	Strongly Agree		175	40%
5	N/A		26	6%
	Total		437	100%

82% of students agreed that their instructor helped them understand and practice acceptable behaviors in online learning environments.

Statistic	Value
Min Value	1
Max Value	5
Mean	3.38
Variance	0.66
Standard Deviation	0.81
Total Responses	437

Table 4.11: Descriptive Statistics for Q7

Overall, the course pace and course difficulty were appropriate.

#	Answer		Response	%
1	Strongly Disagree		9	2%
2	Disagree		35	8%
3	Agree		210	48%
4	Strongly Agree		179	41%
5	N/A		4	1%
	Total		437	100%

89% of students agreed that the pace and difficulty in their courses were appropriate.

Statistic	Value
Min Value	1
Max Value	5
Mean	3.29
Variance	0.52
Standard Deviation	0.72
Total Responses	437

Table 4.12 presents a tabulated summary of the responses to all the questions relating to the first teaching component and its sub-components, Planning (instructional design and course organization)

Table 4.12: Summary of Responses to Questions on Planning (Instructional Design and Course Organization

Survey Question	SD	D	A	SA	NA
Q1: Overall, the instructor for this course clearly communicated important course goals (for example, provided documentation on course learning objectives)	4	9	166	257	1
Q2: Overall, the instructor for this course clearly communicated important course topics (for example, provided a clear and accurate course overview).	4	13	166	253	1
Q3: Overall, the instructor for this provided clear instructions on how to participate in course learning activities (e.g. provided clear instructions on how to complete course assignments successfully)	4	22	184	223	4
Q4: Overall, the instructor for this course clearly communicated important due dates/time frames for learning activities that helped me keep pace with this course (for example, provided a clear and accurate course schedule, due dates, etc.).	4	9	126	297	1
Q5: Overall, the instructor for this course helped me take advantage of the online environment to assist my learning (for example, provided clear instructions on how to participate in online discussion forums).	9	35	192	197	4
Q6: Overall, the instructor for this course helped students to understand and practice the kinds of behaviors acceptable in online learning environments (for example, provided documentation on "netiquette" i.e. polite forms of online interaction).	9	44	183	175	26
Q7: Overall, the course pace and difficulty were appropriate.	9	35	210	179	4

Questions 1-7 addressed the planning component of teaching presence. This component included two sub-components (instructional design and course organization). The graphical results were presented in the previous section. Each statement had five options: "Strongly disagree", "Disagree", "Agree", "Strongly agree", and "Not applicable". The tables were developed using SPSS and the charts were drawn in Microsoft Excel. Data gathered for this teaching component showed that most students either agree or strongly disagree that they had experienced this particular teaching component. Looking closely at the means for each question, it indicated that all the questions had a mean higher than 3. Results for the survey items on Planning (Instructional Design and Course Organization), presented the following:

- Responses to Q1 showed that 98% of the participants agreed that their instructor clearly communicated important course goals. The mean score for this question was 3.57.
- Q2 responses that 96% of the participants agreed that their instructor clearly communicated important course goals. The mean score for this question was 3.53.
- Responses to Q3 revealed that 93% of the participants agreed that their instructor provided clear instructions on how to participate in learning activities. The mean score for this question was 3.45.
- Student responses to Q4 showed that 97% of the participants agreed that their instructor clearly communication important due dates/time frames for learning activities that helped them keep pace with the course. The mean score for this question was 3.65. This question had the highest mean score among all the questions in this teaching presence component.
- Responses to Q5 indicated that that 89% of the participants agreed that their instructor helped then take advantage of the online environment to assist them in their learning. The mean score for this question was 3.37.

- Student responses to Q6 showed that 82% of the participants agreed that their instructor helped students understand and practice acceptable "netiquette". The mean score for this question was 3.38.
- Responses to Q7 indicated that that 89% of the participants agreed that the pace and difficulty of the courses were appropriate. The mean score for this question was 3.29.

The findings for the first teaching component indicated that 82% to 98% of the students responded *agree* or *strongly agree*. A total of 98% of the students agreed or strongly agreed that the instructor clearly communicated course goals. Also, 97% of students agreed or strongly agreed that the instructor communicated important due dates/time frames for learning activities. The *disagree* and *strongly disagree* responses were significantly lower than the *agree* or *strongly agree* responses of all the items in this teaching presence component. The data from this section suggested that undergraduate business students generally liked the way their online courses were designed and organized and were satisfied with the way the instructors communicated the course goals, due dates and expectations.

Implementation (Facilitating Discussion and Direct Instruction)

The tables in this section show the descriptive statistics on the responses for the 8 quantitative survey questions (10-13, 16-18) related to the teaching component, implementation, and its sub-components, facilitating discussion and direct instruction.

Table 4.13: Descriptive Statistics for Q10

Overall, the instructor for this course was helpful in guiding the class towards understanding course topics in a way that assisted me to learn.

#	Answer		Response	%
1	Strongly Disagree		4	1%
2	Disagree		30	7%
3	Agree		184	42%
4	Strongly Agree		210	48%
5	N/A		9	2%
	Total		437	100%

90% of students agreed that their instructor was helpful in guiding the class towards understanding course topics that assisted them to learn.

Statistic	Value
Min Value	1
Max Value	5
Mean	3.40
Variance	0.49
Standard Deviation	0.70
Total Responses	437

Table 4.14: Descriptive Statistics for Q11

Overall, the instructor in this course acknowledged student participation in the course (for example replied in a positive, encouraging manner to student submissions).

#	Answer		Response	%
1	Strongly Disagree		9	2%
2	Disagree		35	8%
3	Agree		179	42%
4	Strongly Agree		197	46%
5	N/A		17	4%
	Total		437	100%

88% of students agreed that the instructor acknowledged student participation the course.

Statistic	Value
Min Value	1
Max Value	5
Mean	3.42
Variance	0.57
Standard Deviation	0.75
Total Responses	437

Table 4.15: Descriptive Statistics for Q12

Overall, the instructor for this course encouraged students to explore new concepts in this course (for example, encouraged "thinking out loud" or the exploration of new ideas).

#	Answer		Response	%
1	Strongly Disagree		9	2%
2	Disagree		57	12%
3	Agree		201	46%
4	Strongly Agree		140	32%
5	N/A		30	7%
	Total		437	100%

78% of students agreed that the instructor encouraged students to explore new concepts.

Statistic	Value
Min Value	1
Max Value	5
Mean	3.30
Variance	0.72
Standard Deviation	0.85
Total Responses	437

Table 4.16: Descriptive Statistics for Q13

Overall, the instructor for this course helped keep the participants on task in a way that assisted me to learn.

#	Answer		Response	%
1	Strongly Disagree		4	1%
2	Disagree		26	6%
3	Agree		219	49%
4	Strongly Agree		171	39%
5	N/A		17	4%
	Total		437	100%

88% of students agreed that the instructor helped students keep participants on task in a way that assisted learning.

Statistic	Value
Min Value	1
Max Value	5
Mean	3.39
Variance	0.52
Standard Deviation	0.72
Total Responses	437

Table 4.17: Descriptive Statistics for Q16

Overall, the instructor for this course presented content or questions that helped me to learn.

#	Answer		Response	%
1	Strongly Disagree		9	2%
2	Disagree		22	5%
3	Agree		205	47%
4	Strongly Agree		197	46%
5	N/A		4	1%
	Total		437	100%

93% of students agreed that the instructor presented content or questions in a way that assisted learning.

Statistic	Value
Min Value	1
Max Value	5
Mean	3.40
Variance	0.46
Standard Deviation	0.68
Total Responses	437

Table 4.18: Descriptive Statistics for Q17

Overall, the instructor for this course helped to focus discussion on relevant issues in a way that assisted me to learn.

#	Answer		Response	%
1	Strongly Disagree		9	2%
2	Disagree		35	8%
3	Agree		197	45%
4	Strongly Agree		183	42%
5	N/A		13	3%
	Total		437	100%

87% of students agreed that the instructor helped them focus discussion on relevant issues in a way that assisted learning.

Statistic	Value
Min Value	1
Max Value	5
Mean	3.37
Variance	0.56
Standard Deviation	0.75
Total Responses	437

Table 4.19: Descriptive Statistics for Q18

Overall, the instructor used intellectually challenging teaching methods that assisted me to learn.

#	Answer		Response	%
1	Strongly Disagree		9	2%
2	Disagree		44	10%
3	Agree		210	48%
4	Strongly Agree		157	36%
5	N/A		17	4%
	Total		437	100%

84% of students agreed that the instructor used intellectually challenging teaching methods that assisted learning.

Statistic	Value
Min Value	1
Max Value	5
Mean	3.31
Variance	0.62
Standard Deviation	0.79
Total Responses	437

Table 4.20: Descriptive Statistics for Q19

I gained much knowledge from this course.

#	Answer		Response	%
1	Strongly Disagree		4	1%
2	Disagree		35	8%
3	Agree		205	47%
4	Strongly Agree		184	42%
5	N/A		9	2%
	Total		437	100%

89% of students agreed that they gained knowledge from their course.

Statistic	Value
Min Value	1
Max Value	5
Mean	3.37
Variance	0.46
Standard Deviation	0.68
Total Responses	437

Table 4.21 presents a tabulated summary of the responses to all the questions related to the second teaching component and its sub-components, Implementation (facilitating discussion and direct instruction)

Table 4.21: Summary of Responses to Questions on Planning (Instructional Design and Course Organization

Survey Question	SD	D	A	SA	NA
Q10: Overall, the instructor for this course was helpful in guiding the class towards understanding course topics in a way that assisted me to learn	4	30	184	210	9
Q11: Overall, the instructor in this course acknowledged student participation in the course (for example replied in a positive, encouraging manner to student submissions).	9	35	179	197	17
Q12: Overall, the instructor for this course encouraged students to explore new concepts in this course (for example, encouraged "thinking out loud" or the exploration of new ideas).	9	57	201	140	30
Q13: Overall, the instructor for this course helped keep the participants on task in a way that assisted me to learn.	4	26	219	171	17
Q16: Overall, the instructor for this course presented content or questions that helped me to learn.	9	22	205	197	4
Q17: Overall, the instructor for this course helped to focus discussion on relevant issues in a way that assisted me to learn.).	9	35	197	183	13
Q18: Overall, used intellectually challenging teaching methods that assisted me to learn.	2	44	210	157	17

Questions 10-13 and 16-18 addressed the implementation component of teaching presence. This component included two sub-components (facilitating discussion and direct instruction). The graphical results were presented in the previous section. Each statement had five options: "Strongly disagree", "Disagree", "Agree", "Strongly agree", and "Not applicable". The tables were developed using SPSS and the charts were drawn in Microsoft Excel. Data gathered for this teaching component showed that most students either agree or strongly disagree that they had experienced this particular teaching component. Looking closely at the means for each question, it indicated that all the questions had a mean higher than 3.30. Results for the survey items covering Implementation (Facilitated Discussion and Direct Instruction) showed the following:

- Responses to Q10 showed that 90% of the participants agreed that their instructor was helpful in guiding the class towards understanding course topics in a way that assisted learning. The mean score for this question was 3.40.
- Q11 responses indicated that 88% of the participants agreed that their instructor acknowledged student participation in the course. The mean score for this question was 3.42.
- Responses to Q12 revealed that 78% of the participants agreed that their instructor encouraged students to explore new concepts. The mean score for this question was 3.30.
- Student responses to Q13 showed that 88% of the participants agreed that their instructor helped keep them on task in a way that assisted them to learn. The mean score for this question was 3.39.
- Responses to Q16 indicated that that 93% of the participants agreed that their instructor presented content or question in a way that assisted learning. The mean score for this question was 3.40.
- Student responses to Q17 showed that 87% of the participants agreed that their instructor helped in focusing the discussion on relevant issues in a way that assisted them to learn. The mean score for this question was 3.37.

- Responses to Q18 indicated that that 84% of the participants agreed that the instructor used intellectually challenging teaching methods that assisted them to learn. The mean score for this question was 3.31.

For all the seven items in this teaching component (facilitated discussion and direct instruction), 78% to 93% of the students responded *agree* or *strongly agree*. A total of 93% of the students agreed or strongly agreed that the instructor presented content or questions in a way that assisted learning. 90% of the students either agreed or strongly agreed that the instructor was helpful in guiding the class towards understanding course topics that assisted them to learn. The *disagree* and *strongly disagree* responses were significantly lower than the *agree* or *strongly agree* responses of all the items in this teaching presence component. The data from this section suggested that undergraduate business students had mostly favorable impressions on the facilitation of the courses and the way instruction was conducted.

Assessment (Communication, Assessment and Feedback)

Tables 4.22 to 4.25 show the descriptive statistics on the responses for the 4 quantitative survey questions (22-25) related to the teaching component, assessment, and its sub-components, communication, assessment and feedback.

Table 4.22: Descriptive Statistics for Q22

Overall, the instructor for this course provided explanatory feedback that assisted me to learn (for example, responded helpfully to discussion comments or course assignments).

#	Answer		Response	%
1	Strongly Disagree		9	2%
2	Disagree		48	11%
3	Agree		153	35%
4	Strongly Agree		214	49%
5	N/A		13	3%
	Total		437	100%

84% of students agreed that the instructor provided explanatory feedback that assisted learning.

Statistic	Value
Min Value	1
Max Value	5
Mean	3.41
Variance	0.63
Standard Deviation	0.80
Total Responses	437

Table 4.23: Descriptive Statistics for Q23

Overall, the instructor for this course provided meaningful feedback that encouraged me to learn (for example, annotations or comments on coursework).

#	Answer		Response	%
1	Strongly Disagree		9	2%
2	Disagree		48	11%
3	Agree		170	39%
4	Strongly Agree		184	42%
5	N/A		26	6%
	Total		437	100%

81% of students agreed that the instructor provided meaningful feedback that encouraged learning.

Statistic	Value
Min Value	1
Max Value	5
Mean	3.37
Variance	0.70
Standard Deviation	0.84
Total Responses	437

Table 4.24: Descriptive Statistics for Q24

Overall, the instructor for this course helped me to revise my thinking (for example, correct misunderstandings) in a way that helped me to learn.

#	Answer		Response	%
1	Strongly Disagree		9	2%
2	Disagree		61	14%
3	Agree		197	45%
4	Strongly Agree		140	32%
5	N/A		30	8%
	Total		437	100%

77% of students agreed that the instructor was helpful in revising the way they think.

Statistic	Value
Min Value	1
Max Value	5
Mean	3.30
Variance	0.74
Standard Deviation	0.86
Total Responses	437

Table 4.25: Descriptive Statistics for Q25

Overall, the instructor for this course provided useful information from a variety of sources that assisted me to learn (for example, references to articles, textbooks, personal experiences or links to relevant websites).

#	Answer		Response	%
1	Strongly Disagree		9	2%
2	Disagree		44	10%
3	Agree		188	43%
4	Strongly Agree		183	42%
5	N/A		13	3%
	Total		437	100%

85% of students agreed that the instructor provided useful information from a variety of sources that assisted learning.

Statistic	Value
Min Value	1
Max Value	5
Mean	3.33
Variance	0.60
Standard Deviation	0.78
Total Responses	437

Table 4.26 presents a tabulated summary of the responses to all the questions relating to the third teaching component and its sub-components, Assessment (communication, assessment and feedback)

Table 4.26: Summary of Responses to Questions on Assessment (Communication, Assessment and Feedback

Survey Question	SD	D	A	SA	NA
Q22: Overall, the instructor for this course provided explanatory feedback that assisted me to learn (for example, responded helpfully to discussion comments or course assignments).	9	48	153	214	13
Q23: Overall, the instructor for this course provided meaningful feedback that encouraged me to learn (for example, annotations or comments on coursework.	9	48	170	184	26
Q24: Overall, the instructor for this course helped me to revise my thinking (for example, correct misunderstandings) in a way that helped me to learn.	9	61	197	140	30
Q25: Overall, the instructor for this course provided useful infor from a variety of sources that assisted me to learn (for example, references to articles, textbooks, personal experiences or links tc external websites).	8	45	188	183	13

The previous section presented descriptive statistics on the third teaching component: assessment (communication, assessment and feedback). Questions 22-25 addressed this particular teaching presence component of teaching presence. The graphical results were presented in the previous section. Each statement had five options: “Strongly disagree”, “Disagree”, “Agree”, “Strongly agree”, and “Not applicable”. The tables were developed using

SPSS and the charts were drawn in Microsoft Excel. Data gathered for this teaching component showed that most students either agree or strongly disagree that they had experienced this particular teaching component. Results for the survey items covering Implementation (Facilitated Discussion and Direct Instruction) showed the following:

- Responses to Q22 showed that 84% of the participants agreed that their instructor provided feedback that assisted them to learn. The mean score for this question was 3.41.
- Q23 responses indicated that 81% of the participants agreed that their instructor provided meaningful feedback that encouraged learning. The mean score for this question was 3.37.
- Responses to Q24 revealed that 77% of the participants agreed that their instructor was helpful in revising their way of thinking. The mean score for this question was 3.30.
- Student responses to Q25 showed that 85% of the participants agreed that their instructor provided useful information from a variety of sources that assisted learning. The mean score for this question was 3.33.

For the four items in this teaching component (communication, assessment and feedback) 77% to 85% of students reported *agree* or *strongly agree*. 85% of the students agreed or strongly agreed that the instructor provided useful information from a variety of sources. A total of 84% of students agreed or strongly agreed that the instructor provided explanatory feedback. However, for most items in this category, the *disagree* and *strongly disagree* responses were slightly higher than those in the other items in other categories. Communication, assessment and feedback are critical components of the teaching process, therefore, further analysis of the data based on the students' characteristics could provide a better understanding of the student groups that responded negatively to the statements in this category.

Quantitative Measures

The first three research questions inquired about the potential relationships between students' perceptions of teaching presence and the teaching presence components as defined through the respondents' personal, contextual and technographic characteristics. Correlation analysis was done on each of the independent variables and the teaching presence component of instructional design and course organization, facilitating discourse, direct instruction, and communication, assessment and feedback

Twenty-one multivariate analysis of variance tests (MANOVA) were conducted to compare the means of each independent variable to determine if significant differences existed between the perception of teaching and personal characteristics (age, gender), contextual characteristics (student class level, course duration) and the student participants' technographic characteristics (technology skill level, technology use and attitudes towards technology). Two different multivariate approaches, Wilk's Lambda and Pillai's Trace, were used for this study. The MANOVA results presented in this section showed Pillai's Trace and Wilk's Lambda to validate the results. However, the analysis used test results from Pillai's Trace test since this approach is more robust and not highly linked to assumptions about normality of the distribution of the data. For each MANOVA result that demonstrated statistically significant relationships between the independent variables and the dependent variables, a follow-up one-way analysis of variance (ANOVA) was conducted. The ANOVAs were used to determine statistically significant differences in the mean.

Research Question One

Is there a significant relationship between students' personal characteristics (age and gender) and their perceptions of online teaching presence?

MANOVA tests were conducted to determine if there were statistically significant differences in students' perception of online teaching presence and their personal characteristics (age and gender). This section presents test results on the null hypothesis H_o *1.1.and* H_o *1.2.* It discusses the MANOVA and ANOVA test results for the student participants' personal characteristics (age and gender) and each teaching presence component: (1) Planning (instructional design and course organization); (2) Implementation (facilitating discourse and direct instruction); and (3) Assessment (communication, assessment and feedback.

Test Results of Null Hypotheses

Ho 1.1. **Student Age**

> There are no statistically significant differences between student age and perceptions of online teaching presence.

Test Results of Null Hypotheses for Teaching Presence Component - Planning (Instructional Design and Course Organization)

H_o *1.1.1.* There are no statistically significant differences between student age and perceptions of online teaching presence (Instructional Design and Course Organization).

Table 4.27 presents the Pillai's Trace and Wilks' Lambda for student age and teaching presence component: Planning (Instructional Design and Course Organization).

Table 4.27: Pillai’s Trace Test and Wilks’ Lambda Results of MANOVA on Instructional Design and Course Organization by Age Range

Effect IDCO		Value	F	Hypothesis df	Error df	Sig.	Noncentrality Parameter	Observed Power[d]
Age_Range	Pillai's Trace	.097	1.100	28.000	1240.000	.329	30.790	.909
	Wilks' Lambda	.906	1.100	28.000	1108.326	.329	27.726	.865

Finding

Pillai's Trace (28, 1240) = 0.097, p (0.329) > 0.05 did not show a statistically significant difference. Thus, age was not a factor in student perception of online teaching presence in terms of Instructional Design and Course Organization.

The null hypothesis H_o 1.1.1. was accepted.

Test Results of Null Hypotheses for Teaching Presence Component- Implementation (Facilitating Discourse and Direct Instruction)

H_o 1.1.2. There are no statistically significant differences between student age and perceptions of online teaching presence (Facilitating Discourse).

Table 4.28 presents the Pillai’s Trace and Wilks’ Lambda for age range and teaching presence component: Implementation (Facilitating Discourse and Direct Instruction).

Table 4.28: Pillai’s Trace Test and Wilks’ Lambda Results of MANOVA on Facilitating Discourse and Direct Instruction) by Age Range

Effect FDDI		Value	F	Hypothesis df	Error df	Sig.	Noncentrality Parameter	Observed Power[d]
Age_Range	Pillai's Trace	0.070	1.434	16.000	1296.000	.117	22.941	.876
	Wilks' Lambda	0.932	1.439	16.000	981.309	.116	17.537	.743

Finding

Pillai's Trace (16, 1296) = 0.097, p (0.117) > 0.05 did not show a statistically significant difference. Thus, age was not a factor in student perception of online teaching presence in terms of Facilitating Discourse.

The null hypothesis H_o 1.1.2. was accepted.

Test Results of Null Hypotheses for Teaching Presence Component – Assessment (Communication, Feedback and Assessment)

H_o 1.1.3. There are no statistically significant differences between student age and perceptions of online teaching presence (Communication, Assessment and Feedback).

Table 4.29 presents the Pillai's Trace and Wilks' Lambda for student age and teaching presence component - Communication, Feedback and Assessment.

Table 4.29: Pillai's Trace Test and Wilks' Lambda Results of MANOVA on Communication, Feedback and Assessment by Age Range

Effect CAF		Value	F	Hypothesis df	Error df	Sig.	Noncentrality. Parameter	Observed Power[d]
Age_Range	Pillai's Trace	.041	.823	16.000	1284.000	.660	13.169	.583
	Wilks' Lambda	.960	.823	16.000	972.144	.660	10.045	.442

Finding

Pillai's Trace (28, 1284) = 0.041, p (0.660) > 0.05 did not show a statistically significant difference. Thus, age was not a factor in student perception of online teaching presence in terms of Communication, Assessment and Feedback.

The null hypothesis H_o 1.1.3. was accepted.

Ho 1.2. **Student Gender**

There are no statistically significant differences between student gender and perceptions of online teaching presence.

Test Results of Null Hypotheses for Teaching Presence Component – Planning (Instructional Design and Course Organization)

H_o 1.2.1. There are no statistically significant differences between student gender and perceptions of online teaching presence (Instructional Design and Course Organization)

Table 4.30 presents the Pillai's Trace and Wilks' Lambda for student gender and teaching presence component – planning (instructional design and course organization).

Table 4.30: Pillai's Trace Test and Wilks' Lambda Results of MANOVA on Instructional Design and Course Organization by Student Gender

Effect IDCO		Value	F	Hypothesis df	Error df	Sig.	Noncentrality Parameter	Observed Power[d]
Gender	Pillai's Trace	.046	2.105[b]	7.000	307.000	**.043**	14.738	.802
	Wilks' Lambda	.954	2.105[b]	7.000	307.000	**.043**	14.738	.802

Finding

Pillai's Trace (7, 307) = 0.046, p (0.043) < 0.05 showed a statistically significant difference. Thus, gender played a role in student perception of online teaching presence in terms of Instructional Design and Course Organization. Note that the observed power for this item was 0.802 (> 0.50). Observed power is defined as the reverse of a Type II error, and is denoted by (1-β). The results showed that at this stage of analysis, probability of rejecting the null hypothesis H_o 1.2.1. was 0.802.

However, there were several items composing the section on IDCO. To determine which specific items where student gender was a factor, a univariate ANOVA test was conducted for each of the survey items. The results are presented in Table 4.31.

Table 4.31: Results of ANOVA on Facilitating Discourse by Student Gender

	Effect FD	Type III Sum of Squares	df	Mean Square	F	Sig.	Noncentrality Parameter	Observed Power[h]
Gender	ID_ course_goals	.909	1	.909	2.654	.104	2.654	.369
	ID_ course_topics	.234	1	.234	.604	.438	.604	.121
	ID_ how_to_participate	.130	1	.130	.259	.611	.259	.080
	ID_ due_dates_time	.412	1	.412	1.165	.281	1.165	.190
	ID_ online_enviro	.291	1	.291	.521	.471	.521	.111
	ID_ acceptable_behavior	4.140	1	4.140	3.899	**.049**	3.899	**.503**
	ID_ pace_difficulty	2.094	1	2.094	3.861	**.050**	3.861	**.500**

The ANOVA results showing significant differences ($p < 0.05$) were found in ID_acceptable_behavior ($p = 0.049$) and ID_pace_difficulty ($p = 0.05$). The Observed Power for both items was > 0.50 - ID_acceptable_behavior (0.503) and ID_pace_difficulty (0.50). While the observed power for both items was at the threshold of 0.50, when the results were analyzed with another parameter p, the results suggested rejecting the null hypothesis H_o 1.2.1. A strength of association test was conducted on the two items to determine the degree of association between gender and the items. The γ values for Q5 and Q6 were -0.128 and -0.102, respectively. More detailed results are presented in Appendix J. The results showed that student gender influenced perception of teaching presence in online learning in the component; instructional design and course organization.

The null hypothesis H_o 1.2.1 was rejected.

Test Results of Null Hypotheses for Teaching Presence Component: - Implementation (Facilitating Discourse and Direct Instruction)

H_o 1.2.2. There are no statistically significant differences between student gender and perceptions of online teaching presence (Facilitating Discourse and Direct Instruction).

Table 4.32 presents the Pillai's Trace and Wilks' Lambda for student gender and teaching presence component - facilitating discourse and direct instruction.

Table 4.32: Pillai's Trace Test and Wilks' Lambda Results of MANOVA on Facilitating Discourse and Direct Instruction by Student Gender

Effect FD		Value	F	Hypothesis df	Error df	Sig.	Noncentrality Parameter	Observed Power[d]
Gender	Pillai's Trace	0.001	.046[b]	4.000	321.000	.996	.186	.059
	Wilks' Lambda	0.999	.046[b]	4.000	321.000	.996	.186	.059

Finding

Pillai's Trace (4, 321) = 0.001, p (0.996) > 0.05 did not show a statistically significant difference. Thus, gender did not influence student perception of online teaching presence in terms of Facilitating Discourse and Direct Instruction.

The null hypothesis H_o 1.2.2. was accepted.

Test Results of Null Hypotheses for Teaching Presence Component: Communication, Feedback and Assessment

H_o 1.2.3. There are no statistically significant differences between student gender and perceptions of online teaching presence (Communication, Assessment and Feedback).

Table 4.33 presents the Pillai's Trace and Wilks' Lambda for student gender and teaching presence component – Assessment (Communication, Feedback and Assessment).

Table 4.33: Pillai's Trace Test and Wilks' Lambda Results of MANOVA on Communication, Feedback and Assessment by Student Gender

Effect CAF		Value	F	Hypothesis df	Error df	Sig.	Noncentrality Parameter	Observed Power[d]
Gender	Pillai's Trace	.029	2.348[b]	4.000	318.000	.054	9.392	.677
	Wilks' Lambda	.971	2.348[b]	4.000	318.000	.054	9.392	.677

Finding

Pillai's Trace (4, 318) = 0.029, p (0.054) > 0.05 did not show a statistically significant difference. Thus, gender did not influence student perception of online teaching presence in terms of Communication, Assessment and Feedback.

The null hypothesis H_o 1.2.3. was accepted.

This study indicated that there was a statistically significant correlation between gender and teaching presence in the specific area of planning (instructional design and course organization) ($p < 0.05$). The results implied that gender accounted for approximately 5% of the variability in students' overall teaching presence ratings, with females having a higher perceived teaching presence. Perceptions of teaching presence were not influenced by age, class level, duration of the course or technology skill level. In the analysis of the individual survey items, it was discovered that the significant correlation was found in instructional design and course organization, with the strongest correlation being in acceptable behavior in online environments ($p = 0.049$, $p < 0.05$) and in the course pace and difficulty ($p = 0.05$, $p = 0.05$). The results indicated that, although both genders may participate equally in online courses, the perception of teaching presence might vary depending on the gender.

The two specific survey items in which strong correlations were observed were in (1) Q6: Overall, the instructor for this course helped students to understand and practice behaviors acceptable in online learning environments; and (2) Q7: Overall, the course pace and difficulty were appropriate. It is interesting to note that on items Q1, Q2, Q3, Q4 and Q5, which inquired about clarity course goals, topics, due dates and participation of course activities, there were no strong correlations observed. This was interpreted to mean that regardless of the student gender, the perceptions of teaching presence on these items were not gender-dependent. Of the open-ended responses on the two items with the highest correlation, it was observed that there were some differences in the way males and females responded to these questions in their open-ended responses. Females reported slightly favorable responses on their perceptions of teaching presence when it comes to acceptable behavior in the online learning environment and the course pace and online learning behavior.

Research Question Two

Is there a significant relationship between students' contextual characteristics (student class level and course duration) and their perceptions of online teaching presence?

MANOVA tests were conducted to determine if there were statistically significant differences in students' perception of online teaching presence and their contextual characteristics (student class level and course duration). This section presents test results on the null hypothesis H_o *2.1.and* H_o *2.2.* It discusses the MANOVA and ANOVA test results for the student participants' contextual characteristics (student class level and course duration) and each teaching presence component: (1) Planning (instructional design and course organization); (2) Implementation (facilitating discourse and direct instruction); and (3) Assessment (communication, assessment and feedback.

Test Results of Null Hypotheses

H_o 2.1. **Student Class Level**

There are no statistically significant differences between student class level and perceptions of online teaching presence.

Test Results of Null Hypotheses for Teaching Presence Component: Planning (Instructional Design and Course Organization)

H_o 2.1.1. There are no statistically significant differences between student class level and perceptions of online teaching presence (Instructional Design and Course Organization).

Table 4.34 presents the Pillai's Trace and Wilks' Lambda for student class level and teaching presence component - Instructional Design and Course Organization.

Table 4.34: Pillai's Trace Test and Wilks' Lambda Results of MANOVA on Instructional Design and Course Organization by Student Class Level

Effect IDCO		Value	F	Hypothesis df	Error df	Sig.	Noncentrality Parameter	Observed Power[d]
Class Level	Pillai's Trace	.097	1.102	28.000	1240.000	.327	30.845	.909
	Wilks' Lambda	.906	1.101	28.000	1108.326	.328	27.751	.865

Finding

Pillai's Trace (28, 1240) = 0.097, p (0.327) > 0.05 did not show a statistically significant difference. Thus, class level was not a factor in student perception of online teaching presence in terms of Instructional Design and Course Organization.

The null hypothesis Ho 2.1.1. was accepted.

Test Results of Null Hypotheses for Teaching Presence Component: Implementation (Facilitating Discourse and Direct Instruction)

H_o 2.1.2. There are no statistically significant differences between student class level and perceptions of online teaching presence (Facilitating Discourse and Direct Instruction).

Table 4.35 presents the Pillai's Trace and Wilks' Lambda for student class level and teaching presence component - Facilitating Discourse.

Table 4.35: Pillai's Trace Test and Wilks' Lambda Results of MANOVA on Facilitating Discourse and Direct Instruction by Student Class Level

Effect FD		Value	F	Hypothesis df	Error df	Sig.	Noncentrality Parameter	Observed Power[d]
Class Level	Pillai's Trace	.065	1.345	16.000	1296.000	.161	21.524	.849
	Wilks' Lambda	.936	1.349	16.000	981.309	.160	16.442	.707

Finding

Pillai's Trace (16, 1296) = 0.065, p (0.161) > 0.05 did not show a statistically significant difference. Thus, class level did not influence student perception of online teaching presence in terms of Facilitating Discourse and Direct Instruction.

The null hypothesis H_o 2.1.2. was accepted.

Test Results of Null Hypotheses for Teaching Presence Component: Assessment (Communication, Feedback and Assessment)

H_o 2.1.3. There are no statistically significant differences between student class level and perceptions of online teaching presence (Communication, Assessment and Feedback).

Table 4.36 presents the Pillai's Trace and Wilks' Lambda for student class level and teaching presence component – Assessment (Communication, Feedback and Assessment).

Table 4.36: Pillai's Trace Test and Wilks' Lambda Results of MANOVA on Communication, Feedback and Assessment by Student Class Level

Effect CAF		Value	F	Hypothesis df	Error df	Sig.	Noncentrality Parameter	Observed Power[d]
Class Level	Pillai's Trace	.105	2.169	16.000	1284.000	**.005**	34.706	**.982**
	Wilks' Lambda	.898	2.182	16.000	972.144	**.005**	26.558	**.928**

Finding

Pillai's Trace (16, 1284) = 0.105, p (0.005) < 0.05 showed a statistically significant difference relating class level to student perception of teaching presence. Thus, class level was a factor in student perception of online teaching presence in terms of Communication, Assessment and Feedback. Note that the observed power for this item is 0.982 (> 0.50). Observed power is defined as the reverse of a Type II error, and is denoted by (1-β). The results showed that at this stage of analysis, probability of rejecting the null hypothesis H_o2.1.3. was 0.982.

However, there were several items that constituted the section on CAF. To determine which specific items where student class level was considered a factor for student perception of teaching presence, a univariate ANOVA test was conducted on each of the survey items for communication, assessment and feedback. The results are presented in Table 4.37.

Table 4.37: Results of ANOVA on Communication, Assessment and Feedback by Student Class Level

Effect CAF		Type III Sum of Squares	df	Mean Square	F	Sig.	Noncentrality Parameter	Observed Power[e]
Class_level	CAF_ provided_ explanatory_ feedback	3.923	4	.981	1.040	.386	4.161	.328
	CAF_ provided_ meaningful_ feedback	11.246	4	2.811	2.520	**.041**	10.080	**.713**
	CAF_ help_revise_ mythinking	13.543	4	3.386	2.752	**.028**	11.007	**.756**
	CAF_ provided_ useful_info	1.063	4	.266	.323	.862	1.293	.123

The ANOVA results showed that significant differences ($p < 0.05$) were found in CAF_provided_meaningful_feedback ($p = 0.041$) and CAF_help_revise_my_thinking ($p = 0.028$) with Observed Power of 0.713 and 0.756, respectively. A strength of association test was conducted on the two items to determine the degree of association between gender and the items. The γ values for Q23 and Q24 were 0.108 and 0.132, respectively. More detailed results are presented in Appendix J. The results showed that student gender influences perception of teaching presence in online learning in the component; instructional design and course organization. The results also revealed that there is a strong relationship between student class level and perceptions of teaching presence in terms of communication, assessment and feedback.

The null hypothesis H_o 2.1.3 was rejected.

H_o 2.2. Course Duration

There is no a significant relationship between course duration and student perceptions of online teaching presence?

Test Results of Null Hypotheses for Teaching Presence Component: Planning (Instructional Design and Course Organization)

H_o 2.2.1. There are no statistically significant differences between course duration and perceptions of online teaching presence (Instructional Design and Course Organization).

Table 4.38 presents the Pillai's Trace and Wilks' Lambda for course duration and teaching presence component - Instructional Design and Course Organization.

Table 4.38: Pillai's Trace Test and Wilks' Lambda Results of MANOVA on Instructional Design and Course Organization by Course Duration

Effect IDCO		Value	F	Hypothesis df	Error df	Sig.	Noncentrality Parameter	Observed Power[d]
Course Duration	Pillai's Trace	.041	.916	14.000	616.000	.542	12.817	.593
	Wilks' Lambda	.960	.913[b]	14.000	614.000	.544	12.788	.592

Finding

Pillai's Trace (14, 616) = 0.041, p (0.542) > 0.05 did not show a statistically significant difference. Thus, course duration did not play a role in student perception of online teaching presence in terms of Instructional Design and Course Organization.

The null hypothesis H_o 2.2.1 was accepted.

Test Results of Null Hypotheses for Teaching Presence Component: Implementation (Facilitating Discourse and Direct Instruction)

H_o 2.2.2. There are no statistically significant differences between course duration and perceptions of online teaching presence (Facilitating Discourse and Direct Instruction).

Table 4.39 presents the Pillai's Trace and Wilks' Lambda for course duration and teaching presence component - Facilitating Discourse.

Table 4.39: Pillai's Trace Test and Wilks' Lambda Results of MANOVA on Facilitating Discourse and Direct Instruction by Course Duration

Effect FD		Value	F	Hypothesis df	Error df	Sig.	Noncentrality Parameter	Observed Power[d]
Course Duration	Pillai's Trace	.039	1.595	8.000	644.000	.123	12.758	.711
	Wilks' Lambda	.961	1.591[b]	8.000	642.000	.124	12.731	.710

Finding

Pillai's Trace (8, 644) = 0.039, p (0.123) > 0.05 did not show a statistically significant difference. Thus, course duration was not a factor in student perception of online teaching presence in terms of Facilitating Discourse and Direct Instruction.

The null hypothesis H_o 2.2.2. was accepted.

Test Results of Null Hypotheses for Teaching Presence Component: Assessment (Communication, Feedback and Assessment)

H_o 2.2.3. There are no statistically significant differences between course duration and perceptions of online teaching presence (Communication, Assessment and Feedback).

Table 4.40 presents the Pillai's Trace and Wilks' Lambda for course duration and teaching presence component - Communication, feedback and assessment.

Table 4.40: Pillai's Trace Test and Wilks' Lambda Results of MANOVA on Communication, Feedback and Assessment by Student Gender

Effect CAF		Value	F	Hypothesis df	Error df	Sig.	Noncentrality Parameter	Observed Power[d]
Gender	Pillai's Trace	.006	.222	8.000	638.000	.987	1.774	.119
	Wilks' Lambda	.994	.221b	8.000	636.000	.987	1.770	.119

Finding

Pillai's Trace (8, 638) = 0.006, p (0.987) > 0.05 did not show a statistically significant difference. Thus, course duration was not a factor in student perception of online teaching presence in terms of Communication, Assessment and Feedback.

The null hypothesis H_o 2.2.3. was accepted.

Another area where there was significant correlation was between class level and teaching presence in the specific area of assessment (communication, assessment and feedback) ($p < 0.05$). This result implied that student class level accounted for approximately 5% of the variability in students' overall teaching presence ratings in assessment. The two specific items where significant correlations were observed were in: (1) Q23: Overall, the instructor for this course provided meaningful feedback; and (2) Q24: Overall, the instructor for this course helped me to revise my thinking.

In the analysis of the qualitative data, most upper class students indicated that they did not need regular communication with their instructors. These group of students reported that as long as they received some sort of feedback about their work, then this was considered sufficient. This could be due to the maturity of this group of students. LaRose and Whitten (2000) reported that some online students preferred to manage individual learning by themselves. They also noted that students who were sufficiently capable of directing their own learning required only minimal supervision and help from instructors (LaRose & Whitten, 2000). This could be explained by students' previous experiences in the online learning modality. In the research setting, an average of 20% of all undergraduate transfer students came from community colleges that offered online courses (SJSU, 2015). Most of these transfer students had taken at least one online course before coming to the university and were already familiar with this modality. On the other hand, lower classmen had signified the need for more frequent and intensive communication from their instructors. This group of students indicated that at least weekly, or even daily, interactions with their instructors would have been beneficial.

Research Question Three

Is there a significant relationship between students' technographic characteristics (technology skills, technology use and attitudes towards technology) and their perceptions of online teaching presence?

MANOVA tests were conducted to determine if there were statistically significant differences in students' perception of online teaching presence and their technographic characteristics (technology skills, technology use and attitudes towards technology). This section presents test results on the null hypothesis H_o *3.1., H_o 3.2. and H_o 3.3.* It discusses the MANOVA and ANOVA test results for the student participants' technographic characteristics (technology skills, technology use and attitudes towards technology) and each teaching presence component: (1) Planning (instructional design and course organization); (2) Implementation (facilitating discourse and direct instruction); and (3) Assessment (communication, assessment and feedback).

Test Results of Null Hypotheses

H_o 3.1. **Technology Skill**

There are no statistically significant differences between student technology skill and perceptions of online teaching presence.

Test Results of Null Hypotheses for Teaching Presence Component: Planning (Instructional Design and Course Organization)

H_o 3.1.1. There are no statistically significant differences between student technology skill and perceptions of online teaching presence (Instructional Design and Course Organization)

Table 4.41 presents the Pillai's Trace and Wilks' Lambda for student technology skill and teaching presence component – Planning (Instructional Design and Course Organization).

Table 4.41: Pillai's Trace Test and Wilks' Lambda Results of MANOVA on Instructional Design and Course Organization by Student Technology Skill

Effect IDCO		Value	F	Hypothesis df	Error df	Sig.	Noncentrality Parameter	Observed Power[d]
Technology Skill	Pillai's Trace	.117	1.331	28.000	1240.000	.117	37.261	.963
	Wilks' Lambda	.887	1.336	28.000	1108.326	.114	33.666	.937

Finding

Pillai's Trace (28, 1240) = 0.117, p (0.117) > 0.05 did not show a statistically significant difference. Thus, student technology skill was not a factor in their perception of online teaching presence in terms of Instructional Design and Course Organization.

The null hypothesis H_o 3.1.1. was accepted.

Test Results of Null Hypotheses for Teaching Presence Component: Implementation (Facilitating Discourse and Direct Instruction)

H_o 3.1.2. There are no statistically significant differences between student technology skill and perceptions of online teaching presence (Facilitating Discourse and Direct Instruction).

Table 4.42 presents the Pillai's Trace and Wilks' Lambda for student technology skill and teaching presence component - Facilitating Discourse and Direct Instruction.

Table 4.42: Pillai's Trace Test and Wilks' Lambda Results of MANOVA on Facilitating Discourse and Direct Instruction by Student Technology Skill

Effect FD		Value	F	Hypothesis df	Error df	Sig.	Noncentrality Parameter	Observed Power[d]
Technology Skill	Pillai's Trace	.019	.382	16.000	1296.000	.987	6.118	.261
	Wilks' Lambda	.981	.381	16.000	981.309	.987	4.650	.198

Finding

Pillai's Trace (16, 1296) = 0.019, p (0.987) > 0.05 did not show a statistically significant difference. Thus, student technology skill was not a factor in their perception of online teaching presence in terms of Facilitating Discourse and Direct Instruction.

The null hypothesis H_o 3.1.2. was accepted.

Test Results of Null Hypotheses for Teaching Presence Component: Assessment (Communication, Feedback and Assessment)

H_o 3.1.3. There are no statistically significant differences between student technology skill and perceptions of online teaching presence (Communication, Assessment and Feedback).

Table 4.43 presents the Pillai's Trace and Wilks' Lambda for student technology skill and teaching presence component – Assessment (communication, feedback and assessment).

Table 4.43: Pillai's Trace Test and Wilks' Lambda Results of MANOVA on Communication, Feedback and Assessment by Student Technology Skill

Effect CAF		Value	F	Hypothesis df	Error df	Sig.	Noncentrality Parameter	Observed Power[d]
Technology Skill	Pillai's Trace	.028	.564	16.000	1284.000	.912	9.028	.396
	Wilks' Lambda	.972	.562	16.000	972.144	.913	6.855	.293

Finding

Pillai's Trace (16, 1284) = 0.028, p (0.912) > 0.05 did not show a statistically significant difference. Thus, student technology skill did not influence student perception of online teaching presence in terms of Communication, Assessment and Feedback.

The null hypothesis H_o 3.1.3. was accepted.

H_o 3.2. **Technology Use**

There is no a significant relationship between student technology use and their perceptions of online teaching presence.

Test Results of Null Hypotheses for Teaching Presence Component: Planning (Instructional Design and Course Organization)

H_o 3.2.1. There are no statistically significant differences between student technology use and their perceptions of online teaching presence (Instructional Design and Course Organization).

Table 4.44 presents the Pillai's Trace and Wilks' Lambda for student technology use and teaching presence component – Planning (Instructional Design and Course Organization).

Table 4.44: Pillai's Trace Test and Wilks' Lambda Results of MANOVA on Instructional Design and Course Organization by Technology Use

Effect IDCO		**Value**	**F**	**Hypothesis df**	**Error df**	**Sig.**	**Noncentrality Parameter**	**Observed Power[d]**
Tech Use (Word Processing)	Pillai's Trace	.052	.585	28.000	1240.000	.959	16.378	.571
	Wilks' Lambda	.949	.582	28.000	1108.326	.960	14.674	.509
Tech Use (Spreadsheet)	Pillai's Trace	.097	1.096	28.000	1240.000	.334	30.679	.907
	Wilks' Lambda	.906	1.100	28.000	1108.326	.329	27.731	.865
Tech Use (Email & Comms)	Pillai's Trace	.099	1.509	21.000	927.000	.066	31.681	.949
	Wilks' Lambda	.904	1.510	21.000	882.088	.066	30.329	.937
Tech Use (Social Media)	Pillai's Trace	.056	.628	28.000	1240.000	.935	17.595	.613
	Wilks' Lambda	.945	.626	28.000	1108.326	.936	15.776	.549
Tech Use (Streaming Video)	Pillai's Trace	.096	1.090	28.000	1240.000	.342	30.509	.905
	Wilks' Lambda	.907	1.091	28.000	1108.326	.340	27.499	.861

Finding

Pillai's Trace data for students' use on each of the technology tools showed results of $p > 0.05$ for all the tools. The results did not show any statistically significant difference. Thus, technology use was not a factor in student perceptions of online teaching presence in terms of Instructional Design and Course Organization.

The null hypothesis H_o 3.2.1. was accepted.

Test Results of Null Hypotheses for Teaching Presence Component: Implementation (Facilitating Discourse and Direct Instruction)

H_o 3.2.2. There are no statistically significant differences between student technology use and their perceptions of online teaching presence (Facilitating Discourse and Direct Instruction).

Table 4.45 presents the Pillai's Trace and Wilks' Lambda for student technology use and teaching presence component – Implementation (Facilitating Discourse and Direct Instruction).

Table 4.45: Pillai's Trace Test and Wilks' Lambda Results of MANOVA on Facilitating Discourse and Direct Instruction by Technology Use

Effect FD		Value	F	Hypothesis df	Error df	Sig.	Noncentrality Parameter	Observed Power[d]
Tech Use (Word Processing)	Pillai's Trace	.054	1.112	16.000	1296.000	.338	17.788	.752
	Wilks' Lambda	.946	1.115	16.000	981.309	.335	13.602	.599
Tech Use (Spreadsheet)	Pillai's Trace	.071	1.471	16.000	1296.000	.102	23.542	.887
	Wilks' Lambda	.930	1.479	16.000	981.309	.100	18.027	.758
Tech Use (Email & Comms)	Pillai's Trace	.027	.731	12.000	969.000	.722	8.770	.437
	Wilks' Lambda	.973	.729	12.000	849.578	.724	7.708	.381
Tech Use (Social Media)	Pillai's Trace	.051	1.037	16.000	1296.000	.413	16.599	.714
	Wilks' Lambda	.950	1.036	16.000	981.309	.415	12.638	.559
Tech Use (Streaming Video)	Pillai's Trace	.032	.650	16.000	1296.000	.844	10.401	.460
	Wilks' Lambda	.968	.648	16.000	981.309	.846	7.910	.342

Finding

Pillai's Trace data for students' use on each of the technology tools showed $p > 0.05$ for all the tech tools. The results did not show any statistically significant difference. Thus, technology use did not influence student perceptions of online teaching presence in terms of Facilitating Discourse.

The null hypothesis H_o 3.2.2. was accepted.

Test Results of Null Hypotheses for Teaching Presence Component: Communication, Feedback and Assessment

H_o 3.2.3. There are no statistically significant differences between student technology use and their perceptions of online teaching presence (Communication, Assessment and Feedback).

Table 4.46 presents the Pillai's Trace and Wilks' Lambda for student technology use and teaching presence component – Assessment (Communication, Feedback and Assessment).

Table 4.46: Pillai's Trace Test and Wilks' Lambda Results of MANOVA on Communication, Feedback and Assessment by Technology Use

Effect CAF		Value	F	Hypothesis df	Error df	Sig.	Noncentrality Parameter	Observed Power[d]
Tech Use (Word Processing)	Pillai's Trace	.069	1.413	16.000	1284.000	.127	22.615	.870
	Wilks' Lambda	.932	1.418	16.000	972.144	.125	17.286	.735
Tech Use (Spreadsheet)	Pillai's Trace	.082	1.671	16.000	1284.000	**.046**	26.735	.931
	Wilks' Lambda	.919	1.693	16.000	972.144	.043	20.620	.827
Tech Use (Email & Comms)	Pillai's Trace	.043	1.151	12.000	960.000	.315	13.814	.673
	Wilks' Lambda	.958	1.153	12.000	841.640	.313	12.195	.603
Tech Use (Social Media)	Pillai's Trace	.051	1.027	16.000	1284.000	.424	16.434	.708
	Wilks' Lambda	.950	1.026	16.000	972.144	.426	12.510	.553
Tech Use (Streaming Video)	Pillai's Trace	.027	.545	16.000	1284.000	.924	8.726	.381
	Wilks' Lambda	.973	.542	16.000	972.144	.925	6.616	.282

Finding

Pillai's Trace data for the students' use on each of the technology tools showed results of $p > 0.05$ for all tech tools, except for spreadsheets. For this item, Pillai's Trace (16, 1284) = 0.082, p (0.046) < 0.05 - very near the limit of 0.05. Since this was the case, additional test was needed to validate this. A univariate ANOVA test was conducted to verify the significance. The results are presented in Table 4.47.

Table 4.47: Results of ANOVA on Communication, Assessment and Feedback by Student Technology Use

Effect CAF		Type III Sum of Squares	df	Mean Square	F	Sig.	Noncentrality Parameter	Observed Power[e]
TECH_ SPREAD SHEET	CAF_ provided_ explanatory_ feedback	3.311	4	.828	.878	.477	3.512	.279
	CAF_ provided_ meaningful_ feedback	.676	4	.169	.151	.962	.606	.082
	CAF_ help_revise_ my_thinking	5.340	4	1.335	1.085	.364	4.340	.341
	CAF_ provided_ useful_info	3.351	4	.838	1.019	.397	4.078	.321

The ANOVA result showed all factors showing $p > 0.05$. CAF_provided_explanatory_ feedback ($p = 0.477$), CAF_provided_meaningful_feedback ($p = 0.962$), CAF_help_revise_my_thinking ($p = 0.364$), and CAF_provided_useful_info ($p = 0.397$). Upon closer analysis, the results did not show statistically significant difference. The student technology use did not influence student perception of online teaching presence in terms of Communication, Assessment and Feedback.

The null hypothesis H_o 3.2.3. was accepted.

***H_o 3.3.* Attitudes towards Technology (ATUT)**

There is no a significant relationship between student attitudes towards technology and their perceptions of online teaching presence?

Test Results of Null Hypotheses for Teaching Presence Component: Planning (Instructional Design and Course Organization)

H_o 3.3.1. There are no statistically significant differences between student attitude towards technology and their perceptions of online teaching presence (Instructional Design and Course Organization). Table 4.48 presents the Pillai's Trace and Wilks' Lambda for student attitudes towards technology and teaching presence component - Instructional Design and Course Organization.

Table 4.48: Pillai's Trace Test and Wilks' Lambda Results of MANOVA on Instructional Design and Course Organization by Student Attitudes Towards Technology

Effect IDCO		Value	F	Hypothesis df	Error df	Sig.	Noncentrality Parameter	Observed Power[d]
Email	Pillai's Trace	.276	1.285	70.000	2191.000	.058	89.916	1.000
	Wilks' Lambda	.752	1.286	70.000	1796.919	.058	74.659	.998
Chatting and IM	Pillai's Trace	.191	.879	70.000	2191.000	.753	61.509	.987
	Wilks' Lambda	.823	.874	70.000	1796.919	.761	50.837	.952
Web Conferencing	Pillai's Trace	.258	1.199	70.000	2191.000	.127	83.925	.999
	Wilks' Lambda	.766	1.203	70.000	1796.919	.124	69.890	.995
Canvas (LMS)	Pillai's Trace	.179	.913	63.000	2191.000	.671	57.490	.984
	Wilks' Lambda	.833	.910	63.000	1735.148	.675	45.985	.936
Online Discussion	Pillai's Trace	.186	.854	70.000	2191.000	.800	59.802	.983
	Wilks' Lambda	.907	1.091	28.000	1108.326	.340	27.499	.861
Multimedia	Pillai's Trace	.096	1.090	28.000	1240.000	.342	30.509	.905
	Wilks' Lambda	.907	1.091	28.000	1108.326	.340	27.499	.861

Finding

Pillai's Trace data for all the students' attitudes on each of the technology tools showed $p > 0.05$. The results did not show any statistically significant differences. Thus, student attitude towards technology was not a factor in their perception of online teaching presence in terms of Instructional Design and Course Organization.

The null hypothesis H_o 3.3.1 was accepted.

Test Results of Null Hypotheses for Teaching Presence Component: Implementation (Facilitating Discourse and Direct Instruction)

H_o 3.3.2. There are no statistically significant differences between student attitude towards technology and their perceptions of online teaching presence (Facilitating Discourse and Direct Instruction).

Table 4.49 presents the Pillai's Trace and Wilks' Lambda for student attitudes towards technology and teaching presence component - Facilitating Discourse and Direct Instruction

Table 4.49: Pillai's Trace Test and Wilks' Lambda Results of MANOVA on Facilitating Discourse and Direct Instruction by Student Attitudes Towards Technology

Effect FD		Value	F	Hypothesis df	Error df	Sig.	Noncentrality Parameter	Observed Power[d]
Email	Pillai's Trace	.128	1.071	40.000	1296.000	.353	42.839	.964
	Wilks' Lambda	.877	1.074	40.000	1219.050	.349	40.690	.952
Chatting and IM	Pillai's Trace	.141	1.187	40.000	1296.000	.198	47.498	.981
	Wilks' Lambda	.865	1.188	40.000	1219.050	.199	44.986	.973
Web Conferencing	Pillai's Trace	.113	.941	40.000	1296.000	.577	37.645	.930
	Wilks' Lambda	.891	.940	40.000	1219.050	.578	35.633	.910
Canvas (LMS)	Pillai's Trace	.087	.799	36.000	1296.000	.797	28.757	.835
	Wilks' Lambda	.915	.800	36.000	1204.673	.795	26.956	.800
Online Discussion	Pillai's Trace	.110	.919	40.000	1296.000	.616	36.754	.922
	Wilks' Lambda	.893	.919	40.000	1219.050	.616	34.829	.901
Multimedia	Pillai's Trace	.084	.693	40.000	1296.000	.927	27.710	.791
	Wilks' Lambda	.919	.691	40.000	1219.050	.929	26.171	.758

Finding

Pillai's Trace data for students' attitudes on each technology tool showed results of $p > 0.05$ for all tech tools. The results did not show a statistically significant difference. Thus, student attitude towards technology was not a factor in their perception of online teaching presence in terms of Facilitating Discourse.

The null hypothesis H_o 3.3.2. was accepted.

Test Results of Null Hypotheses for Teaching Presence Component: Assessment (Communication, Feedback and Assessment)

H_o 3.3.3. There are no statistically significant differences between student attitude towards technology and their perceptions of online teaching presence (Communication, Assessment and Feedback).

Table 4.50 presents the Pillai's Trace and Wilks' Lambda for student attitudes towards technology and teaching presence component – Assessment (Communication, Feedback and Assessment).

Table 4.50: Pillai's Trace Test and Wilks' Lambda Results of MANOVA on Communication, Feedback and Assessment by Student Attitudes Towards Technology

Effect CAF		**Value**	**F**	**Hypothesis df**	**Error df**	**Sig.**	**Noncentrality Parameter**	**Observed Power[d]**
Email	Pillai's Trace	.105	.864	40.000	1284.000	.712	34.541	.898
	Wilks' Lambda	.899	.860	40.000	1207.674	.717	32.595	.873
Chatting and IM	Pillai's Trace	.156	1.303	40.000	1284.000	.099	52.139	.990
	Wilks' Lambda	.851	1.310	40.000	1207.674	.095	49.607	.986
Web Conferencing	Pillai's Trace	.140	1.165	40.000	1284.000	.223	46.616	.978
	Wilks' Lambda	.865	1.174	40.000	1207.674	.213	44.482	.971
Canvas (LMS)	Pillai's Trace	.091	.834	36.000	1284.000	.747	30.007	.856
	Wilks' Lambda	.911	.832	36.000	1193.431	.748	28.046	.821
Online Discussion	Pillai's Trace	.107	.879	40.000	1284.000	.685	35.178	.906
	Wilks' Lambda	.897	.882	40.000	1207.674	.681	33.408	.884
Multimedia	Pillai's Trace	.073	.597	40.000	1284.000	.979	23.872	.704
	Wilks' Lambda	.929	.593	40.000	1207.674	.980	22.481	.666

Finding

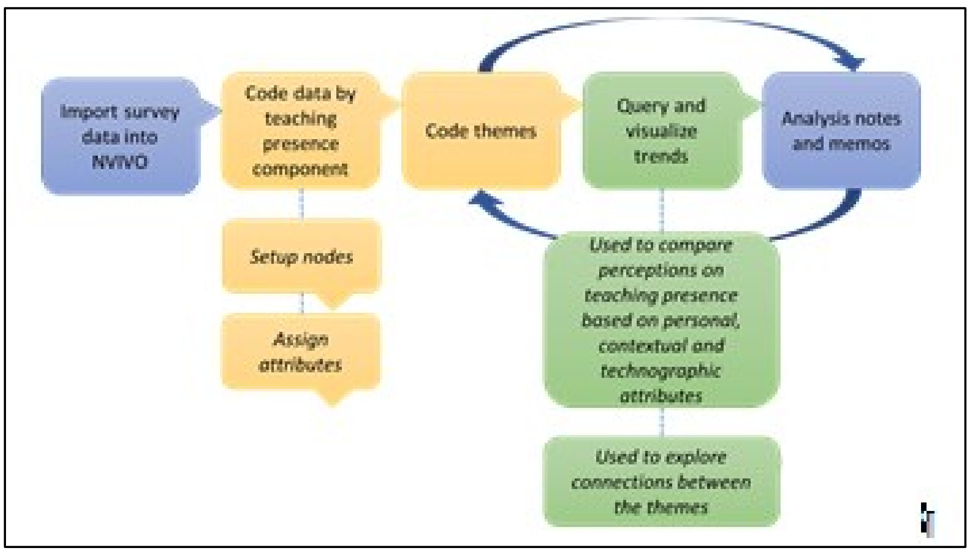
Pillai's Trace data for students' attitudes on each technology tool showed $p > 0.05$ for all tech tools. The results did not show any statistically significant differences. Thus, student attitude towards technology was not a factor in their perception of online teaching presence in terms of Communication, Assessment and Feedback.

The null hypothesis H_o 3.3.3. was accepted.

Qualitative Measures

The fourth question was designed to qualitatively examine the relationships between students' personal, contextual and technographic characteristics. Qualitative information was gathered from the survey using eleven open-ended questions embedded in the online survey. The purpose of the open-ended questions was to elucidate the quantitative elements further, in order to more fully explore the central research question. Responses to the open-ended questions were analyzed using NVIVO 10 for Windows, a qualitative survey tool from QSR International. Qualitative data were gathered from the survey using open-ended questions embedded in the online survey. The analysis process flow for the qualitative data is shown in Figure 4.22.

Figure 4.22: Analysis Process for Qualitative Data Using NVIVO 10



Research Question Four

What are the relationships between students' personal, contextual and technographic characteristics?

Responses from the open-ended survey questions were reviewed and coded into themes. Table 4.51 shows the survey items, the teaching presence component and sub-component the item addressed, and the number of responses received for each question.

Table 4.51: Open-Ended Survey Questions

Teaching Presence Components and Sub-components	Open-Ended Questions	Number of Responses
Planning: • Instructional design • Course Organization	8. Please give examples of how the way the course was designed helped you in your learning.	409
	9. Please give examples of how the organization of the course topics helped you in your learning.	403
Implementation: • Facilitating discourse • Direct Instruction	14. How does your instructor keep the class engaged?	405
	15. In what ways does your instructor guide the class towards understanding class topics?	411
	20. Describe an instance when your instructor helped you learned a difficult topic.	408
	21. Describe an instance when your instructor helped to focus the discussion that helped you learn.	402
Assessment: • Communication • Feedback • Assessment	26. When you submit assignments or post discussions and don't receive instructor comments or feedback, how does this change the way you feel about your learning experience?	410
	27. Describe how important is it for you to have personal contact with your instructor during the course through email, web or phone.	409
	28. Describe the optimal level of interaction with your instructor in an online course.	414
	29. Describe how your instructor' presence impacts your learning experience.	406
	30. What can the instructor do to improve his/her presence in your online course?	410

Themes Derived from Coding

All the student responses to open-ended questions were coded. The codes were grouped into three themes that corresponded to the teaching presence components and sub-components. There were a total of 4,487 responses analyzed from usable responses from the sample. The data units came from usable responses ranging from 403 to 414, depending on the teaching presence component. In the first phase of the qualitative analysis, the three general components of teaching presence were used as broad themes.

Coding for each of the components were also broken down into the different independent personal, contextual and technographic variables to analyze the differences in the perceptions of teaching presence based on the variations on these factors. As the coding progressed, it became apparent that there were some emerging factors and trends that were similar to the survey questions. As a result, the majority of the data points were recoded to incorporate codes that represented teaching presence components associated with instructional design and course organization, facilitating discourse, direct instruction, communication, and assessment and feedback. For the second pass, a deeper analysis of the data was done using additional codes that represented perceptions on teaching presence. During the third pass, super codes were created to group co-occurring codes together. Table 4.52 below lists the emerging themes derived from the student responses to the open-ended questions.

Table 4.52: Emerging Themes

Teaching Presence Component	Emerging Theme	Number of responses	Total number of data units coded
Planning: • Instructional Design and Course Organization (IDCO)	Clarity of course goals, course topics and due dates		4,900
	Clear instructions on how to participate		4,764
	Types of instructional materials used		4,628
	Course pace and schedule		3,743
	TOTAL	812	6,806
Implementation: • Facilitating Discourse and Direct Instruction (FDDI)	Guiding understanding of concepts		10,005
	Helping students understand difficult materials		9,363
	Actively guiding online discussions		9,235
	Presenting content with clarity		8,337
	Acknowledging student participation		7,696
	Keeping students on task		7,054
	Using intellectually challenging materials when teaching		5,387
	Encouraging students to explore concepts		5,131
	TOTAL	1,626	12,826
Assessment: • Communication, Assessment and Feedback (CAF)	Teaching presence is felt through feedback		10,664
	Personal contact is important		10,288
	Feedback as a form of communication		10,037
	Frequent interaction contributes to instruction immediacy		9,786
	Meaningful feedback motivates students and fosters learning		9,409
	Use of different communication tools helps establish teaching presence		8,531
	Feedback helped revise thinking		7,026
	Non-feedback directly relates to negative impact on learning		6,398
	TOTAL	2,049	12,546

Instructional Design and Course Organization (IDCO)

Students discussed instructional design and course organization most often - 24.26% (N=6,806) - as the teaching presence component that helped them learn. Students were asked to provide answers to these questions to determine their perceptions of teaching presence and learning:

1. Please give examples on how the design of the course helped you in your learning.
2. Please give examples of how the organization of the course topics helped you in your learning.

Personal characteristics

For personal characteristics, there was not much difference across the age ranges, except for those within the age ranges of 27 years old and above, in relating instructional design and course organization with teaching presence. In comparing this with the demographic characteristic of the sample, it seemed that students in the older age ranges had more positive perceptions of teaching presence through Instructional Design and Course Organization. They were able to identify more instances where the design and organization of the course helped facilitate their learning. This could be due to the older students paying closer attention to the types of instructional materials used and were able to compare them with other courses they have already taken.

Table 4.53 presents the distribution of data units across the different age ranges.

Table 4.53: Data Units Relating to Instructional Design and Course Organization by Age Range

Age Range	Number of Data Units (N)	Percent
18 – 20	205	19.7%
21 -23	328	31.5%
24 – 26	226	21.7%
27 – 30	192	18.4%
31 and above	90	8.6%

Table 4.54 shows the distribution of student respondents by gender. Female students had more data units, 25.89% higher, relating to instructional design and course organization (N=423) than male students (N=336). This result was consistent with the demographic data showing that there were more female than male participants in this study. Upon closer analysis, the responses from female student participants indicated a higher perception of teaching presence as compared with male students. This supported the results in quantitative analysis section where it showed that there was a significant correlation between gender and teaching presence ($p<.05$). This could be an area that merits further study for researchers to determine if gender is a main causality for high perception of teaching presence.

Table 4.54: Data Units Relating to Instructional Design and Course Organization by Gender

Gender	Number of Data Units (N)	Percent
Female	423	55.6%
Male	336	44.5%

Contextual characteristics

Based on contextual characteristics, students in their junior year had the highest data units relating to instructional design and course organization. Senior students had the most data units (N=330), followed by juniors (N=251). Freshmen and sophomores were almost equal with

N=76 and N=78, respectively. Based on contextual characteristics, juniors were the majority among the respondents. However, it appeared that seniors had a higher perception of teaching presence based on the number of data units coming from the group for instructional design and course organization. Table 4.55 presents the distribution of data units on IDCO according to class level. It could be assumed that more seniors had taken online classes in the past and therefore had higher perceptions of teaching presence based on the design and organization of the course. Although there were less seniors who participated in the study, they were still able to articulate instances when teaching presence was perceived.

Table 4.55: Data Units Relating to Instructional Design and Course Organization by Class Level

Class Level	Number of Data Units (N)	Percent
Freshmen	76	9.7%
Sophomore	78	10.0%
Junior	251	32.1%
Senior	330	42.3%
Others	46	5.9%

Table 4.56 shows the distribution of the data units by course duration. Students in a regular semester (16 weeks) had the most data units relating to instructional design and course organization. While this was consistent with the contextual distribution of the sample, it was interesting to note that there were more data units coming from students who were enrolled in 10-week classes, than those enrolled in 2-week classes. This could be due to the limited time that students spent in a highly-intensive and fast-paced 2-week course.

Table 4.56: Data Units Relating to Instructional Design and Course Organization by Course Duration

Course Duration	Number of Data Units (N)	Percent
2 weeks	40	4.7%
10 weeks	98	11.6%
16 weeks	706	83.6%

Technological characteristics

Table 4.57 shows the distribution of the data units on instructional design and course organization by technology skills. Students with technology skill level from 3 to 5 had more data units relating to instructional design and course organization, which was consistent with the results from the quantitative data analysis.

Table 4.57: Data Units Relating to Instructional Design and Course Organization by Technology Skill

Technology Skill Level	Number of Data Units (N)	Percent
1 (Novice)	36	4.4%
2 (Below Average)	35	4.3%
3 (Average)	197	24.1%
4 (Above Average)	356	43.5%
5 (Expert)	195	23.8%

Emerging themes

Sub-themes emerged from the analysis of student responses on instructional design and course organization based on personal, contextual, and technographic characteristics. Participants cited in detail how these factors helped them navigate the course, utilize the online environment, keep track of the lessons and get engaged in their learning, clarity of course goals and course topics, clarity of due dates, types of instructional materials use, course pace and schedule, and clear instructions on how to participate. The four highest themes are discussed in this section.

Clarity of course goals, course topics, and due dates. This theme was derived from coding 4,900 data units. Students found it helpful that the instructor communicated course goals, course topics and due dates clearly. More females mentioned this in their responses and were appreciative of the fact that instructors had laid out the entire course at the start of the semester. According to the responses, clarity of course goals, course topics and due dates made it easy for students to follow the lessons and plan their study schedule. Some students indicated that regular weekly due dates for course requirements lessened the burden of having to remember different dates of when assignments were due. Clarity of the course goals and topics through the design of the course helped students find relevant resources that aided them in learning. Students appreciated the clarity of the course goals, topics and due dates and felt that these aided them in keeping up with the course and managing their schedules. Automatic email notifications either from the instructor or the learning management system helped remind students the due dates for assignments.

Clear instructions on how to participate. This theme was derived from coding 4,764 data units. According to the responses, instructions on how students should participate in online discussions, forums, and other learning activities designed helped them learn from the content as well as their peers. Knowing how to participate and what the expectations were both from the instructor and their classmates eased the burden of trying to second-guess what was required of them for each learning activity. This helped them focus on learning the material and contribute to the collective learning. When instructors provided clear instructions on how to access online materials, this contributed to the students' ease of course navigation and lessened the frustration of trying to find content within the learning management system.

Types of instructional materials used. This theme was derived from coding 4,628 data units. The students' responses indicated preference for multi-media content, which was consistent with the student responses on what technology tool helped facilitate their learning the most. Most students cited that the combined mix and use of recorded online lectures, online articles, videos and slides shows were helpful. However, what would have been more helpful was if faculty aligned the materials to the assigned chapter closely. In addition, the instructional materials would be more beneficial if they included references to application of the concepts. Examples of real-life applications were appreciated by the students and helped them learn the material.

Course pace and schedule. This theme was derived from coding 3,743 data units. Students indicated that the course pace and schedule were appropriate, as long as the course goals, topics and due dates were communicated clearly. Students were cognizant that when online courses were taken during intercessions, for instance, two-week winter or summer sessions, then they had to be prepared for the rigorous schedule that comes with it. It was interesting to note that most students realized that online learning is not for everyone and that for them to be successful in the course, they needed to possess certain skills. Course schedule was tied closely with clarity of the due dates. Students appreciated the organization of the course into modules as this helped ease the progression between course topics.

Facilitating Discourse (FD)

This theme showed a fairly similar number of data units to instructional design and course organization. This was the second most discussed teaching presence component among the respondents. Student responses showed that 23.98% (N=6,727) mentioning data units relating to facilitating discourse as the teaching presence component that helped create a positive perception of teaching presence. Students were asked these questions to determine how teaching presence was perceived in their courses:

1. How does your instructor keep the class engaged?
2. In what ways does your instructor guide the class towards understanding class topics?

Personal characteristics

For personal characteristics, students between the age ranges of 18 – 23 had the most data units relating to facilitating discourse. Table 4.58 shows the distribution of the data units across the different age ranges. The results were consistent with quantitative analysis.

Table 4.58: Data Units Relating to Facilitating Discourse by Age Range

Age Range	Number of Data Units (N)	Percent
18 – 20	205	26.7%
21 -23	338	44.0%
24 - 26	129	16.8%
27 – 30	45	5.9%
31 and above	52	6.8%

Table 4.59 shows the distribution of the data units by gender. Female students had more data units relating to facilitating discourse, 22.61% higher, relating to facilitating discourse (N=423) than male students (N=345). The quantitative data showed that there were more males than females who participated in the study. This is consistent with the results of the quantitative study.

Table 4.59: Data Units Relating to Facilitating Discourse by Gender

Gender	Number of Data Units (N)	Percent
Female	423	55.1%
Male	345	44.9%

Contextual characteristics

Based on contextual characteristics, students in their junior year had the highest data units relating to instructional design and course organization (N=331), followed by seniors (N=257). Freshmen and sophomores were almost equal with N=78 and N=77, respectively. Results are shown on Table 4.60. These results were consistent with the quantitative analysis and followed the demographic distribution of the sample.

Table 4.60: Data Units Relating to Facilitating Discourse by Class Level

Class Level	Number of Data Units (N)	Percent
Freshmen	78	9.8%
Sophomore	77	9.6%
Junior	331	41.4%
Senior	257	32.1%
Others	57	7.1%

Table 4.61 shows the distribution of the data units based on course duration. Students in a regular semester (16 weeks) had the most data units relating engagement to facilitating discourse. While the percent of data units that came from students in 2-week and 10-week courses were almost the same, there were significantly less students from 10-week courses who participated in the study. This could be explained by the similar types of learning engagement regardless of the course length/duration. In both types of courses, the delivery was more intensive as compared with the regular 16-week duration.

Table 4.61: Data Units Relating to Facilitating Discourse by Course Duration

Course Duration	Number of Data Units (N)	Percent
2 weeks	39	4.9%
10 weeks	45	5.6%
16 weeks	716	89.5%

Technological characteristics

Students with technology skill level 4 had the most data units relating to facilitating discourse. Students with technology skill level 3 had about 11% more data units on facilitating discourse than those on technology skill level 5. The results were consistent with the quantitative strand and are shown on Table 4.62.

Table 4.62: Data Units Relating to Facilitating Discourse by Technology Skill

Technology Skill Level	Number of Data Units (N)	Percent
1 (Novice)	2	0.3%
2 (Below Average)	33	4.3%
3 (Average)	199	25.9%
4 (Above Average)	355	46.2%
5 (Expert)	180	23.4%

Emerging themes

Students' responses on their perceptions on teaching presence based on their personal, contextual and technographic characteristics focused around the themes discussed in this section. Students cited in detail about how instructor, through facilitating discussion helped them understand the course topic and assisted their learning, thus creating a positive perception of teaching presence. These themes focus on: acknowledgment of student participation, encouraging students to explore concepts, keeping students on task and actively guiding online discussions. The themes are discussed according to the number of data units coded.

Actively guiding online discussions. This theme was derived from coding 9,235 data units. Many students believed that they learn more when lectures were structured to be more like a guided interactive sessions. Live interactive webcasts that allowed students to interact with the instructor and their classmates fostered their learning. Student positive perceptions of teaching presence were enhanced by instructors' engagement of the students while facilitating discussions. Students mentioned that synchronous online discussions helped them be more involved in their learning. The use of discussion boards supported collaboration among the students and this, in turn, encouraged peer learning. According to the responses, students appreciated it that instructors facilitated interactivity during lectures by encouraging students to ask questions. The instructor kept the students actively engaged when the instructor provided a venue for discussion during synchronous class sessions by encouraging students to contribute and share their ideas.

Acknowledging student participation. This theme was derived from coding 7,696 data units. According to the student responses, acknowledgement of their participation in learning activities got them more engaged in their learning. When instructors acknowledged their participation and provided personalized feedback on their contributions, students felt that their instructor was more involved in their learning and this motivated them to participate and learn more. Responses to online postings by the instructor and their peers were perceived by students as running conversations between themselves, their classmates and the instructor. Students felt that this discussion threads were a type of communication that supported their learning.

Keeping students on task. This theme was derived from coding 7,054 data units. Students appreciated it when instructors helped them focus on the course goals and learning outcomes. In their responses, students indicated that steering online discussions to focus on the main topic helped facilitate their learning. Constant reminders to participate in learning activities and sending topic updates helped them prepare for the online discussions and the expected interactions during online lectures.

Encouraging students to explore concepts. This theme was derived from coding 5,131 data units. Students' responses indicated that they had a higher perception of learning when instructors encouraged them to explore concepts, particularly when these were novel concepts or theories. According to students, online discussions and encouragement from the instructor to think about new concepts in different ways fostered their learning. Posting thoughtful questions and starting discussion threads around new concepts that students had difficulty understanding pushed them to explore ideas that were out of the box. Most of the students indicated in their responses that this method of engagement promoted learning and motivated them to get engaged.

Direct Instruction (DI)

Students considered direct instruction as another key teaching component that influenced perception of teaching presence in online courses. The results of the analysis revealed that 21.74% (N=6,099) data units were related to direct instruction. Respondents were asked to provide answers to these questions relating to direct instruction:

1. Describe an instance when your instructor helped you learned a difficult topic.
2. Describe an instance when your instructor helped to focus the discussion that helped you learn.

Personal characteristics

Students between the ages of 21 – 23 had the most data units relating to direct instruction. Table 4.63 shows the distribution of the data units across the different age ranges. These results were consistent with the demographic characteristics of the sample.

Table 4.63: Data Units Relating to Direct Instruction by Age Range

Age Range	Number of Data Units (N)	Percent
18 – 20	180	25.8%
21 -23	304	43.6%
24 - 26	120	17.2%
27 – 30	42	6.0%
31 and above	52	7.4%

Table 4.64 shows the distribution of the data units by gender. Female students had more data units relating to facilitating discourse, 16.09% higher (N=375) relating to direct instruction, than male students (N=345). These results were consistent with the results from the quantitative analysis strand. It was noted that the number of data units contributed by both genders in this teaching component was almost the same.

Table 4.64: Data Units Relating to Direct Instruction by Gender

Gender	Number of Data Units (N)	Percent
Female	375	53.7%
Male	323	46.3%

Contextual characteristics

Based on contextual characteristics, students in their junior year had the highest data units relating to direct instruction (N=306), followed by seniors (N=235). Freshmen and sophomores were almost equal with N=68 and N=65, respectively. According to the breakdown of student participants by class level, students who classified themselves as "others" comprise the least (1.80%). However, students in this class level had more data units on direct instruction than freshmen and sophomores. This could be a result of this group of students having a higher perception of teaching presence through direct instruction as compared with all the other teaching presence components. Although the quantitative analysis results did not show a significant correlation between class level and direct instruction, this variable showed a significant correlation with the teaching component communication, feedback and assessment. Perhaps this student group considered direct instruction as a form of communication, thus explaining a higher perception of teaching presence among this group. It might be worthwhile to take a closer look at the composition of students in the "other" class level category. This could provide better insight into their perceptions of teaching presence.

Table 4.65: Data Units Relating to Direct Instruction by Class Level

Class Level	Number of Data Units (N)	Percent
Freshmen	68	8.7%
Sophomore	65	8.3%
Junior	306	39.1%
Senior	235	30.0%
Others	109	13.9%

Table 4.66 shows the distribution of data units based the course duration. Students in a regular semester (16 weeks) had the most data units relating engagement to direct instruction (N=652). Students enrolled in 2-week and 10-week courses had almost similar number of data units. Although this result did not follow the course duration distribution of the sample, it was consistent with the results of the quantitative analysis – there was no significant correlation between course duration and teaching component direct instruction.

Table 4.66: Data Units Relating to Facilitating Discourse by Course Duration

Course Duration	Number of Data Units (N)	Percent
2 weeks	34	4.7%
10 weeks	33	4.6%
16 weeks	652	90.7%

Technological characteristics

Table 4.67 shows the distribution of data units by student technology skill level. Students with technology skill level 4 had the most data units relating to direct instruction. Students possessing technology skill level 3 had about 13% more data units on direct instruction than those on technology skill level 5. These results were consistent with the quantitative analysis section.

Table 4.67: Data Units Relating to Direct Instruction by Technology Skill

Technology Skill Level	Number of Data Units (N)	Percent
1 (Novice)	2	0.3%
2 (Below Average)	35	5.0%
3 (Average)	178	2535%
4 (Above Average)	326	46.7%
5 (Expert)	157	22.5%

Emerging themes

Participants provided details and examples on how their perceptions of teaching presence based on personal, contextual and technographic characteristics supported their motivation to learn the content. These sub-themes were: presenting content with clarity, using intellectually challenging materials when teaching, helping students understand difficult material and guiding understanding of concepts.

Guiding understanding of concepts. This theme was derived from coding 10,005 data units. Responses from the students indicated that students gained a better understanding of the course material through direct instruction. According to the students, instructors' direct instruction was most helpful when difficult parts of the lesson were explained in greater detail. Most students appreciated it when the explanation of the material came with real-life example. Students were also more engaged in their learning when instructors used different methods to encourage critical thinking around topics that were relevant and practical.

Helping students understand difficult material. This theme was derived from coding 9,363 data units. Student perception of teaching presence was enhanced when the instructor repeatedly emphasized key points during classroom instruction. Most students understood difficult concepts when these were presented with clarity and accompanied by real-life examples. Students mentioned that they were encouraged to learn more when instructors encouraged them to ask questions, and then instructors would respond to their question with applications of some difficult concepts.

Presenting content with clarity. This theme was derived from coding 8,337 data units. Students had a higher perception of learning when instructors explained course content with clarity. At times, accompanying the explanations with real-life examples helped students comprehend the concept application. Some students indicated that they appreciated it when instructors approached certain difficult topics by breaking it down into simple steps to help them understand it easier. This is an area where multi-media materials also helped support learning.

Using intellectually challenging materials when teaching. This theme was derived from coding 5,387 data units. Students learned when instructors use materials that fostered critical thinking. These could be in the form of open-ended scenarios that simulated real-life situations. Problem solving using real-life scenarios also helped a lot. These were particularly helpful when issues that need to be addressed were relevant to the students' lives. This mode of teaching encouraged students to dig deeper into the concepts that they were learning, rather than scratching the surface for superficial learning.

Communication (C)

One of the main emerging themes was the importance of communication to students who were attending online courses. This theme showed prevalence across the responses during the analysis. Although communication was not identified as one of the key components of teaching presence, it was decided to present this as an individual theme because of its importance to students. Students considered communication with their instructor as one of the most important component influencing the perception of teaching presence. The results of the analysis revealed that 24.67% (N=6,921) data units related to communication and how this related to teaching presence. Respondents were asked to provide answers to these questions relating to direct instruction:

1. Describe how important is it for you to have personal contact with your instructor during the course through email, web, or phone.
2. Describe the optimal level of interaction with your instructor in an online course.

Personal characteristics

Students between the ages of 21 – 23 had the most data units related to communication and its influence on teaching presence (N=329). Table 4.68 shows the distribution of the data units across the different age ranges. This result was consistent with the demographic distribution of the student participants.

Table 4.68: Data Units Relating to Communication by Age Range

Age Range	Number of Data Units (N)	Percent
18 – 20	199	26.4%
21 -23	329	43.7%
24 - 26	124	16.5%
27 – 30	46	6.1%
31 and above	55	7.3%

In Table 4.69, results showed that female students had more data units relating to facilitating discourse (N=412) related to direct instruction, than male students (N=340). The result followed the demographic distribution of the sample and was consistent with the results of the quantitative analysis strand.

Table 4.69: Data Units Relating to Communication by Gender

Gender	Number of Data Units (N)	Percent
Female	412	54.8%
Male	340	45.2%

Contextual characteristics

Based on contextual characteristics, students in their junior year had the highest data units relating to communication (N=324), followed by seniors (N=255). Freshmen and sophomores were almost equal with N=73 and N=78, respectively. These are shown on Table 4.70. These results supported the findings of the quantitative strand. There was a significant correlation found between class level and communication, assessment and feedback.

Table 4.70: Data Units Relating to Communication by Class Level

Class Level	Number of Data Units (N)	Percent
Freshmen	73	9.7%
Sophomore	78	10.4%
Junior	324	43.0%
Senior	255	33.9%
Others	23	3.1%

Table 4.71 shows that students in a regular semester (16 weeks) had the most data units relating communication with teaching presence (N=697). This was consistent with the course duration distribution of the sample.

Table 4.71: Data Units Relating to Communication by Course Duration

Course Duration	Number of Data Units (N)	Percent
2 weeks	42	5.6%
10 weeks	14	1.9%
16 weeks	697	92.6%

Technological characteristics

Table 4.72 shows that students with technology skill level 4 had the most data units relating to communication. Students with technology skill level 3 had slightly more data units on communication (10.29%) than those on technology skill level 5. These results were consistent with the technology skill level distribution of the sample.

Table 4.72: Data Units Relating to Communication by Technology Skill Level

Technology Skill Level	Number of Data Units (N)	Percent
1 (Novice)	2	0.3%
2 (Below Average)	34	4.5%
3 (Average)	196	25.9%
4 (Above Average)	349	46.2%
5 (Expert)	175	23.1%

Emerging themes

Most of the responses to this component focused on the importance of communication in students' perception of teaching presence. Students provided information on their perceptions on teaching presence based on their personal, contextual and technographic characteristics.

Personal contact is important. This theme was derived from coding 10,288 data units. Majority of the students indicated that personal contact with the instructor through any means was not only important, but was critical. Students expected instructors to be responsive through emails, phones or even by IM. Personal contact in the context of the responses did not necessarily refer to face-to-face contact with the instructor, but some level of interaction via any type of media was appreciated by the students. Upon closer analysis of the qualitative responses, it appeared that students in lower class levels considered this theme more important. Some students responded that they preferred to have regular weekly communication with their instructor. However, students in higher class levels felt that as long as they were doing okay in their courses and receive good grades, then communication with the instruction was not necessary.

Feedback as a form of communication. This theme was derived from coding 10,037 data units. Most students considered feedback as a form of communication. Regular and consistent feedback on weekly discussions helped create positive perceptions on teaching presence because instructor inputs in previous assignments helped students become better at their learning activities as they moved along the course. Some students mentioned that feedback on their work was sometimes more important than talking to the professor. Feedback was particularly important for students when they were working on difficult projects and challenging assignments.

Frequent interaction contributes to instruction immediacy. This theme was derived from coding 9,786 data units. One of the major themes that emerged in the analysis of the student responses in this study was that frequent interaction contributed to instructor immediacy. Some students expected the level of interaction with the instructor to be similar to that of conventional face-to-face modality. Regular feedback on learning activities was appreciated by the students. In general, students felt that they were more engaged with their learning when the instructor responded to their emails, answered questions about coursework or provided feedback on submitted work. The perception of teaching presence was greatly enhanced when there was consistent communication between instructor and student.

Use of different communication tools helps establish teaching presence. This theme was derived from coding 8,531 data units. Most students expected instructors to communicate with them using a variety of tools. Students' positive perception of teaching presence was enhanced by frequent communication with the instructor, regardless of the medium. While email seemed to be a more common mode for communication, this did not exclude IM, chatting, video conferencing and even social media. Several different types of communication channels were mentioned by the students and they did not express any preferences on the media. What was important for them was to establish communication with the instructor.

Assessment and Feedback (A&F)

The assessment and feedback theme emerged as an integral part of perceived teaching presence. Although this was not the theme that had the most data units (5,625), still, 20.05% of the data units were related to assessment and feedback. When analyzing the data units, there was some overlap between communication and assessment and feedback. Students considered assessment and feedback as a form of communication and vice versa. Respondents were asked to provide answers to this questions relating to assessment and feedback:

1. When you submit assignments or post discussion and don't receive instructor comments or feedback, how does this change the way you feel about your learning experience?

Personal characteristics

Students between the ages of 21 – 23 had the most data units relating to assessment and feedback and its influence on perceptions of teaching presence (N=173). Table 4.73 showed the distribution of the data units across the different age ranges. These results were consistent with the demographic distribution of the sample

Table 4.73: Data Units Relating to Assessment and Feedback by Age Range

Age Range	Number of Data Units (N)	Percent
18 – 20	103	26.4%
21 -23	173	44.4%
24 - 26	63	16.2%
27 – 30	23	5.9%
31 and above	28	7.2%

Table 4.74 shows that female students had more data units relating to facilitating discourse (N=217) relating to assessment and feedback, than male students (N=173). The results were consistent with the demographic distribution of the sample.

Table 4.74: Data Units Relating to Assessment and Feedback by Gender

Gender	Number of Data Units (N)	Percent
Female	217	55.6%
Male	173	44.4%

Contextual characteristics

Based on contextual characteristics, students in their junior year had the highest data units relating to assessment and feedback (N=166), followed by seniors (N=134). Freshmen and sophomores had equal numbers of data units with N=39 each. These results are shown on Table 4.75. The results were consistent with the quantitative analysis.

Table 4.75: Data Units Relating to Assessment and Feedback by Class Level

Class Level	Number of Data Units (N)	Percent
Freshmen	39	10.0%
Sophomore	39	10.0%
Junior	166	42.6%
Senior	134	34.4%
Others	12	3.1%

Table 4.76 shows that students in a regular semester (16 weeks) had the most data units relating assessment and feedback with teaching presence (N=362). These results were consistent with the course duration distribution of the sample.

Table 4.76: Data Units Relating to Assessment and Feedback by Course Duration

Course Duration	Number of Data Units (N)	Percent
2 weeks	21	5.4%
10 weeks	7	1.8%
16 weeks	362	92.8%

Technological characteristics

Table 4.77 shows that students with technology skill level 3 had the most data units relating to assessment and feedback. Students with technology skill level 5 followed with 30.7% of data units. Students in the above average level 4 closely followed at 27.2%. There seemed to be a higher perception of teaching presence from students who had average technology and expert skill levels, based on the number of data units coming from these two groups. While the quantitative analysis results of this study did not show a significance correlation between technology skills and teaching presence through assessment and feedback, it would be worthwhile to further explore if technology skill is a main predictor of higher perception of teaching presence.

Table 4.77: Data Units Relating to Assessment and Feedback by Technology Skill

Technology Skill Level	Number of Data Units (N)	Percent
1 (Novice)	1	0.3%
2 (Below Average)	19	6.6%
3 (Average)	102	35.2%
4 (Above Average)	79	27.2%
5 (Expert)	89	30.7%

Emerging Sub-Themes

The emerging sub-themes in assessment and feedback indicated the positive or negative impact of this theme based on the students' personal, contextual and technographic characteristics. Factors that had an impact on the perceived teaching presence and learning through assessment and feedback included: teacher presence felt through feedback, feedback helped revise thinking to support learning, meaningful feedback fostered learning, non-feedback directly related to negative impact on learning, and feedback motivated students to learn.

Teacher presence felt through feedback. This theme was derived from coding 10,664 data units. Student responses indicated that teaching presence was felt the most when feedback was given on learning activities and course work. Most students mentioned that they became more motivated to learn when they received feedback on their work. Receiving feedback on their work made them feel that their instructor was more involved in their learning. Students in upper class levels felt that instructors should give feedback only if there was anything that can be improved on their work. Lower class level students, on the other hand, felt that feedback should be given whether they were doing well or not.

Meaningful feedback motivates students and fosters learning. This theme was derived from coding 9,409 data units. Feedback was helpful, but meaningful feedback was even more impactful for student learning. Meaningful feedback, in this case, referred to the types of inputs or comments from faculty that spurred critical thinking. Most students indicated that meaningful feedback from instructors helped create a positive perception of teaching presence and stimulated them to learn. Students mentioned that they appreciated hearing from their instructors on how they could improve on their work and get better evaluations.

Feedback helped revise thinking to help learning. This theme was derived from coding 7,026 data units. According to student responses, whenever instructors gave feedback on course work, there were two things that happened: 1) students got an evaluation on their work; and 2) they found out how they could improve on their work for future submissions. In these situations, students discovered early on that they would need to make revisions on how they approached their course work. If they needed to revise their thinking or their perspectives in order to achieve student learning outcomes, it was better to have them do this nearer the beginning of the semester, than towards the end.

Non-feedback directly relates to negative impact on learning. This theme was derived from coding 6,398 data units. Student responses indicated that non-feedback from instructors directly led to negative feelings about the course and their learning in general. Many students had mentioned that if they did not receive feedback, they tended to feel that instructors did not care about the class and the subject matter. This made them feel that there was no point in putting in the effort to learn. Without any idea of how they were doing in class, students started becoming unmotivated and became frustrated with learning the material.

Merging of Quantitative and Qualitative Data

The final phase of this study merged analyzed results from both the quantitative and qualitative data strands. A matrix is used to present findings from the different data sets, shown on Table 4.78. A graphical representation of the teaching presence components and how these relate with each other, as well as the emerging themes is presented on Appendix M.

Table 4.78: Matrix of Quantitative and Qualitative Data

	Instructional Design and Course Organization	Facilitated Discussion and Direct Instruction	Communication, Assessment and Feedback
Perceptions of Teaching Presence	No significant difference between contextual and technographic characteristics and perceptions of teaching presence No significant difference between age and perceptions of teaching presence A significant correlation was found between gender and teaching presence, $p < .05$	No significant difference between personal, contextual, and technographic characteristics and perceptions of teaching presence	No significant difference between personal and technographic characteristics and perceptions of teaching presence. No significant difference between course duration and perceptions of teaching presence A significant correlation was found between class level and teaching presence, $p < .05$.

Chapter Summary

The data in this study was acquired from 437 undergraduate students enrolled in online business courses during the winter 2015 and spring 2015 semesters at the College of Business in San Jose State University. Descriptive data analysis showed that 44.4% of the student respondents were male, and 55.6% were female. 71% of the student respondents fell within the age range of 18-23 years old, 16.2% were within the ages of 24-26 years old and about 13% were 27 years old and older. There were 9.6% freshmen, 11% sophomores, 44% juniors and 33.6%

seniors. About 1.8% mentioned that they were "Others". Six percent of the students were in the 2-week online course, 1.6% were in the 10-week course, and the rest (92.9%) were enrolled in the regular 16-week semester online course.

More than 68% of the student respondents considered themselves possessing above-average technology skills. Only about 5% placed themselves below-average in terms of technology skills. Even across age ranges, more than half of the students considered themselves to have above-average technology skills. As for differences in gender, 77% of male respondents males considered themselves as having above-average technology skill, but only 61% of females placed themselves on above-average and expert in terms of technology skills.

As for the technology that the student respondents used most frequently, email and communications were identified as the most frequently used, followed by word processing, then streaming videos. Spreadsheets were not used as much as the other technology tools, with only 18.2% responding that they used this tool "frequently". The results from the different age ranges and gender were consistent with the overall response.

Student respondents indicated that multi-media and the LMS (Canvas) were the two technology tools that facilitated their learning. Forty-two percent of the student respondents gave multimedia a +5 rating, which meant that the tool generally facilitated their learning. Canvas followed, with 43.8% of students giving this tool a +5 rating. Chatting, IM and web conferencing were not seen as technology tools that facilitated or disrupted learning. These two technology tools had the highest percentage of student respondents rating it a "0".

Students were also asked to respond to questions pertaining to the different components of teaching presence. More than 70% of all respondents agreed that their instructor was able to establish teaching presence through instructional design and course organization. Ninety-eight percent of the students responded that their instructors clearly communicated important course goals (Q1). In Q4, 97% of all students felt that their instructors were able to clearly communicate important due dates and time frames for the learning activities, and these helped them kept pace with the course. Close to 90% of the students found the pace and course difficulty for the online courses appropriate.

More than 80% of all the students agreed that their instructor established teaching presence through facilitating discourse. In Q10, 90% of students agreed that the instructor helped guide the class towards understanding topics. 88% of the students agreed that instructors acknowledged student participation. Close to 90% of all student respondents agreed that teaching presence through direct instruction was established. 93% of the students agreed that the instructors helped them to learn by focusing presenting content and questions during direct instruction (Q16). In Q17, 89% of the students agreed that the instructor helped them learn by focusing the discussion on relevant issues. Responses to Q19 indicated that 90% of students agreed that they gained much knowledge from the online course. More than 80% of the student respondents agree that communication, assessment and feedback were is important factors in establishing teaching presence. For Q22 and Q23, Close to 85% of students agreed that their instructor established teaching presence through explanatory and meaningful feedback.

Research Question One Results. One-way MANOVA test results of the personal characteristics indicated that the student participants' perceptions of online teaching presence were not influenced by their age. A statistically significant difference was found in the student participants' perceptions on teaching presence based on their gender, $p < .05$. The significance was found in instructional design and course organization. Therefore, all null hypotheses for RQ1 were accepted, except for H_o 1.2.1.

Research Question Two Results. One-way MANOVA test results of the contextual characteristics indicated that the student participants' perceptions of online teaching presence were not influenced by the duration of the course. A statistically significant difference was found in the student participants' perceptions on teaching presence based on their class level, $p<.05$. The significance was found in communication, assessment and feedback. Therefore, all null hypotheses were accepted for RQ2, except for H_o 2.1.3.

Research Question Three Results. One-way MANOVA test results of the technographic characteristics indicated that the student participants' perceptions of online teaching presence were not influenced by technology skill level, use of technology and attitudes towards technology. Initially, there was a slightly statistically significant difference found in the student participants' perceptions on teaching presence based on their technology use, $p<.05$. However, when ANOVA was conducted, the result did not appear to be statistically significant. The significance was found only in the areas of communication, assessment and feedback. Therefore, H_o 3.2.4 was finally accepted. All null hypotheses for RQ3 were accepted. A summary result is presented in Table 4.79.

Research Question Four Results. Results from the qualitative component of the study corroborated the results of the quantitative strand. The qualitative study revealed that perceptions of teaching presence among undergraduate business students were not significantly influenced by personal, contextual and technographic characteristics of the students. However, it was noted that there were several emerging themes that were common across different student characteristics.

Table 4.79: Quantitative Result Summary Table

RQ	MANOVA/ANOVA Test Results	Action
	Personal Characteristics	
RQ1	Student perceptions of teaching presence are not influenced by:	
	• Age	
	o Instructional design and course organization	H_o 1.1.1 Accepted
	o Facilitating discourse and direct instruction	H_o 1.1.2 Accepted
	o Communication, assessment and feedback	H_o 1.1.3 Accepted
	• Gender	
	o Facilitating discourse and direct instruction	H_o 1.2.2 Accepted
	o Communication, assessment and feedback	H_o 1.2.3 Accepted
	o ***Instructional design and course organization, significant difference in student perceptions of teaching presence in online learning, p<.05***	***H_o 1.2.1 Rejected***
	Contextual Characteristics	
RQ2	Student perceptions of teaching presence are not influenced by:	
	• Class level	
	o Instructional design and course organization	H_o 2.1.1 Accepted
	o Facilitating discourse and direct instruction	H_o 2.1.2 Accepted
	o ***Communication, assessment and feedback, significant difference in student perceptions of teaching presence in online learning, p<.05***	***H_o 2.1.3 Rejected***
	• Course duration	
	o Instructional design and course organization	H_o 2.2.1 Accepted
	o Facilitating discourse and direct instruction	H_o 2.2.2 Accepted
	o Communication, assessment and feedback	H_o 2.2.3 Accepted
	Technographic Characteristics	
RQ3	Student perceptions of teaching presence are not influenced by:	
	• Technology skill	
	o Instructional design and course organization	H_o 3.1.1 Accepted
	o Facilitating discourse and direct instruction	H_o 3.1.2 Accepted
	o Communication, assessment and feedback	H_o 3.1.3 Accepted
	• Technology use	
	o Instructional design and course organization	H_o 3.2.1 Accepted
	o Facilitating discourse and direct instruction	H_o 3.2.2 Accepted
	o Communication, assessment and feedback	H_o 3.2.3 Accepted
	• Attitude towards technology	
	o Instructional design and course organization	H_o 3.3.1 Accepted
	o Facilitating discourse and direct instruction	H_o 3.3.2 Accepted
	o Communication, assessment and feedback	H_o 3.3.3 Accepted

Table 4.80 shows the emerging themes for each teaching presence component based on the responses to the open-ended questions.

Table 4.80: Summary of Emerging Themes

Teaching Presence Component	Emerging Themes
Instructional Design and Course Organization	Clarity of course goals and topics Clarity of due dates Types of instructional materials used Course pace and schedule Clear instructions on how to participate
Facilitating Discussion and Direct Instruction	Acknowledgement of student participation Encouraging students to explore concepts Keeping students on task Actively guiding online discussions Presenting content with clarity Using intellectually challenging materials when teaching Focusing discussions on relevant issues Helping students understand difficult material Guiding understanding of concepts
Communication Assessment and Feedback	Personal contact is important Frequent interaction contributes to instructor immediacy Use of different communication tools helps establish teaching presence Technical support from instructors help in navigating the course Feedback as a critical form of communication Teaching presence is felt through feedback Feedback helped revise thinking to foster learning Meaningful feedback promotes learning Non-feedback directly relates to negative impact on learning Feedback motivates students to learn

The data units taken from the student responses were interpreted to mean that among the teaching presence components, communication, assessment and feedback were the most pivotal in determining positive perceptions of teaching presence. The second most important is direct instruction and facilitated discussion. Instructional design and course organization did not seem to elicit the same kind of responses from the participant. These observations from the students might have been a consequence of not differentiating the course design and the organization of material mechanisms employed by instructors in the survey questions. More females articulated a higher perception of teaching presence through the instructional design and course organization and this was felt through the way the course was structured, clarity of the learning outcomes and expectations from the course and clear instructions on due dates and ways to participate. Students also mentioned that they appreciated the availability of the multi-media presentations that were posted online.

In summary, this chapter presented the analysis of the data interpretation for this study. The data provided complementary findings that quantitative and qualitative data alone would not be able to provide (Creswell and Plano-Clark, 2013).

Chapter 5 - Discussion

Chapter Overview

Based on the analysis, the primary finding from this study was there were two areas of correlation between student characteristics and perceptions of teaching presence. The study revealed that there were correlations between: 1) Personal (gender) and planning (instructional design and course organization); and 2) Contextual (class level) and communication, assessment and feedback. In terms of the students' technographic characteristics, there were no statistically significant differences noted in the perceptions of teaching presence based on this characteristic. This section starts with a discussion on the research setting, followed by the discussion of the research findings and the implications.

Research Setting Considerations

The study was conducted in the College of Business of a public university within the California State University system. It would have been preferable to have access to a larger sample of undergraduate students from different colleges and majors. This would have allowed a more diverse sample with students from a wider range of disciplines, educational background, level and interests. However, this researcher's purpose was not necessarily to generalize to a larger population but to provide a richer and deeper description of a particular situation involving undergraduate business students.

The college was the first to be designated as impacted in the entire university. The number of students who wanted to enroll exceeded the capacity of the college. There was a system-wide initiative to develop online courses across all the universities within the CSU system and because the research setting is in Silicon Valley, the push was felt even more so. To address the push for more online courses, faculty members in the College of Business were asked to teach online courses with little preparation. At the time of the study, there were less than 10 faculty teaching online courses in the College of Business, and most were temporary instructors. To get some knowledge on teaching online, some faculty sought out training through the faculty-in-residence for campus technology or joined educational technology lectures or workshops available in campus. However, these were not adequate to prepare faculty for teaching within the online learning environment. Across the campus, there was a lack of resources and support for training faculty in this learning modality. For the most part, instructors were left to figure things out on their own. This was a key reason why most faculty members had not even attempted to teach online.

It is hoped that the results of this study will help start dialogues among the college administrators on the addressing the training needs of instructors to be adequately prepared to teach online. During the study, the author already commenced conversations with college and university leadership on the best approach to put in place professional development programs for faculty in the College of Business and across the university.

Student Personal Characteristics and Perceptions of Online Teaching Presence

The quantitative analysis revealed a correlation between student personal characteristics and perceptions of teaching presence in online courses. The study indicated correlations between gender and perceptions of teaching presence. This did not come as a surprise, as the results supported previous studies on the gender implications in online learning. However, this finding was still considered noteworthy, because according to a previous study conducted by Garrison, Cleveland-Innes and Fung (2010), "there [is] a gender imbalance in favor of women in online learning and the perceived benefits of participation differ across gender" (p.2). Kramarae (2007) asserted that educational effectiveness in the online environment was more beneficial to females in particular, who find the online experience socially richer and more beneficial (Rovai & Baker, 2005).

According to the responses to open-ended questions, females tended to have a more positive perception of teaching presence particularly when the course was structured and organized to have more online discussions and interactions with their peers and instructors. Based on the responses, females indicated that they valued being engaged in a community that provided them the opportunity to learn from their classmates and the instructor. Females expressed greater appreciation about the availability of online courses and the convenience it offered them. From the survey, it was revealed that females favored online courses that were structured to have significant interactions among peers and the instructor. According to female students, their tendency to interact socially helped them communicate with their peers better in the online learning environment. Female students reported that they were less hesitant in introducing themselves and were more willing to reach out to their classmates, sometimes even creating life-long friendships in the process. In their responses, female students indicated they contacted other classmates just to talk with them, not necessarily about academic work. Meanwhile, male students reported that they preferred to reach out to their peers only if necessary to complete their coursework or assignment.

The results of the study did not come as a surprise, as most of the literature reviewed for this study showed that predominance of positive learning experiences by female in online learning. This study validated the conclusions of the 2010 study by Garrison, Clevelend-Innes and Fung which focused on the effect of the program of study and gender on all the presences within the CoI framework. The study reported that there were documented differences in gender the experience of online learning (Rovai & Baker, 2005). Thus, it was reasonable to suggest that gender truly has an effect on the experience of online learning. Given the correlation between gender and teaching presence observed in this study, further examination of this relationship would be a good avenue for future research.

In their responses to the qualitative open-ended questions, students reported that online discussion boards, small group assignments, interactive lectures, multi-media course materials (Sun & Cheng, 2005), instructor availability and encouragement, or options for contacting an instructor were all good motivators for engaging them in their learning. This finding validated that to get students engaged in their learning, it is no longer enough for instructors to simply post static reading materials such as slide decks or articles, then follow this up with quizzes or other assessment tools. Students felt more engaged with their learning when instructors used positive teaching presence components of instructional design and organization. Regardless of gender and age, online discussion forums, availability of multimedia materials, clarity of expectations, and other similar activities, such as active learning, were mentioned by the students as important elements could influence perceptions of teaching presence. From the results of the study, it was revealed that most students appreciated the learning opportunities provided by such innovative approaches and would get engaged in the online course if these were structured in a way that would foster learning. Students gave examples on effective direct instructional activities in an online course, as well as instructor practices in course design and organization that worked well.

The result implied that instructors needed to design and structure their courses differently to engage and motivate students to learn. It would help that instructors are made aware that the online learning environment is not the same as a traditional face-to-face class. There were several factors that needed to be considered and worked on, which may not be evident to instructors who would be teaching online for the first time. These could be introduced in faculty development workshops and training to help prepare instructors for teaching online courses. Instructors need to be familiar with the online learning environment and know what types of course material engages students more effectively. Faculty teaching online courses would also need to examine their pedagogy and teaching methods and align these to the requirements of the online learning environment.

Student Contextual Characteristics and Perceptions of Online Teaching Presence

Although there were no significant correlations found between course duration and perceptions of teaching presence, the study indicated that student class levels have an impact on their perceptions of teaching presence. The correlation was in the area of communication, assessment and feedback. Students reported that they had a greater motivation to learn when their instructor emailed them frequently, responded to their questions, used video lectures, and provided regular feedback on course work. They reported that at times, feedback involved only limited, one-way communication between instructor and student interaction. Even so, students considered this sufficient for them to feel that the instructor cared for them.

There could also be a distinction between how students in lower class levels and higher class levels perceived “meaningful” feedback. Meaningful feedback, in this case, refers to instructor inputs on course work that could help spur critical thinking among students to improve future work. For freshmen and sophomores, this meant a more detailed feedback on every assignment from the instructors. For junior and seniors, brief explanations on their work already sufficed. This also presumed that the feedback that students received from the instructors were adequate to revise their thinking and perspectives about certain issues. Although the motivation for learning generally depended upon the student, their perceptions of the quality of the feedback could have an effect on their level of engagement with their learning. In their qualitative responses, most students reported that their level of motivation and engagement with the course was largely determined by feedback provided by the instructor and the level of communication.

Students in the lower class levels may require more "hand-holding" in navigating the online learning environment. Some of the lower level students might be taking an online course for the first time and did not have adequate knowledge on the expectations in this learning modality, thus they look to their instructors for guidance. It could also be due to the fact that students did not have formal training for online learning and what it takes to succeed in this learning modality. Participants in the study considered communication with their instructor as one of the most important component influencing the perception of teaching presence. The data also indicated preferences for different modes of online communication.

In their study, Sun and Cheng (2005) indicated that "[f]ace-to-face is considered the richest medium because it provides immediate feedback" (p.3). This supports the media richness theory in the sense that students prefer to a more animated type of interaction with faculty rather than static emails (Sun & Cheng, 2005). Emerging technologies have made it possible to communicate and provide feedback to students through several modalities. Short audio and video recordings on assignments turned in could now be attached to the course work to enable students get more detailed feedback on their work. Web / video conferencing has become ubiquitous with the availability of mobile devices and wireless internet. Students mentioned that they appreciated getting feedback, as well as communicating with their instructors. Fortunately, the current state of technology affords teachers and learners the ability to connect with each other easily. However, the problem is that many instructors may not be adept at using this technology. For those who do, they have used the technology for communicating with family, friends and colleagues. Instructors have yet to maximize the benefits of using this medium for communicating with students and giving them feedback on their work. It is hoped that faculty would want to utilize the technology to communicate with students once they realize its potential to enhance learning by somehow duplicating the face-to-face communication experience.

Freshmen and sophomores felt that feedback was a vehicle for positive perception of teaching presence and was instrumental in creating a feeling of connectedness and engagement in their learning environment. On the other hand, for most upper class students, feedback on their coursework was already sufficient to engage them in their learning. It does not matter what class level the student was in, most felt frustrated when there was no apparent attempt on the side of the instructor to communicate regularly and provide feedback on their work. Although students claimed to be frustrated at the apparent absence of communication and feedback, there were also students who liked the independent learning format, with communication at the barest minimum level. It was interesting to note that students in higher class levels (junior and seniors) indicated that in online courses, feedback was already considered as a form of communication, and that separate communication with the instructor was not critical. This indicated that there were students who were more self-efficacious and thus more mature about the learning process and took responsibility for their own learning. This issue certainly would be worthy of additional study.

Students reported that they communicated using a variety of technology tools: instant messaging, video meetings, social media, and others. However, most instructors seemed to be more attached with email as their preferred communication mode. In a conventional face-to-face learning, email may be adequate, as teaching presence is already established when the instructor is in the classroom with the students. However, this is no longer the case in the online learning environment. To increase student engagement, instructors needed to know how to communicate with students at their level. This could mean learning how to communicate through social media or knowing how to set up and conduct a web meeting with the students. For instructors who were not used to this mode of communication, they would have to learn how to if they wish to connect with their students. Without feedback and communication, students felt that they "do not matter" and the instructor cared little about them and their learning. The result was reduced motivation and engagement with the course.

These results need further investigation, and could well serve as a platform for recommending further study. Other areas of inquiry could include delving deeper on the impact of students' physical distance from the campus, type of student (international, online, non-traditional, full time and part-time) and other personal factors such as race, ethnicity, and whether the student is a first generation college student. These questions were not addressed in the current study and could produce valuable results that would guide instructors teaching multiple types of students in online modalities.

Student Technographic Characteristics and Perceptions of Online Teaching Presence

It was interesting to note that students' technology skills did not show any correlations on their perceptions of teaching presence. Majority of the students reported possessing average to excellent technology skills and seemed undaunted by online learning and are very willing to engage themselves in new learning modalities. The students' technology skills were self-reported so there could have been a tendency for some students to over- or under-estimate their skills. In this study, males reported themselves as possessing above-average to expert skill, while females considered themselves as having average to above-average technology skills. This could be a case where male students consider themselves to know more about the technology, not recognizing that there could be other technologies out there that are currently not in their portfolio of skills. On the other hand, females are known to be more conservative in claiming that they know a lot of things on technology.

Students pointed to Canvas (the research setting Learning Management System) as the technology tool that helped facilitate their learning the most. Although none of the technology tools were seen as disruptive to learning, web conferencing and instant messaging were the two technology tools that were rated as neither facilitating nor disruptive to learning. This implied that more and more instructors and students are using Canvas as the learning management system and have become quite adept at it. Canvas is already on its fourth year of implementation in the research setting and adoption rates have not been what were expected. Given that this was one of the highest rated technology tool that students felt facilitated their learning, it would be beneficial to design more workshops around Canvas that caters to both students and instructors. This will help the campus maximize the benefit of the learning management system. Chat, IM, and web conferencing had the most responses at "0", which means these technology tools neither distracted nor facilitated learning. These results were very surprising because the research setting has several cloud-based services used to perform these functions – Cisco WebEx, Blackboard Collaborate and Google Hangouts. All the products are capable of web conferencing, chatting and IM. The first two products are already integrated in Canvas, while Hangouts is integrated within the campus email. There was no reason why instructors would not want to use these technology tools as a means to communicate with their students.

Upon closer investigation of the data on web communication analytics, it was revealed that while faculty often use these tools to meet with peers and collaborate on research, they seldom use these tool for class lessons, meetings or for virtual office hours. In the research setting, web conferencing had been fairly under-utilized by faculty in the university as most online classes were conducted asynchronously. It was understandable that students did not realize the value of these tools in facilitating learning, since they had not experienced it in most of their online courses. As the data showed, most instructors were already using the tools for purposes other than teaching. Making faculty aware of the pedagogical uses of the tools within the context of professional development could spur adoption of the tools to facilitate learning in the online environment.

Another surprising finding from the study was the infrequent use of spreadsheets. Spreadsheets are specialized tools that help students make charts and graphs out of quantitative data. Although this tool is widely used in the industry, it might not have widespread use in K-12 education as compared with word processing. This could be the reason why this tool was not frequently used by the student respondents in certain age ranges. Students who belong to the higher age ranges could already have work experiences and had used the tool more frequently than those in the other age ranges. Given that survey respondents were taken from online business courses, it was assumed that spreadsheet was a tool that they would have used frequently. An explanation for the responses received may be the nomenclature used in the survey question. Most students might be more familiar with the term "Excel", which is the Microsoft brand for spreadsheet, and the most popular. A cursory experiment was done by searching for "spreadsheet" in Google and Yahoo. True enough, the top responses on the first few pages were Microsoft Excel. The same thing happened when a search was performed within

YouTube. A search was made for “spreadsheet tutorial”, and most of the results pointed to Microsoft Excel tutorials. Most of the video titles posted on YouTube did not even mention the word “spreadsheet”. The responses may be due to the prevalence of the brand “Microsoft Excel” among the students. Student responses might have been different if the tool they were asked to rate was indicated as Microsoft Excel, rather than spreadsheet. What this implied was that instructors in business courses, particularly those using spreadsheets as a main tool in their classes, might need to reinforce that Excel is in fact, a spreadsheet product. This could also be highlighted in “Excel” tutorial sessions in the university.

Open-Ended Responses and Perceptions of Teaching Presence

The student responses to the open-ended questions were interpreted to mean that among the teaching presence components, planning and assessment were more influential in determining perceptions of teaching presence across the student spectrum. More females articulated a higher perception of teaching presence through the instructional design and course organization. This was felt through the way the course was structured, clarity of the learning outcomes and expectations from the course and clear instructions on due dates and ways to participate. Students also mentioned that they appreciated the availability of the multi-media presentations that were posted online. Discussions about the other main findings from the open-ended responses is presented below:

1. <u>Communication using several types of electronic media</u>. Of particular note was that communication between instructor and the student through any type of media (emails, online discussions, IM, chatting and others) was considered critical in determining perceptions of teaching presence, regardless of a student’s personal, contextual and technographic characteristics.

2. Meaningful feedback on submitted work. Feedback on course work and learning activities was valued by students. There were some interesting comments made by students on the negative impact of not receiving feedback on their perceptions of teaching presence, regardless of their personal, contextual and technographic characteristics. Some lower-class level students claimed to be frustrated when instructors did not communicate with them or give feedback on their coursework.
3. Connection between teaching presence components and perceptions of teaching presence. The study reported that students perceived a greater connection occurring between teaching presence components and perceptions of teaching presence. Several different interpretations could be made to the finding. One interpretation could be that as undergraduate students became more comfortable in online learning environments, students expected to have a sense of connectedness to the instructor. This feeling of teaching presence led students to perceive an environment as being more conducive to learning. A second view might be that positive teaching presence came from the instructor who believed in employing techniques that highlight a more collaborative learning approach through regular communication and consistent feedback. As such, instructors tended to favor the use of facilitated discussion and direct instruction with an active teaching presence that students perceive as desirable, especially in an online class environment when there is no physical presence.
4. The teaching-learning phenomenon as it occurs in online course settings. Instructors and administrators should recognize that there are many complex factors that contribute to students' perception of teaching presence. Given this assumption, the results of this study for this sample population had shown that the components of

teaching presence were valuable in describing the variations in students' perceptions of teaching presence. The study findings allowed for claiming that the teaching presence components as defined by Garrison, Anderson, and Archer (2000) and described by the survey items in the Teaching Presence Scale developed by Shea, Pickett and Pelz (2003) are highly interrelated. The research setting is a member of the Online Learning Consortium (OLC) and had recently started using the OLC quality scorecard evaluate current online courses offerings (OLC, 2015). As an institutional member, the research setting has access to resources at the institutional level, as well as for faculty and students. These resources can be used to develop a robust technology support system for the campus community.

5. <u>Role of teaching presence components in students' motivation to learn.</u> Another interesting finding from the study was students believed that certain teaching presence components contributed to and were predictive of their learning and engagement with the content. However, because students self-selected into courses, it was not possible to generalize this study to a larger population. For people who believed that the students from this study were similar to those they encounter, the findings might be valuable especially in the areas of instructional design and course organization of online courses.

Chapter Summary

This summary provided discussions on the findings and implications of the study from the author's perspective. Discussion areas included the research setting, student characteristics that have significance correlations with teaching presence, and the different teaching components.

The methods used to educate students are changing rapidly. In order to achieve pedagogical objectives and embrace technology fully, educators need preparation in the areas of course design and technology. In addition, instructors need to get used to communicating more frequently with students through any digital means and provide regular assessment and feedback on submitted work. Administrators and instructors need to be visionaries and seek out innovative uses of technology to enhance learning and bring out each student's potential. For scholars who intend to do a deeper analysis of student characteristics and the impact on teaching presence, additional characteristics such as race, ethnicity, type of student, and whether the student is a first generation college student could be examined. Another area that could be explored is establishing teaching presence through communication and feedback in large online classes. It would be noteworthy to investigate how instructors can create presence in classes with large numbers of students.

Creating a balance between the demands of successful instructional practices and a positive perception of teaching presence will continue to be a challenge for instructors and the academic support staff vested with the responsibilities for designing and implementing such learning experiences. The caveat here is that the demands on instructors would tend to be so great that it could lead possible burn-outs or resistance to assume future responsibilities for such instructional approaches.

Chapter 6 - Summary, Conclusion and Recommendations

Chapter Overview

This chapter provides a discussion and analysis of the findings, specific recommendations for the research setting, and recommendations for future research. The study investigated undergraduate students' perception of teaching presence in online classes. Students were asked to respond to an online survey while they were attending an online course during winter and spring 2015 semesters. The research questions for this study were as follows:

Research Question1: Is there a significant relationship between students' personal characteristics (age and gender) and their perceptions of online teaching presence?

Research Question 2: Is there a significant relationship between student contextual characteristics (student class level and course duration) and their perceptions of online teaching presence?

Research Question 3: Is there a significant relationship between student technographic characteristics (technology skill level, technology use and attitudes towards technology) and their perceptions of online teaching presence?

Research Question 4: What are the relationships between students' personal, contextual and technographic characteristics?

Finally, this chapter concludes with recommendations for future studies in the area of online teaching presence.

Summary of the Research

This study focused on online courses to explore the relationships between the perceptions of undergraduate students based on their personal, contextual and technographic characteristics and their perceptions of teaching presence. The components of teaching presence as they relate to each other had been studied previously in online courses by Shea, Li, and Pickett (2006) and Rovai (2002).

The research design used was a parallel triangulation design. The research instrument used was an online survey with both closed-ended and open-ended questions. The survey used a combination of the Teaching Presence Scale (Shea et al., 2006) and the Attitudes Towards Technology Use (ATUTS) (Lukow, 2002). The open-ended questions were embedded in the survey to triangulate the quantitative research findings. The survey was sent to the entire population of 552 students enrolled in online business courses during the winter 2015 and spring 2015 semesters. The response rate was 94.02% (519 responses were returned). 82 responses were considered invalid. The 437 usable responses rendered 79.17% as appropriate for analysis.

First presented in this section are the survey findings from the close-ended questions. Second, the responses to the open-ended questions are interpreted as to where or how these data further support the quantitative results. Finally, the study results are discussed according to interpreted relationships between the students' characteristics (personal, contextual and technographic) and teaching presence factors (instructional design and course organization, facilitated discourse, direct instruction, and communication, assessment and feedback).

Student Characteristics

Of the 437 usable student survey responses, there was approximately an even distribution between genders. About 45% (194 out of 437) were male and 55% (243 out of 437) were female. Majority of the student participants (45%) were within the 21-23 age range (195 out of 437). The next biggest age group came from within the 18-20 year old age range, 26% (114 out of 437). There were more juniors (44%) than those from other class levels (192 out of 437). Seniors comprised 37% of the student respondents (147 out of 437). Freshmen and sophomores had a combined percentage of about 20% (50 out of 437).

A high percentage of the student respondents (93%) were mostly in the conventional online courses that ran for 16 weeks (406 out of 437). The rest were in either the 2-week intensive course or the accelerated 10-week course (31 out of 437). An estimated 68% of the student respondents indicated that they had above-average to expert technology skill levels (298 out of 437). 27% of the respondents classified themselves as having average technology skills (116 out of 437). The rest of the students (5%) considered themselves possessing below average technology skills.

Research Questions

This study was guided by the central research question: What were the differences in undergraduate student perception of teaching presence in online courses based on their personal, contextual and technographic characteristics?

<u>Research Question One</u>

Is there a significant relationship between students' personal characteristics (age and gender) and their perceptions of online teaching presence?

The first research question asked if the students' personal characteristics was correlated with their perceptions of teaching presence. It was found that there were no significant correlations between students' personal characteristics in terms of age and perceptions of teaching presence. However, it was discovered that there was a significant correlation between student gender and their perceptions of teaching presence through instructional design and course organization. This aspect showed a statistically significant difference ($p<.05$) between the perception of teaching presence through instructional design and course organization. A strength of association test was conducted to verify the degree of association between gender and the two items. The results showed moderate associations between gender and the items.

The correlation was deemed to be significant and further study would be valuable to determine if gender was a causative agent for positive or negative perception of teaching presence in instructional design and course organization. If a causative relationship existed between gender and teaching presence, instructors could presumably impact teaching presence by making adjustments to their course designs and organization. This could open up a new venue for additional study. How does instructional design and course organization define teaching presence? How is it affected? When should it be introduced and to what degree? Finally, do personal characteristics of the student influence what an instructor should do to encourage learning? These are additional questions that could be answered by future studies.

Research Question Two

Is there a significant relationship between students' contextual characteristics (student class level and course duration) and their perceptions of online teaching presence?

The second research question inquired about the relationships between the students' contextual characteristics (course duration and course level) and their perceptions of teaching presence. The strongest correlation was found between communication, assessment and feedback and class level. All other components of teaching presence did not show any correlations with the students' course duration and course level. Course duration (length) was part of the contextual factors studied by Shea et al. (2006) who did not find a correlation with teaching presence. A strength of association test was conducted to verify the degree of association between class level and the two items. The results revealed moderate associations between gender and the items.

The correlation in this study was deemed to be significant and further study would be valuable to determine if course level was a causative agent for positive or negative perception of teaching presence through communication, assessment and feedback. If a causative relationship existed between class level and teaching presence, instructors could presumably impact teaching presence by making adjustments to the way they communicate, give feedback to students, and how they conduct assessments in online courses based on the class levels they are teaching – freshmen, sophomore, junior or senior.

Research Question Three

Is there a significant relationship between students' technographic characteristics (technology skills, technology use and attitudes towards technology) and their perceptions of online teaching presence?

The third research question inquired if there was a correlation between students' technographic characteristics and their perceptions of teaching presence. The study revealed that there were no significant correlations between the students' technology skills, technology use and attitudes towards technology and their perceptions of teaching presence. The importance of this finding rested with the understanding that students' perception of teaching presence was not affected by their technological competence, technology use, and attitudes towards the use of technology.

Research Question Four

What are the relationships between students' personal, contextual and technographic characteristics?

The fourth research question sought to qualitatively examine the relationships between the three characteristics of the students studied. Open-ended questions on components of teaching presence - instructional design and course organization, facilitated learning, direct instruction, and communication, assessment and feedback - were included in the online survey. Emergent themes on specific aspects of the teaching presence components were developed to determine trends on the student responses based on their characteristics. Communications, assessment and feedback were mentioned as being pivotal aspects on the perception of teaching presence. This finding was consistent with the results of the quantitative surveys. It was noted in this study that direct communication between instructor and student through emails and other forms of digital communication was not at all common in conventional face-to-face courses. Feedback on coursework and other learning activities had the greatest impact on perceptions of teaching presence. Facilitated discussion and direct instruction, depending on how the instructor had structured the events, were perceived to be venues for communication between instructor and students. In addition, students also used these learning activities to get feedback on their performances.

Cronbach's Alpha was used to measure the internal consistency of the components of teaching presence. All scores were above 0.7 indicating an acceptable level of internal consistency. Furthermore, most of the inter-item correlations of the components of teaching presence were beyond the 0.5 level. That level of internal consistency meant the subscales were acceptable measures for the purpose of this study.

Conclusions

The central research question that drove this study was: "What were the differences in undergraduate students' perceptions of teaching presence in online courses based on their personal, contextual and technographic characteristics?" The following discussion is predicated on the results explain the relationships between the teaching presence components and perceptions of teaching presence among undergraduate business students.

Teaching Presence Components

The teaching presence components of online learning as described by the Community of Inquiry Model (Garrison, Anderson, & Archer, 2000) included these constructs: instructional design and organization, facilitated discourse, direct instruction, communication, assessment and feedback. The following discussions integrate student quantitative and qualitative responses as they relate to these teaching presence components.

Planning: Instructional design and organization. The results of the student surveys revealed no significant correlation between the age ranges of undergraduate students characteristics and instructional design and course organization. However, gender was found to have a significantly correlation to teaching presence in two of the sub-sections with $p<0.05$. The survey open-ended responses were understood to mean that instructional design and course organization were considered by students to have a positive effect on teaching presence when there was clarity on course goals, topics due dates for course work. Clarity on participation also helped students get engaged with the learning activities. Students had indicated that online discussions and multi-media presentations contributed to a more positive perception of teaching presence. Thus, instructors should pay particular importance in redesigning their courses when they teach online to incorporate these components.

The strength of the data interpretation encourages additional research to discover if this teaching presence component was correlated with student characteristics and also to determine if instructional design and course organization were, in fact, critical components for determining teaching presence. An area of research would be to determine how tightly woven this component is with the other teaching components - facilitated discourse and direct instruction.

Implementation: Facilitated discourse and direct instruction. This section contained both teaching presence components because the student quantitative data revealed that students found these two components to represent one construct within the quantitative survey. This result corroborated the earlier findings of Shea, Li, and Pickett (2006), who labeled this construct as directed facilitation. Among all the teaching components, facilitated discourse and direct instruction were the two that were not significantly correlated to the students' characteristics. The qualitative results were also understood to mean that students most favorably perceived teaching presence through facilitated discourse and direct instruction.

Assessment: Communication, Assessment and Feedback. Quantitative data showed that there was a significant correlation between student perception of teaching presence through communication, assessment and feedback with $p<.05$. In the qualitative section of the study, it was revealed that communication and assessment were the most critical factors that influence perception of teaching presence. Students indicated that personal communication was important and its regularity contributed to instructor immediacy. Students perceive feedback as a way that engaged them in their learning. Many students commented that communication and feedback from the instructor were extremely important factors in learning motivation and engagement. The students' responses suggested that communication and feedback were instrumental in creating a positive perception of teaching presence.

There was a very close relationship between communication, assessment and feedback. For the most part, students expected assessment of their coursework and felt the teacher's presence through meaningful feedback. This study showed that feedback helped students enhance their learning through critical thinking. In fact, a number of responses alluded to the negative impact of non-feedback to learning. Students felt that feedback motivated them to learn and were frustrated and confused when they did not receive feedback from their instructor.

This study found evidence that selected teaching presence components were apparently tied to perceptions of teaching presence by students. There appeared to be overlaps between and among these components and the interactions appeared to hold important implications for how we understand and/or perceive learning in online courses. Students cited their instructors' reluctance to encourage active student interaction during facilitated discussions. This seemed to indicate that students had moved away from a learning modality where instructors used to be the dispenser of information to eager students who absorb and then regurgitate such information.

Further study in this area could reveal insights in instructional design and course planning, preparation and implementation. In general, this study revealed that students are now emphasizing the need for teaching presence. The instructor should not be an absentee, but be an active participant and facilitator in the online learning environment. Consequently, it would be appropriate for instructors engaged in directing online business courses to make a concerted effort to interject their presence, but in a positive manner, so that students participating in the course would have a greater sense of being engaged with their instructor and the learning content.

Recommendations for the Research Setting

This study contributed to the body of research on online courses by using the lens of teaching presence as it related to online courses in undergraduate business education. As

California's state budget for higher education continues to be in a crisis mode, access to education would always remain a major issue. There is a need to expand the courses offered in California public universities to accommodate the increasing number of students and the industries' need for a highly-skilled work force. The state's online learning initiative holds great promise to alleviate the higher education problems and could serve as a means to improve student access to quality education. However, it is important to ensure that the courses delivered through the online modality are at par, if not better, than those delivered through the conventional face-to-face modality.

The following section discusses the recommended strategies for the research setting:

1. **Provide faculty professional development on engaging students in the online learning environment**. Hersh (2009) indicated that the online learning environment was an essential element needed to help students feel less isolated and more comfortable in online courses (Lehman & Conceição, 2010; Rovai, 2002; Wegerif, 1998). In his study, Hersh (2009) examined how the learning environment can be enhanced by rich media technologies. He discovered that students enrolled in classes that had media-enhanced environment had 9.4% higher GPAs than the other group. The findings of this study clearly presented the importance of creating an engaging learning environment. Thus, to create this environment:
    a. *Instructors need to be trained in the online learning environment and be educated on how to effectively create types of online environment that engages student learning.*
    b. *The institution should require that faculty be prepared adequately before teaching an online course.*

2. **Provide workshops and programs on how to improve online pedagogy and teaching methods**. Online teaching is a modality that enables instructors to provide a highly student-centric instruction. From the results of the study, students clearly favor interactivity with the course content and the instructor. Responses from the students also revealed that there is a need for faculty to be trained on the pedagogy of online learning. Thus, faculty in the research setting intending to teach online courses must:
   a. *Revise teaching methods to engage students.* Instructors will need to work with instructional designers to redesign their courses to incorporate these changes in the pedagogy. According to Laves (2010), instructors felt that it was important to incorporate all of the teaching components in a course, regardless of the format. These responses came from faculty interviews and field observations she conducted during her study. Depending on the type of coursework required, and the mode of knowledge delivery, the instructor's role throughout the course could vary from being a lecturer to a facilitator, or even a mentor. These roles have to be built into the pedagogy.
   b. *For faculty who are not familiar with roles other than being a lecturer, training should be a requirement in order to be able to take on new roles such as technology expert, content expert, facilitator and Canvas manager.*
3. **Provide resources for faculty to help them develop appropriate online course materials**. Hersh (2009) recommended the use of multi-media to enhance the online learning environment. Results of this study supported Hersh's contention that students generally had a favorable perception of teaching presence when the learning

environment content was enriched with multi-media presentations, recorded videos, annotated PowerPoint lectures, and other online materials. Students also appreciated the opportunity to interact with the instructor though the material.

a. *Workshops and training on how faculty can access digital materials online and integrate these in their courses should be developed and implemented.* Currently, the university library at the research setting offers free faculty access to billions of free and affordable digital materials through the entire system. However, the problem for the most instructors was how to find where these resources are.

b. *Partnerships with library liaisons should be explored to help faculty take advantage of the digital resources and content that are available to them.* To create engaging learning experiences, the instructor needs to be constantly aware of the dynamics of the online learning environment and create the necessary support structures to encourage student interaction with the content and their peers. This is important to consider as students' perceptions of teaching presence appeared to predict how they learn in the online learning environment (Picciano, 2002).

4. **Provide strategies for enhancing online course communication and feedback**. This study clearly presented that communications and feedback are critical sub-components of teaching presence. Students indicated that personal communication and regular feedback on coursework contributed to positive perceptions of teaching presence, which engages them to learn. Instructors need to learn how to communicate

beyond the physical borders of the classroom and adapt to new modes of communication such as email, SMS, and social media.

a. *The research setting should put in place a program to encourage instructors to learn about and experiment on emerging communication technologies so that they could effectively communicate and give feedback to their online students.*

b. *The goal of this training should be that faculty would be able to increase their skills and knowledge in communicating with students, facilitating online discussions, and providing useful feedback.* Lehman and Conceição (2010) suggested that online educators should see themselves as facilitators versus instructor-centered educators. Lehman and Conceição (2010) noted that:" If time does not permit giving prompt feedback to individual students, responding to the whole class may be sufficient" (p.19). These are important pieces of information to consider when an instructor embarks on teaching an online course.

5. **Provide structured online course development coaching and training**. At the time of this study, faculty teaching online courses were not required to use instructional technology tools. However, this study showed that instructors need to be adequately prepared to teach online.

   a. *The research setting should set up programs and workshops for instructors who intend to teach online courses.* These programs should be designed with instructional designers to provide structured coaching and training sessions for instructors. These will help faculty adopt the technology faster and easier. In addition, it will encourage more instructors at the research setting to start integrating technology into teaching, then gradually move on to teaching online.

b. *Integrate these online teaching sessions into a single training program to deliver a more comprehensive skills development approach to faculty training.* Even though most of the instructors who taught the online courses had gone for some amount of training before the online courses were launched, the sessions only consisted of basic training on certain tools to enhance required interaction. These were separate sessions on various tools including online forums, chats, web conferencing, instant messaging, recording short lectures or messages, and managing the LMS. For some faculty, template courses were created to facilitate the creation of online courses.

6. **Enhance online teaching presence through specifically targeted professional development**. Teaching presence involves planning, implementing, and assessing, the online learner in order to ensure that the entire learning process is productive for the student (Moore & Kearsley, 1996; DeSilets, 2013). According to the results of this study, course design, facilitated discussions, multi-media learning content, communication and feedback, communication were identified by students as important to their learning experiences.

    a. *Instructors teaching online courses should be taught to shift their focus to course design and how they might best integrate these online learning tools such as forums, discussions, feedback and responses into their courses to improve the establishment of teaching presence.* Institutions can create the same environment online as it has in face-to-face courses by training and supporting faculty in the use of such elements in teaching. In essence, professional faculty training should focus on how to create the highest level of teaching presence in the online learning environment.

b. *The academic technology divisions should work out incentive plans for faculty to help them redesign their courses for online modalities.* Professional development is available to faculty at the research setting through eCampus, Center for Faculty Development, and the system-wide academic technology division. Faculty should be encouraged to apply for and take these programs. Some issues that faculty raised with this was the lack of time and monetary incentives.

7. **Enhance student technology resource and support**. Online learning is a fairly new modality in the research setting. One element of institutional support for online learning is student technology support. The Online Learning Consortium/Sloan-C Scorecard (http://onlinelearningconsortium.org/consult/quality-scorecard/) provides an institutional guide to supporting online teaching in higher education. It is fair to assume that most students may or may not have had prior experience with online learning. In the state of California, it is more likely that they have. It is clear from the results of the study that students are willing to embrace innovative ways of learning modalities. However, students may not be able to take full advantage of the benefits of online learning.

   a. *The institution should put in place a program that would provide technology resources and support for students to help them thrive in the online learning environment.*

b. *Training should also be made available so that students are able to navigate the online environment and become more familiar with the types of engagement involved in this modality of learning.*

Recommendations for Future Research

This study of perceptions of teaching presence had just barely touched the surface of the complexity of factors that contribute to student learning. There are still questions to be answered that would bear valuable results in future research for all stakeholders in higher education. Some suggested areas for future research include:

1. *Further studies should be done to determine which teaching presence components are most effective in the online format.* This would help faculty in designing their courses and plan for its delivery. Teaching presence strategies that helped students in online courses also apply to all learning environments. Knowledge of the strategies that would engage students in their learning would help faculty provide a more enhanced experience within the online learning environment. Instructors could use more research-based information on how to design courses that would most effectively project their teaching presence to promote learning in all course formats, online, face-to-face, and intensive.
2. *Further research on the overlaps of teaching presence components and faculty understanding of the different components and how best to leverage them to create teaching strategies effective in creating an engaging learning environment.* The merging of two of the teaching presence components in the quantitative results was similar to results obtained by Shea, Li, and Pickett (2006), who also found the teaching presence factors facilitated discourse and direct instruction merged into a single factor. While there was some demarcation of the components in the online faculty interviews, further studies

are warranted on the Teaching Presence Scale (Shea, Pickett, & Pelz, 2003) and the way the teaching presence components are defined.

3. *Examine the quality of training instructors receive in online course delivery*. Faculty professional development training could then be developed that would more adequately meet the needs of these instructors. A mixed methods research, including faculty interviews and field observations, could be conducted regarding perceptions of training. By combining both quantitative as well as qualitative methods, a researcher could design a study of teaching presence and its impact that is more thorough.
4. *Study different levels of perceptions on teaching presence that can occur with audio feedback and video feedback.* The students in this study mentioned the effectiveness of multimedia content. Another area that might be of great usefulness would be examining the role multimedia plays in establishing teaching presence. Jones, Naugle, and Kolloff (2008) found that welcome videos created teaching presence in online courses and impacted student satisfaction and perceived with the course. Audio feedback had the same impact (Ice, Curtis, Phillips, & Wells, 2007). The courses in this study used online forums, synchronous discussions, and feedback that were most probably text-based.
5. *Future studies could focus on questions raised in this study.* Questions to consider for future studies include:
   - Can the sample be expanded to include multiple disciplines and colleges?
   - Would there be value to including faculty and their perceptions of teaching presence from an instructor perspective?

- Might there be benefits to in-depth study of selected instructor attributes such as online teaching experience, instructional design experience, and technology self-efficacy?
- Might there be value to expanding student personal characteristics to include race and ethnicity and how this could impact perceptions of teaching presence in online learning?

There are numerous opportunities for exploring online courses and the various levels of teaching presence perceived by the students in the current educational climate. As the winds of economic uncertainty continue to swirl in campuses across the country, and technological change becomes a certainty, creative and innovative approaches to learning will be increasingly important.

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Appendix A - Invitation to Survey Participants

Dear LCoB student,

My name is Bobbi Makani, Sr. Director for Collaboration and Academic Technologies Integration, a PhD candidate in the Department of Curriculum and Instruction, College of Education, Kansas State University. I am seeking your help in a survey of instructor-student interaction and its impact on learning and satisfaction in online learning.

This study will examine undergraduate business students' perceptions of teaching presence in online classes. The results of this study will provide valuable insights on how instructors could improve the design of the online courses to enhance your learning experience in the online environment.

Your response to this survey will be greatly appreciated. It will take you approximately 30 minutes to complete this survey. No risks or discomforts are expected during the time you are taking this survey. Although the results of the research may benefit future students, it may not benefit you directly. No compensation is available to complete this survey.

Although the results of this study may be published, no information that could identify you will be included. The researcher will employ physical and digital means to ensure confidentiality of the information you provide. Your personal information will be stored in password-protected devices kept inside a locked cabinet inside the locked office of the researcher.

Your participation in this service is voluntary. You may refuse to participate in the entire study or in any part of the study. You have the right to not answer questions you do not wish to answer. If you decide to participate in the study, you are free to withdraw at any time without any negative effects on your relations with San Jose State University or with your professors. No service of any kind, to which you are otherwise entitled, will be lost or jeopardized if you choose not to participate in the study.

At the time you sign this consent form, you will receive a copy for your records, signed and dated by the investigator. Your signature on this document indicates agreement to participate in the study. The signature of a researcher on this document indicates agreement to include the above named subject in the research and attestation that the subject has been fully informed of his or her rights.

Questions about this research may be addressed to Dr. Bobbi Makani (bobbi.makani@sjsu.edu), office direct line (408) 924.3302. You may also contact Dr. Rosemary Talab, the researcher's major advisor at Kansas State University, talab@ksu.edu.

Thank you very much for taking the time to complete this survey.

Sincerely,

Bobbi Makani, Sr. Director, Collaboration and Academic Technology Integration
Ph.D. Candidate
Curriculum and Instruction
Kansas State University

Appendix B - Copy of the Survey

Notes:

- *Responses will be in 4 point Likert-type scale*
  1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree, N/A (I choose not to answer this question)
- *This survey was built in Qualtrics and distributed electronically*

Section I: Teaching Presence Scale (Shea, Pickett & Pelz, 2003)

Please consider the following statements and use the scale below to make your choice:

A. Instructional Design and Course Organization	**Scale**				
1. Overall, the instructor for this course clearly communicated important course goals (for example, provided documentation on course learning objectives).	1	2	3	4	N/A
2. Overall, the instructor for this course clearly communicated important course topics (for example, provided a clear and accurate course overview).	1	2	3	4	N/A
3. Overall, the instructor for this provided clear instructions on how to participate in course learning activities (e.g. provided clear instructions on how to complete course assignments successfully).	1	2	3	4	N/A
4. Overall, the instructor for this course clearly communicated important due dates/time frames for learning activities that helped me keep pace with this course (for example, provided a clear and accurate course schedule, due dates, etc.).	1	2	3	4	N/A
5. Overall, the instructor for this course helped me take advantage of the online environment to assist my learning (for example, provided clear instructions on how to participate in online discussion forums).	1	2	3	4	N/A
6. Overall, the instructor for this course helped students to understand and practice the kinds of behaviors acceptable in online learning environments (for example, provided documentation on "netiquette" i.e. polite forms of online interaction).	1	2	3	4	N/A
7. Overall, the course pace and difficulty were appropriate	1	2	3	4	N/A
8. Please give examples of how the way the course was designed helped you in your learning. (open-ended question)					
9. Please give examples of how the organization of the course topics helped you in your learning. (open-ended question)					
B.1. Facilitating Discourse	Scale				
10. Overall, the instructor for this course was helpful in guiding the class towards understanding course topics in a way that assisted me to learn.	1	2	3	4	N/A
11. Overall, the instructor in this course acknowledged student participation in the course (for example replied in a positive, encouraging manner to student submissions).	1	2	3	4	N/A

12. Overall, the instructor for this course encouraged students to explore new concepts in this course (for example, encouraged “thinking out loud” or the exploration of new ideas).	1 2 3 4	N/A
13. Overall, the instructor for this course helped keep the participants on task in a way that assisted me to learn.	1 2 3 4	N/A
14. How does your instructor keep the class engaged? (open-ended question)		
15. In what ways does your instructor guide the class towards understanding class topics? (open-ended question)		
B.2. Direct Instruction	Scale	
16. Overall, the instructor for this course presented content or questions that helped me to learn.	1 2 3 4	N/A
17. Overall, the instructor for this course helped to focus discussion on relevant issues in a way that assisted me to learn.	1 2 3 4	N/A
18. Overall, used intellectually challenging teaching methods that assisted me to learn.	1 2 3 4	N/A
19. I learned much knowledge from this course	1 2 3 4	N/A
20. Describe an instance when your instructor helped you learned a difficult topic. (open-ended question)		
21. Describe an instance when your instructor helped to focus the discussion that helped you learn. (open-ended question)		
C. Communication, Assessment and Feedback	Scale	
22. Overall, the instructor for this course provided explanatory feedback that assisted me to learn (for example, responded helpfully to discussion comments or course assignments).	1 2 3 4	N/A
23. Overall, the instructor for this course provided meaningful feedback that encouraged me to learn (for example, annotations or comments on coursework)	1 2 3 4	N/A
24. Overall, the instructor for this course helped me to revise my thinking (for example, correct misunderstandings) in a way that helped me to learn.	1 2 3 4	N/A
25. Overall, the instructor for this course provided useful information from a variety of sources that assisted me to learn (for example, references to articles, textbooks, personal experiences or links to relevant external websites).	1 2 3 4	N/A
26. When you submit assignments or post discussions and don’t receive instructor comments or feedback, how does this change the way you feel about your learning experience? (open-ended question)		
27. Describe how important is it for you to have personal contact with your instructor during the course through email, web or phone. (open-ended question)		
28. Describe the optimal level of interaction with your instructor in an online course. (open-ended question)		
29. Describe how your instructor’ presence impacts your learning experience. (open-ended question)		
30. What can the instructor do to improve his/her presence in your online course? (open-ended question)		

Section II: Demographic Items

31. Gender	Male	Female			
32. Age range	18–20	21-23	24-26	27-30	31 and above

Section III: Contextual Items

33. Class level	Freshman	Sophomore	Junior	Senior	Other
34. Course duration	16 weeks (semester)		10 weeks (intensive)		

Section IV: Technographic Items (adapted from ATUTS, Lukow, 2004)

A. Technology Use

35. How would you describe your skill level regarding computers?

Novice <--→Expert

1	2	3	4	5

For the next set of questions, please consider the following technologies, then indicate how frequently you use each type of technology.

Please use this rating scale:

1 = Never: at no time do I use computers for this purpose
2 = Rarely: less than 5 hours a week
3 = Sometimes: more than five hours a week, but less than 1 hour a day
4 = Often: more than 1 hour a day, but less than 4 hours a day
5 = Frequently: more than 4 hours a day.

36. Word processing (for example, creating documents with Microsoft Word)	1 2 3 4 5 N/A
37. Spreadsheet (for example, Microsoft Excel)	1 2 3 4 5 N/A
38. Email and communication (includes chats, SMS, IM)	1 2 3 4 5 N/A
39. Social media (for example, Facebook, Twitter, LinkedIn)	1 2 3 4 5 N/A
40. Streaming videos (for example, Netflix, YouTube, Amazon Prime)	1 2 3 4 5 N/A

B. Attitude Toward the Use of Technology

Below are statements that identify your attitude toward technology and how it influences your achievement of the course objectives. For each statement, please circle only ONE response that best reflects your attitude toward the specified technology. If you have not seen the specified technology used, please place a check in the “Not Applicable” checkbox.

For all other responses, please use the following scale to guide you:

Generally distracts me from achieving the objectives of the course. | -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 | Generally facilitates my achievement of the objectives of the course.

Undecided

41. Email

Generally distracts me from achieving the objectives of the course. -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 Generally facilitates my achievement of the objectives of the course. **Not Applicable**

Undecided

42. Chatting and IM (for example, WebEx, Jabber, Google Chat)

Generally distracts me from achieving the objectives of the course. -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 Generally facilitates my achievement of the objectives of the course. **Not Applicable**

Undecided

43. Web conferencing (for example, WebEx, Google Hangout, Skype)

Generally distracts me from achieving the objectives of the course. -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 Generally facilitates my achievement of the objectives of the course. **Not Applicable**

Undecided

44. Canvas Learning Management System

Generally distracts me from achieving the objectives of the course. -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 Generally facilitates my achievement of the objectives of the course. **Not Applicable**

Undecided

45. Online Discussion forum

Generally distracts me from achieving the objectives of the course. -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 Generally facilitates my achievement of the objectives of the course. **Not Applicable**

Undecided

46. Multimedia (for example, PowerPoint presentations, lectures or videos used by the instructor)

Generally distracts me from achieving the objectives of the course. -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 Generally facilitates my achievement of the objectives of the course. **Not Applicable**

Undecided

Appendix C - Letter of Consent

Name Date

Dear (name):

I am completing a doctoral research project at Kansas State University that examine the undergraduate business students' perceptions of teaching presence in online classes. The study will examine undergraduate business students' characteristics and how the differences between these characteristics affect their perceptions of teaching presence. The results of this study will provide valuable insights on how instructors could improve the design of the online courses to enhance future students' learning experience in the online environment. It will take about 30 minutes to complete the online electronic questionnaire.

The researcher will keep all returned surveys. Your identity will be kept confidential. The results of this study will be available per your request by contacting Professor Rosemary Talab of Kansas State University at talab@ksu.edu. A copy of the final dissertation will be available on K-REX, Kansas State University's electronic thesis and dissertation repository.

Your participation in this study is very valuable and appreciated!

Sincerely,

Bobbi Makani/Dr. Rosemary Talab
Doctoral Candidate/Researcher Professor and Dissertation Committee Chair
Kansas State University

Appendix D - SJSU IRB Certification

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI)

EDUCATIONAL RESEARCHERS CURRICULUM COMPLETION REPORT

Printed on 03/12/2014

LEARNER	Betty Makani (ID: 3926502)
DEPARTMENT	Marketing and Decision Sciences
EMAIL	bobbi.makani@sjsu.edu
INSTITUTION	San Jose State University
EXPIRATION DATE	

EDUCATIONAL RESEARCHERS : Choose this group to satisfy CITI training requirements for Investigators and staff involved primarily in Social/Behavioral Research with human subjects.

COURSE/STAGE:	Basic Course/1
PASSED ON:	01/10/2014
REFERENCE ID:	12041505

REQUIRED MODULES	DATE COMPLETED	SCORE
Belmont Report and CITI Course Introduction	01/09/14	3/3 (100%)
Students in Research	01/09/14	10/10 (100%)
History and Ethical Principles - SBE	01/09/14	5/5 (100%)
Defining Research with Human Subjects - SBE	01/09/14	5/5 (100%)
The Regulations - SBE	01/09/14	5/5 (100%)
Assessing Risk - SBE	01/10/14	5/5 (100%)
Informed Consent - SBE	01/10/14	5/5 (100%)
Privacy and Confidentiality - SBE	01/10/14	5/5 (100%)
Research with Prisoners - SBE	01/10/14	4/4 (100%)
Research with Children - SBE	01/10/14	4/4 (100%)
Research in Public Elementary and Secondary Schools - SBE	01/10/14	4/4 (100%)
International Research - SBE	01/10/14	3/3 (100%)
Internet Research - SBE	01/10/14	5/5 (100%)
Research and HIPAA Privacy Protections	01/10/14	5/5 (100%)
Vulnerable Subjects - Research Involving Workers/Employees	01/10/14	4/4 (100%)
Conflicts of Interest in Research Involving Human Subjects	01/10/14	5/5 (100%)

For this Completion Report to be valid, the learner listed above must be affiliated with a CITI Program participating institution or be a paid Independent Learner. Falsified information and unauthorized use of the CITI Progam course site is unethical, and may be considered research misconduct by your institution.

Paul Braunschweiger Ph.D.
Professor, University of Miami
Director Office of Research Education
CITI Program Course Coordinator

Appendix E - SJSU IRB Approval

SAN JOSÉ STATE
UNIVERSITY

Division of Academic Affairs

Associate Vice President
Graduate Studies & Research

www.sjsu.edu/gradstudies

One Washington Square
San José, California 95192-0025
Voice: 408-924-2427

www.sjsu.edu

To: Dr. Betty Makani
Department of Marketing and Decision Sciences
San Jose State University
One Washington Square
San Jose, CA 951192-0013

From: Pamela Stacks, Ph.D.
Associate Vice President
Graduate Studies and Research

Pamela C Stacks

Date: December 12, 2014

The Human Subjects-Institutional Review Board has registered your study entitled:

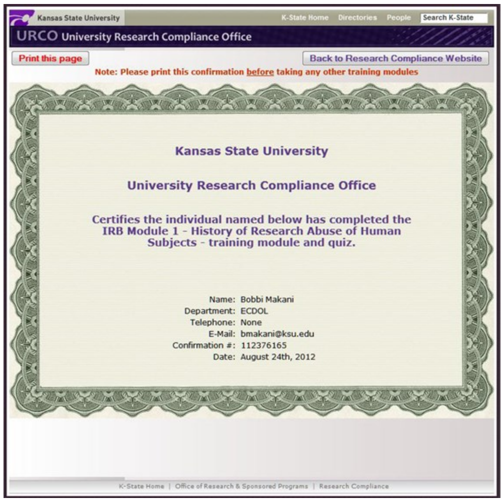
"Undergraduate Business Student Perceptions of Teaching Presence in Online Classes"

This registration, which provides exempt status under Exemption Category 2 of SJSU Policy S08-7, is contingent upon the subjects participating in your research project being appropriately protected from risk. This includes the protection of the confidentiality of the subjects' identity when they participate in your research project, and with regard to all data that may be collected from the subjects. The approval includes continued monitoring of your research by the Board to assure that the subjects are being adequately and properly protected from such risks. If at any time a subject becomes injured or complains of injury, you must notify Dr. Pamela Stacks, Ph.D. immediately. Injury includes but is not limited to bodily harm, psychological trauma, and release of potentially damaging personal information. This approval for the human subject's portion of your project is in effect for one year, and data collection beyond December 12, 2015 requires an extension request.

Please also be advised that all subjects need to be fully informed and aware that their participation in your research project is voluntary, and that he or she may withdraw from the project at any time. Further, a subject's participation, refusal to participate, or withdrawal will not affect any services that the subject is receiving or will receive at the institution in which the research is being conducted. If you have any questions, please contact me at (408) 924-2427.

Protocol #: F1404065

Appendix F - KSU IRB Certifications



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URCO University Research Compliance Office

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Note: Please print this confirmation before taking any other training modules

Kansas State University

University Research Compliance Office

Certifies the individual named below has completed the IRB Module 1 - History of Research Abuse of Human Subjects - training module and quiz.

Name: Bobbi Makani
Department: ECDOL
Telephone: None
E-Mail: bmakani@ksu.edu
Confirmation #: 112376165
Date: August 24th, 2012

K-State Home | Office of Research & Sponsored Programs | Research Compliance

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Note: Please print this confirmation before taking any other training modules

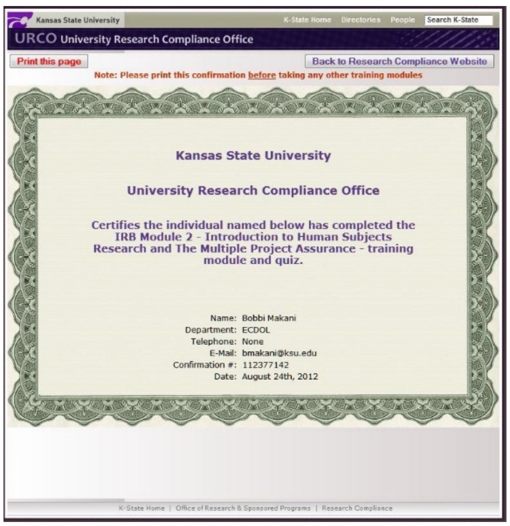
Kansas State University

University Research Compliance Office

Certifies the individual named below has completed the

IRB Module 4 - The Belmont Report - training module and quiz.

Name: Bobbi Makani
Department: ECDOL
Phone: None
E-Mail: bmakani@ksu.edu
Confirmation#: 181490483
Date: November 2nd, 2014



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Kansas State University

University Research Compliance Office

Certifies the individual named below has completed the IRB Module 2 - Introduction to Human Subjects Research and The Multiple Project Assurance - training module and quiz.

Name: Bobbi Makani
Department: ECDOL
Telephone: None
E-Mail: bmakani@ksu.edu
Confirmation #: 112377142
Date: August 24th, 2012

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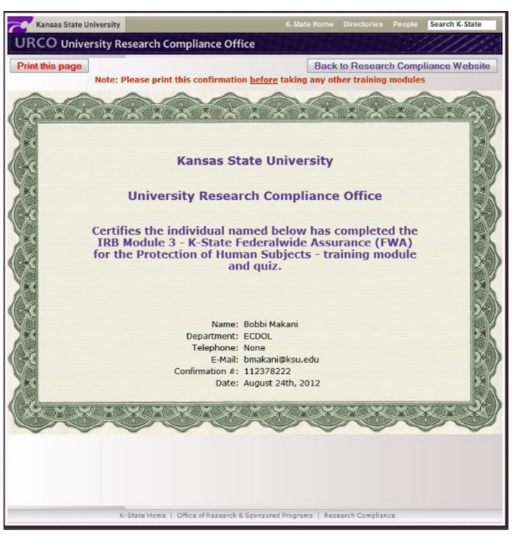
Kansas State University

University Research Compliance Office

Certifies the individual named below has completed the

IRB Module 5 - Identifying, Assessing, and Minimizing Risks of Social and Behavioral Research - training module and quiz.

Name: Bobbi Makani
Department: ECDOL
Phone: None
E-Mail: bmakani@ksu.edu
Confirmation#: 181490878
Date: November 2nd, 2014



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Note: Please print this confirmation before taking any other training modules

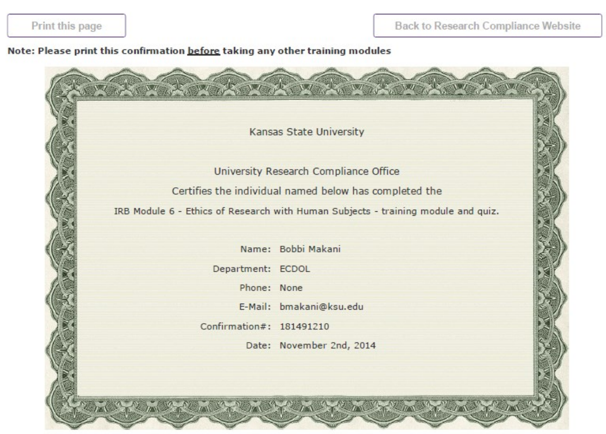
Kansas State University

University Research Compliance Office

Certifies the individual named below has completed the IRB Module 3 - K-State Federalwide Assurance (FWA) for the Protection of Human Subjects - training module and quiz.

Name: Bobbi Makani
Department: ECDOL
Telephone: None
E-Mail: bmakani@ksu.edu
Confirmation #: 112378222
Date: August 24th, 2012

K-State Home | Office of Research & Sponsored Programs | Research Compliance



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Note: Please print this confirmation before taking any other training modules

Kansas State University

University Research Compliance Office

Certifies the individual named below has completed the

IRB Module 6 - Ethics of Research with Human Subjects - training module and quiz.

Name: Bobbi Makani
Department: ECDOL
Phone: None
E-Mail: bmakani@ksu.edu
Confirmation#: 181491210
Date: November 2nd, 2014

Appendix G - KSU IRB Approval

KANSAS STATE UNIVERSITY | University Research Compliance Office

TO: Rosemary Talab
Curriculum & Instruction
226 Bluemont

Proposal Number: 7517

FROM: Rick Scheidt, Chair
Committee on Research Involving Human Subjects

DATE: 01/19/2015

RE: Proposal Entitled, "Undergraduate Business Student Perceptions of Teaching Presence in Online Classes"

The Committee on Research Involving Human Subjects / Institutional Review Board (IRB) for Kansas State University has reviewed the proposal identified above and has determined that it is EXEMPT from further IRB review. This exemption applies only to the proposal - as written – and currently on file with the IRB. Any change potentially affecting human subjects must be approved by the IRB prior to implementation and may disqualify the proposal from exemption.

Based upon information provided to the IRB, this activity is exempt under the criteria set forth in the Federal Policy for the Protection of Human Subjects, **45 CFR §46.101, paragraph b, category: 2, subsection: ii.**

Certain research is exempt from the requirements of HHS/OHRP regulations. A determination that research is exempt does not imply that investigators have no ethical responsibilities to subjects in such research; it means only that the regulatory requirements related to IRB review, informed consent, and assurance of compliance do not apply to the research.

Any unanticipated problems involving risk to subjects or to others must be reported immediately to the Chair of the Committee on Research Involving Human Subjects, the University Research Compliance Office, and if the subjects are KSU students, to the Director of the Student Health Center.

203 Fairchild Hall, Lower Mezzanine, Manhattan, KS 66506-1103 | 785-532-3224 | fax: 785-532-3278 | k-state.edu/research/comply

Appendix H - Research Questions Matrix

	Teaching Presence Component			**Student Characteristic**			**Technographic**	
Survey Item Number	PLANNING Instructional Design and Course Organization	IMPLEMENTATION Facilitating Discourse and Direct Instruction	ASSESSMENT Communication, Assessment and Feedback	Personal	Contextual	Technology Skill Level	Use of Technology	Attitude Toward Use of Technology
1	√							
2	√							
3	√							
4	√							
5	√						√	
6	√						√	
7	√							
8	√							
9	√							
10		√						
11		√						
12		√						
13		√						
14		√						
15		√						
16		√						
17		√						
18		√						
19		√						
20		√						
21		√						
22			√					
23			√					

	Teaching Presence Component			Student Characteristic			Technographic	
Survey Item Number	PLANNING Instructional Design and Course Organization	IMPLEMENTATION Facilitating Discourse and Direct Instruction	ASSESSMENT Communication, Assessment and Feedback	Personal	Contextual	Technology Skill Level	Use of Technology	Attitude Toward Use of Technology
24			√					
25			√					
26			√					
27			√					
28			√					
29			√					
30			√					
31				√				
32				√				
33					√			
34					√			
35						√		
36							√	
37							√	
38							√	
39							√	
40							√	
41								√
42								√
43								√
44								√
45								√
46								√

Appendix I - Research Study Timeline

Research Phase	Month	Tasks
PREPARATION PHASE		
Pre-writing and topic development: • Conceptual architecture • Methods and research design • IRB permissions	December 2014	• Develop preliminary topic, research purpose, research questions, research design and approach. Identify theoretical and empirical references. Conduct literature review and develop preliminary biography • Present research proposal for approval to advisor and committee members. • Refine structure, constructs, and conceptual architecture based on inputs and feedback from the advisor and committee members. • Secure IRB permission to conduct research involving human subjects. • Design survey instrument for the quantitative phase of the study (Phase II). • Identify classes for quantitative data collection.
PHASE I		
Data Collection	January to March 2015	• Conduct pilot study. • Begin data collection. • Distribution of online survey to undergraduate business students taking online courses in spring 2015.
PHASE II and III		
Analysis of results	April to May 2015	Complete data collection and conduct analysis on the results from Phase I.
Integration of quantitative and qualitative analysis		Integrate analyses for quantitative and qualitative results. Examine correlations between two data strands. Draw up implications.
FINAL PHASE		
Writing the report Final revisions (edit) Submit final copy to advisor and committee	June to October 2015	Write up discussions on the results. Review draft, edit carefully, revise, and finalize draft. Print final copy for submission.

Appendix J - Strength of Association Test Results

Gender and IDCO

Symmetric Measures (Q6)				
Gender vs ID_acceptable_behavior Dependent	Value (γ)	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Gamma	**-.128**	.081	-1.575	.115

Symmetric Measures (Q7)				
Gender vs. ID_pace_difficulty Dependent	Value (γ)	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Gamma	**-.102**	.087	-1.135	.257

Class Level and CAF

Symmetric Measures (Q23)				
Class Level vs CAF_provided_meaningful_feedback	Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Gamma	**.108**	.063	1.706	.088

Symmetric Measures (Q24)				
Class Level vs. CAF_help_revise_my_thinking Dependent	Value (γ)	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Gamma	**.132**	.060	2.185	.029

Note: For strength of association tests, γ scores between 0.10 to 0.29 are considered to have moderate association.

Appendix K - Permission for ATUT Survey Tool

Bobbi Makani-Lim <bmakani.lim@gmail.com>

Fwd: Hello and request for permission
1 message

Bobbi Makani-Lim <bmakani.lim@gmail.com> Sun, Oct 4, 2015 at 5:21 PM
To: "Bobbi Makani-Lim (GMail)" <bmakani.lim@gmail.com>

---------- Forwarded message ----------
From: **Bobbi Makani-Lim** <bmakani.lim@gmail.com>
Date: Tue, Nov 25, 2014 at 2:34 PM
Subject: Re: Hello and request for permission
To: "Lukow, Jennifer E" <jlukow@highpoint.edu>

Thank you very much for your permission, Dr. Lukow!

Best regards,
Bobbi

On Tue, Nov 25, 2014 at 11:51 AM, Lukow, Jennifer E <jlukow@highpoint.edu> wrote:

> Ms. Makani,
>
> I would be happy to allow you to use a modified version of my survey instrument for your dissertation. Good luck and let me know how everything turns out!
>
> ___________________________________
>
> Jenny Lukow, Ph.D.
>
> Sport Management Coordinator
>
> Nido R. Qubein School of Communication
>
> High Point University
>
> Phone: 336-841-9184
>
> **From:** Bobbi Makani-Lim [mailto:bmakani.lim@gmail.com]
> **Sent:** Sunday, November 16, 2014 9:58 AM
> **To:** Lukow, Jennifer E
> **Subject:** Hello and request for permission
>
> Dear Dr. Lukow,
>
> I hope this email finds you well.

Please let me introduce myself. I am Bobbi Makani, a doctoral candidate from Kansas State University in Curriculum and Instruction.

I came across a tool that you developed to measure student attitudes towards technology, and I'd like to use a modified version of the tool for my dissertation. My study is on undergraduate students perception of teaching presence in online courses and I believe that knowing about their attitudes towards technology can help explain their perceptions about the course.

May I formally request to use the survey tool "Attitudes Toward the Use of Technology" (ATUTS)?

Please let me know if I have your permission by responding to this email.

Many, many thanks for your help and consideration.

Sincerely,

Bobbi Makani

Appendix L - Permission for Teaching Presence Scale Survey Tool

Gmail by Google

Bobbi Makani-Lim <bmakani.lim@gmail.com>

Re: Re: Inquiry and request to use CoI TPS survey instrument

1 message

Bobbi Makani-Lim <bmakani.lim@gmail.com> Sun, Oct 4, 2015 at 5:20 PM
To: "Bobbi Makani-Lim (GMail)" <bmakani.lim@gmail.com>

---------- Forwarded message ----------
From: **Bobbi Makani-Lim** <bmakani.lim@gmail.com>
Date: Sat, Nov 8, 2014 at 6:16 AM
Subject: Re: Inquiry and request to use CoI survey instrument
To: "D. Randy Garrison" <garrison@ucalgary.ca>

Thank you very much, Dr. Garrison!

Best regards,
Bobbi
====

On Saturday, November 8, 2014, D. Randy Garrison <garrison@ucalgary.ca> wrote:

> Bobbi,
> You have my permission to use the COI survey.
> Best wishes,
> DRG
>
> Sent from my iPad
>
> > On Nov 7, 2014, at 12:32 AM, Bobbi Makani-Lim <bmakani.lim@gmail.com> wrote:
> >
> > Dear Dr. Garrison,
> >
> > I hope this email finds you well.
> >
> > I would like to request to use the CoI survey instrument (Teaching Presence Scale) in my dissertation. May I ask how to go about obtaining permission to do this?
> >
> > Many, many thanks for your help!
> >
> > All the best,
> > Bobbi Makani

Appendix M - Graphical Representation of the Teaching Presence Components, Themes and Relationships of Student Characteristics