Perceptions of Quality Among Undergraduate Students in Online Courses: A Community of Inquiry Framework Approach to Quality in Higher Education

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ABSTRACT

The COVID-19 pandemic, known as the coronavirus, was declared as a national pandemic by the World Health Organization in March 2020 (Cucinotta & Vanelli, 2020). Following the declaration of a national pandemic, institutions across society were forced to respond. Among those most immediately impacted, were colleges and universities. Higher education faculty and administrators transitioned in-person courses to an online format to adjust to the restrictions of coronavirus. As a result, college students around the world experienced a sudden shift to taking an entire semester of courses in an unfamiliar online format. The pandemic served as a catalyst to a trend over the last 2 years to provide access to a growing number of online courses. Given this drastic change and the unprecedented future of higher education during uncertain times, it was imperative to further study the nature of quality in online courses. While research on quality in higher education is extensive, a significant gap in literature exists related to students' perspectives of quality, particularly in online courses. To address this gap, I used the Community of Inquiry framework (CoI) (Garrison, Anderson, and Archer, 2000) and related survey to explore aspects that contribute to perceptions of online education quality. The study investigated how undergraduate students at a large public research institution perceived the importance of elements of the CoI Framework. The data analyses included independent sample t tests, one-way ANOVAs, and regression. The results revealed that course pedagogy does affect students' perceptions of online quality. However, student characteristics do not affect students' perceptions of quality for online courses in Higher Education.

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GENERAL AUDIENCE ABSTRACT

It is important to understand quality in higher education because of its economic and social value. Gaining a deeper understanding into how students perceive quality is crucial, since they are the main consumer group of higher education. As a result of COVID-19, which was declared a national pandemic by the World Health Organization in March 2020 (Cucinotta & Vanelli, 2020), all higher education institutions were forced to transition courses to an online format. Due to the prevalence of online courses, quality of online courses became a primary focus for educational leaders. This study sought to better understand how students who are members of a single academic college at a large public university perceive the quality of online courses. The 145 participants in this study completed the online Community of Inquiry survey, which had an estimated 10–15-minute completion time. The survey contained 34 Likert scale questions related to students' experiences in an online course they have taken within the past academic year. This quantitative study utilized the Community of Inquiry framework which creates a deep and meaningful quality learning experience in online courses. (Garrison, Anderson, and Archer, 2000). The results of this study revealed that course pedagogy does affect students' perceptions of online quality. This study also found that student characteristics do not affect students' perceptions of quality for online courses in higher education.

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Chapter One

Introduction

The topic of quality in higher education is complex one, with multiple ways of "interpreting quality, and many theories, models and performance indicators used to try to quantify and evaluate quality" (Turner, 2011, p. 1). Studies on quality also indicate there is no agreed upon definition of the term quality in higher education and that the term is often subjective (Schindler et al., 2015). Since a universal definition of quality remains elusive among scholars of higher education, operationalizing quality at American colleges and universities is challenging. Additionally, various stakeholders in higher education have wide-ranging quality expectations which complicate how quality is perceived at such institutions (Jongbloed et al., 2008). After careful review of literature, it is evident that value is placed on how key stakeholders define quality in higher education. Additionally, there are many questions that can be asked related to quality, such as "Does a large organisation like a university have a single purpose? Is the purpose of a university constant over time? And whose purpose is important in assessing quality?" (Turner, 2011, p. 1).

In order to answer these questions and determine quality at institutions, processes of quality management emerged at institutions. Program review and institutional accreditation, which are critical quality management activities, are common practices among postsecondary institutions. These quality assurance processes arose to "ensure that external expectations regarding quality are met" and to demonstrate quality of higher education for students (Yorke, 2000, p. 22). The rationale to determine quality is present in higher education, and additionally Koslowski (2006) states that "increased competitive pressure, finite individual and institutional resources, and increased demand for universal access, have made assessing the quality of higher

education a major public, private, and international concern" (p. 277). As a public concern, quality management activities are needed at higher education institutions to assist in determining and evaluating quality.

In current quality management practice, various stakeholders are involved in the quality processes at higher education institutions. Higher education administrators actively engage in the quality process and collect evidence related to quality standards during the self-study step in the accreditation process (Volkwein, 2010). Faculty and administrators volunteer with accrediting bodies to visit institutions and provide feedback in a report for these institutions (Volkwein, 2010). Faculty members include and conduct assessments related to their teaching in the courses they instruct. Additionally, many higher education institutions have internal, faculty-led program review processes (Volkwein, 2010, p. 6). Oftentimes external stakeholders, namely from industry, are included in reviews. However, one key stakeholder is conspicuously missing. Student involvement is at best underrepresented in the quality management process.

Students who serve as the primary stakeholders in higher education, are excluded from quality management activities at institutions (Grant et al., 2004). An important gap in literature related to quality in higher education is related to students' perceptions of quality in higher education. Some scholars indicate that attention should be directed to student's quality expectations and that institutions need to respond to student expectations (Young & Norgard, 2006). Cavallone (2020) further necessitates such studies to "increase the quality of educational services" (p. 204). Unfortunately, current assessment and evaluation practices lack student quality expectations.

Another imperative gap in literature is specifically within the realm of online education. Enrollment in online courses at higher education institutions have been steadily increasing over

the years and are predicted to continue to grow (Bowen, 2013). Given the continuous advancements in technology and anticipated standard practice of online courses, higher education institutions need to be prepared to assess the quality of online courses at their institutions. Moreover, the recent global health pandemic has propelled a rapid shift to online education that many predict will continue (Gillis & Krull, 2020). As of April 2020, 98% of "institutions had moved the majority of in-person classes online" and students at these institutions were engaged in some form of online learning (Bastrikin, 2020). While this is largely necessitated by a health crisis, there remains questions about the long-term implications of online education for colleges and universities as a way to increase enrollment and respond to continued calls for affordability. Additionally, given the current health pandemic, many courses will remain online or may shift online as conditions change. Given both short and long-term interests in shifting instruction, stakeholders inside and outside walls of academe have a vested interest to ensure high quality educational experience.

Few studies exist that explicitly address how students' definite quality in higher education. However, these studies occurred outside the United States. Additionally, these studies focused on student perceptions of quality at small institutions. Given these gaps, there is need for a study that addresses how students conceptualize quality at a large public research institution. Ever-changing dynamics among student consumers in higher education, political and economic pressures, reputational drivers, and consistently evolving roles of education, there is abundant need for research which contributes to understanding how students perceive quality in higher education.

Since students are designated as the main stakeholders at higher education institutions, it is arguably incumbent that American higher education institutions involve and consider students'

definitions and perceptions of quality (Cavallone et al., 2020). Higher education institutions in other countries have realized the advantage of involving students and their perspectives in the quality management processes. Universities and colleges outside of the United States take a national strategic approach to the improvement of the overall student experience at an institution by emphasizing "student involvement in quality development and management" (Gordon & Land, 2013, p. 116). For example, under the European Bologna Process students' perspectives are beginning to receive more consideration and institutions are required to be responsive to student perceptions (Sin, Veiga, & Amaral, 2016). Additionally, European countries have adopted Quality Assurance mechanisms, in order to "gain more transparency, accountability, and legitimacy in European higher education systems" (Yeremenko, 2018, p. 1). Some of these Quality Assurance mechanisms outlined by Yeremenko (2018) include: "the launch of the Institutional Evaluation Program (IEP), the European pilot projects for evaluating quality in higher education, the creation of the European Network for Quality Assurance (ENQA) renamed into the European Association for Quality Assurance in Higher Education (ENQA), the creation of the Joint Quality Initiative (JQI) and the European Quality Assurance Register (EQAR)" (p. 1).

As the field of assessment emerges and institutions must demonstrate quality through continuous improvement, a more holistic approach to quality management may need to include students. There remain few studies that address how students' definite quality in higher education, however these studies occurred outside of the realm of students and institutions within the United States. Additionally, a study is needed that addresses how students conceptualize quality at a large public research institution where online courses have not been the norm. As higher education moves away from the traditional format of conducting classes in person, and

online courses become a common practice at institutions, there is also a need for higher education faculty and administrators to develop an understanding of how undergraduate students perceive quality of online courses.

One way to bolster quality improvement efforts may be to incorporate students into quality management activities such as assessment of student learning and academic program review. One area where students can be involved is in providing feedback related to quality of courses. There is notable literature related to quality in higher education at the policy level; however, this literature does not address students' perceptions of quality of courses. While some studies examine whether online courses are comparable with in person classes (Bernard et al., 2004; Herman & Banister, 2007; Means et al., 2009; Weber & Lennon, 2007), these comparison studies fail to address recent research that incorporate student perceptions of online courses related to quality.

Further, much of the existing research addresses *overall* quality of online courses in higher education rather than a more nuanced approach that includes *students' perspectives*. This proposed study will explore how students conceptualize quality of online courses at a large, public American research university. This study will inform faculty members, academic administrators, assessment professionals, and importantly accreditation agencies in developing quality assurance mechanisms such as assessment to include students' perspectives of quality. Ultimately this study aims to inform improving the quality of online courses for students. Importantly, this study uses the Community Inquiry Framework which appropriately situates assessment methods in key teaching and learning domains as proximate measures of academic quality.

Statement of Problem and Purpose of the Study

The problem underlying this study is that current practices of measuring and evaluating quality at higher education institutions do not take a holistic approach. Current practices of evaluating quality in higher education are focused on the perspectives of quality from government, faculty, administrators, industry, and accrediting bodies. Current quality management activities, such as program review and accreditation, fail to consider how *students* perceive quality in higher education. Research is lacking related to how students perceive quality of online courses.

The purpose of this quantitative study was to explore how undergraduate students who recently enrolled in online classes perceived the importance of three elements central to the Community of Inquiry Framework: Social, Teaching, and Cognitive Presence. This study asked students to select an online class they have taken that they perceived as being high quality. Students reflected on this experience with a selected course when they responded to a survey designed to elicit perceptions of quality in the classroom. Additionally, differences among gender, race/ethnicity, and academic year were analyzed.

Research Questions

Given the prevailing issues and challenges identified, and a dearth of research on quality perceptions among students, this study seeks to address an overarching research question: How do undergraduate students who enrolled in at least one online course perceive quality?

This study is guided by the following research questions:

1. What student characteristics affect students' perceptions of quality for online courses in higher education?

2. What course characteristics affect students' perceptions of quality for online courses in higher education?
3. What is the relationship of student and course characteristics to Social, Teaching, and Cognitive Presence in the Community of Inquiry Framework?

Conceptual Framework

Throughout higher education, there have been multitude ways in which quality has been measured. One of the more promising is with the Community of Inquiry (CoI) framework. The Community of Inquiry framework is a research-based framework that has guided research of online learning. This framework "aims to articulate the social and academic factors necessary for the development of high-quality online education" (Shea & Bidjerano, 2008, p. 340). Further, this framework has been employed by numerous researchers for "quality research of online learning environments and has become increasingly popular as a tool for conceptualizing the online learning process" (Garrison & Arbaugh, 2007, p. 158). In this quantitative study, the framework will serve the purpose of exploring quality of online courses within a college at a large public research institution.

In early research related to online learning, there was a significant amount of emphasis placed on Social Presence (Garrison & Arbaugh, 2007). However, research by Henri (1992), balanced an attention to a cognitive dimension of online learning" (Garrison & Arbaugh, 2007). Garrison, Anderson, and Archer (2000) followed Henri and developed a more comprehensive framework for online learning, which is known today as the Community of Inquiry Framework (Garrison & Arbaugh, 2007). The CoI consists of three elements; Social, Teaching, and Cognitive Presence. (Garrison & Arbaugh, 2007). This Community of Inquiry framework has been utilized and cited throughout literature, as online courses have become more prevalent at

higher education institutions. The CoI Framework was selected for this study due to the overall purpose of this study being interested in the concept of quality in an online environment. For the purpose of this present study, the framework was utilized to determine which element students perceive as most important in an online environment, as well as how students' perceptions of the three elements of the framework differ among various characteristics of students.

Significance of the Study

Previous studies on quality in higher education address quality as perceived differently by various stakeholders. Other studies point to students as the primary stakeholder group since students represent the "key value targets of educational institutions" (Cavallone et al., 2020, p. 204). Determining quality in higher education has emerged as a prominent topic due to the importance of accountability and affordability placed on colleges and universities by state and federal governments. As a result, many quality management activities have been put into place (Altmann & Ebersberger, 2013). These quality management activities assist in ensuring a standard level of quality among higher education institutions. When institutions employ these quality activities and standards, a crucial aspect that is missing related to quality management is a more meaningful and active engagement of students.

Current practice related to quality management at institutions fails to incorporate students in the quality management process. As the main stakeholder group at institutions, students should be included in the quality management process. Assessment professionals are advocating that students have a role and can contribute to the quality process at universities (Bishop et al., 2012). Engaging students in quality management activities results in a change in assessment culture "from traditional accountability to shared responsibility" (Cook-Sather, 2009, p. 231-232). Including students in the quality management process in higher education can be related to

the framework of constructivism as a theory in teaching and learning. Allowing students to actively participate and work alongside their professors in assessing their own learning over the course of the semester or year, will result in more engaged students and "positive outcomes of student success and development" (Bishop et al., 2012, p. 3).

Involving students in the assessment process also contributes to buy in for students as well as is connected to the concept of validity. If students are able to provide input into assessing the quality of online classes and feedback that is utilized to improve the quality of online classes, then the validity of measuring quality can be increased. These key stakeholders can provide an additional perspective when determining the quality of online courses besides the professor teaching the class and the department the course corresponds to. Recent assessment framework suggests that the field of assessment is heading in the direction of involving students in assessment practice. There is a gap in current research with very few studies and information related to involving students in quality management in higher education. As it stands, there is a disconnect between theory and current practice. This study will contribute to the further advancement of teaching and learning theory as well as assessment practice, and therefore is significant.

Incorporating student perceptions related to the quality of online courses will assist in enhancing overall measures of quality. The goal of education administrators related to online quality of classes, is to measure the "quality" of courses as accurately as possible. Since quality is an abstract concept, the more evidence we can collect related to quality, that can be incorporated in measuring quality, will lead to a more valid measure. As defined in their article, "Validity and reliability in quantitative studies," Heale and Twycross (2015) state that validity is defined as "the extent to which a concept is accurately measured in a quantitative study" (p. 66).

By adding student perceptions into the process of measuring the quality of online courses, a more valid measure of quality will be achieved.

The audience for the study includes any individual or group of individuals that are involved in quality management activities at higher education institutions. Additionally, any individual that is interested in furthering assessment practices, as well as quality of online classes at higher education institutions. This study is particularly designed for audience members that are classified in one of the following groups: assessment administrators, higher education accrediting body members, faculty and staff, and government agencies in higher education. Findings from this study will impact both theory and practice. As a result of this study, administrators and assessment professionals in higher education will further develop a greater understanding of how student perspective and engagement in quality management activities can be impactful at an institution. Specifically, this study will assist in contributing to research related to online courses and how students can assist in defining quality and developing assessment practices of online quality.

This study is significant for practice and for several higher education constituencies. The first group that the results of this study would impact are students at higher education institutions. Involving students in quality management at higher education institutions will allow students to feel as if their voices are being heard. Students could actively participate in quality management by communicating their perceptions of quality at institutions and of quality of online courses. Students could also assist in shaping how quality of online courses are measured. Incorporating students' definitions and perceptions of quality, will allow faculty to better develop online courses and contribute to ensuring students' expectations of online courses are met.

Another group that would benefit from the results of this study are faculty and administrators at higher education institutions. This study will provide insight to faculty that are teaching online courses. Importantly, insights into students' quality expectations of these courses might contribute to higher levels of engagement and student performance. And while online courses have existed for many years, advances in technology coupled with institutional financial considerations have prompted more universities to expand online offerings. This study will allow teaching faculty to develop a better understanding of what students expect from online courses. Having more information related to what students' value as quality components for online classes will allow faculty to better plan and implement their online courses.

Assessment professionals is another group that would benefit from this study. The field of assessment continues to grow as accrediting bodies demand more sophisticated, valid, and reliable forms of evidence of student learning. An important missing piece of evidence is students' direct participation in the assessment process. This study aims to explore student perceptions of quality, a key initial step towards such involvement, particularly in online education. From this study, assessment professionals will gain more knowledge related to students' expectations of quality and how students perceive quality in online. Online courses remain elusive for many assessment professionals since online programs and courses are relatively new at large, traditional universities.

One other important group that will benefit from the findings of this study are individuals that work with or for accrediting bodies. As online courses become customary, accrediting bodies will need to adapt the ways in which they determine quality of programs and courses conducted online. Accrediting bodies will also need to adjust how they define and measure quality. As the field of assessment evolves and incorporates students as a best practice in quality

management activities, accrediting bodies will need to respond to this development and determine ways in which they can incorporate students into the accreditation process. Since current and past literature has defined students as the main stakeholder group at higher education institutions, accrediting bodies need to ensure this main stakeholder group is represented in their practice of accreditation and determine ways in which they can incorporate students' definitions and perceptions of quality. This study will assist individuals associated with accrediting bodies on how students define and perceive quality at higher education institutions and in online classes. The individuals associated with accrediting bodies could take the findings and themes that emerge from this study and develop ways in which students' conceptualizations of quality can be incorporated into the accreditation process.

This present study also has significance for future research. This study provides a deeper insight into how students define and perceive quality at higher education institutions and of online courses. Future studies related to this topic might explore what factors affect students' definitions and perceptions of quality at higher education institutions. A study related to factors may focus on socioeconomic status, race, gender identity, and first-generation status. A study focused on factors that contribute to students' definitions and perceptions of quality would aid in providing a more holistic picture of quality in higher education.

Finally, this study is significant for future assessment theory and practice. To date, the theory of constructivism has been solely focused on the field of teaching and learning. However, the theory of constructivism can and should be applied to the field of assessment. Applying this theory to the field of assessment, allows students to serve as a producer or co-producer in the quality management process (Bishop et al., 2012, p. 4). The present study offers insight into how students can actively participate in quality management activities in higher education. This

further insight into how students define and perceive quality at higher education institutions and in online courses can expand theory of how constructivism can translate into the assessment field. Understanding student's quality expectations, can allow assessment practitioners at higher education institutions to further develop assessment practices by incorporating students when evaluating quality at higher education institutions and of online courses.

Delimitations

This study, as with all research, has some delimitations to note. One of the first delimitations of this study is related to the context of society during the time this study occurred. A global pandemic began in 2020 and lasting effects from Covid-19 remain influential in everyday life. Unfortunately, due to the Covid-19 pandemic, students in marginalized groups disproportionally left higher education institutions. Therefore, various student groups including first-generation, underrepresented racial minority, and lower socio-economic status, might not have had access to the CoI survey included in this study. Further, the pandemic likely had conscience and unconscious effects on the design of this study and students' perceptions of quality. Three things directly related to this study that may be affected as a result of the pandemic are enhanced stress among participants, instructor ability to deliver the course, and participants frame of reference for quality.

Throughout the pandemic, there were unprecedented levels of stress and uncertainty. The pandemic introduced myriad "unknowns." Everyday life was no longer "normal." Enhanced stress and adjusting to the "new normal" impacted individuals' daily lives—families were disrupted, jobs and education went remote, and completing essential errands became major undertakings. Throughout, students attempted to finish academic coursework and adjust to new

expectations. Further, concern surrounding the well-being of self and others could affect students' perceptions and success in school.

Classes at higher education institutions that were once conducted face-to-face had to transition to an online format in a very short period of time. This transition was extremely fast and left professors' little room for planning online instruction. Professors who had never taught an online course were now teaching their entire course load online. Additionally, students who had never enrolled in an online course were now required to take all their courses online. Even as classes returned to face-to-face and hybrid modalities, challenges remain. As a result, the quality of courses offered, and the perception of quality may be influenced by a highly fluid learning environment.

As a result of the pandemic, perceptions of quality in higher education have been impacted. Before the pandemic occurred, the frame of reference for quality of courses were largely traditional in-person classes. Based on the higher enrollment numbers in face-to-face courses compared to online courses, students' perceptions of quality were most likely based on experiences from in-person classes in college and high school. Additionally, when comparing quality across courses, the courses used for comparison were most likely face-to-face classes. Since the pandemic, students experienced and dramatic shift to online classes. This experience has forced a new conceptualization of course quality to include online classes. Specifically, quality comparisons have expanded to consist of face-to-face and online courses for more students. This delimitation could influence how students perceived quality of courses in this study.

Another delimitation is related to the sample of this study. The sample of this study included undergraduate students that were all from a single large public research institution.

Since the undergraduate students in this sample were from the same institution, there may be a possibility that students at other higher education institutions differed in their perceptions of quality in a significant way. Due to this delimitation, the results of this present study may have been impacted in an unforeseen way.

Another delimitation related to the sample of this study, is that undergraduate students who participated is the study elected to be involved. Undergraduate students who self-select as participants in this study may have defining characteristics that differ from undergraduate students who decided not to participate in the study. Random selection of a sample was not employed and therefore selection bias may play into the results of this study. Given the noted delimitations of this study, which are further discussed in Chapter 5, the study is worthwhile based on the future implications for assessment theory and practice.

Organization of the Study

This dissertation is organized into five subsequent chapters. Chapter 1 of this dissertation introduced the study and provided the context of the study. Chapter 1 also outlined the statement of the problem, purpose of the study, research questions, and significance of the study. Chapter 2 gives an overview of the literature for this study. This literature in Chapter 2 includes literature related to the history of quality in higher education, defining quality in higher education, quality management in higher education, measuring quality in higher education, online courses in higher education, and students' perceptions of quality in higher education. Chapter 3 explains the methodology employed for the study, which includes the research design, a description of the participants, data collection and analysis, and study limitations. Chapter 4 is organized by research question and describes the results of the data collected in the study. Chapter 5, which is the final chapter included in this dissertation, discusses the results of this study, and connects

these results to relevant literature of on quality of higher education. Furthermore, Chapter 5 includes implications for future study, practice, and research.

Chapter Two

Literature Review

In this chapter I review the existing literature on quality in higher education first in general and then student perceptions of quality through their experiences in online courses. I start by examining the research that has been conducted on quality in higher education. Here, I address the history of quality, why quality matters, how quality is defined, and lastly quality of online courses as it relates to the present study. Since this study also sought to determine whether a relationship exists between perceptions of quality and key demographics known to affect educational experiences, I examine literature related to student characteristics. The first section of importance of quality focuses on three subsections: accreditation in higher education, relationship of prestige to quality, and a brief history of quality in higher education. The second section focuses on defining quality in higher education. The third section focuses on students as stakeholders of quality in higher education. Subsections related to this section include stakeholder expectations of quality, students' perspectives of quality, student attributes affecting quality, and perceived value expectations from students. The final section of this chapter examines research on the Community of Inquiry framework. Finally, this chapter concludes with a summary of the literature.

Importance of Quality in Higher Education

There are multiple and often conflicting views of quality in higher education. As it stands, there is no set definition of quality in higher education, yet it remains a cornerstone of an enterprise rooted in excellence and prestige. Prior research indicates that the definition of quality is dependent on perceptions of various stakeholders of higher education (Beerkens & Udam, 2017). Numerous and varying stakeholders each perceive quality differently and have their own

quality expectations (Cullen et al., 2003). In conducting this literature review, I discovered that how students define and perceive quality remains elusive and unknown, particularly in online education which is arguably of prime importance today.

Even though there are many aspects of quality within higher education that still need to be explored, the term is relative and there is no universal perspective of quality (Wolhuter et al., 2010). A lack of a clear definition and the conceptual nature of the term quality, makes it challenging to determine quality at institution and course levels. Regardless of the complex nature of defining quality in higher education, administrators and faculty are aware of the importance of measuring and addressing quality. As such, higher education institutions are faced with the difficult task of documenting the level of quality for a variety of internal and external purposes. For example, accreditation remains central to maintaining public accountability and is a frequently used indicator of quality.

Accountability through Accreditation in Higher Education

While a comprehensive definition of quality remains elusive, many agree that various forms of accountability have become a de facto form of quality. The need to demonstrate accountability became important in higher education around the 1980s as colleges and universities were granted more autonomy in exchange for fewer direct government resources (Leveille, 2006). This accountability era emerged from a general belief that the "public has a right to expect that its resources are being used responsibly and that the public institutions are accountable for caretaking the public trust" (Supovitz, 2009, p. 215). Additionally, the need for accountability at higher education was driven by five political and social trends (Smith & Benavot, 2019, p. 193). These trends included the "massification, marketization, decentralization, standardization, and increased documentation of education- reflect the

increased importance of education in society" (Smith & Benavot, 2019, p. 193). The application of accountability was a powerful movement in the early twenty first century, and the forementioned political and social trends attribute to this movement (Smith & Benavot, 2019, p. 193). As higher education became more prevalent in society and an important economic driver, more individuals enrolled in higher education with the expectation of a return on investment.

Massification

The term massification refers to the growth in enrollment of students at higher education institutions, not just in numbers but in the types of students enrolling. As higher education gained importance as a private and a public good, a corresponding growth in enrollment followed (Noui, 2020). In a mere 10 year period, the total number of the students at higher education institutions increased from 146 million in 2006 to more than 218 million students in 2016 (Migaud et al., 2019) and estimated to reach 243 million in 2020 and more than 265 in 2025. (Noui, 2020).

Such growth continues to fuel questions about who is responsible for the quality of education (Smith & Benavot, 2019). In response, professional associations, intuitions, and governments swiftly moved to develop measures of quality such as achievement and learning outcomes. These and other forms of quality measures had to be developed to address effective management and meet calls for accountability from government and industry stakeholders. For example, many states mandate and expect evidence of "highly skilled and high value-added workers" for the work force (Noui, 2020). This connection demonstrates how massification has led to increased accountability in higher education.

Marketization

Marketization is another social and political trend that has created the need for accountability in higher education. This marketization trend "reflects a paradigmatic shift from a

government-controlled system of higher education in which higher education is for the public good, to a market-based system of higher education in which higher education is a good for the public" (Christiansen, n.d.). Due to the conception of higher education being a good that the public buys and that higher education institutions sell, a level of transparency is expected. Students also expect a return on their investment, as they are paying for this good. This expectation for transparency and a return on investment, puts pressure on intuitions to openly disclose information related to their finances. This expectation is enhanced as public institutions of higher education are funded by various federal and state agencies, and therefore the public has a right to know how the money is being expended. (Sułkowski, 2016). Accreditation and documentation have become common practice, which can be seen in literature and in practice. Further, research has indicated that "the pace and complexity of accounting and reporting of universities in the world is increasing, both in the private and public sectors" as a result of marketization (Sułkowski, 2016, p12). The effects of marketization and the expectation for accountability in higher education can be felt widely among a multitude of institutions and is an important trend for education stakeholders.

Decentralization

An additional trend in higher education that has resulted in an increased need for accountability is decentralization. Decentralization among higher education refers to transferring decision making authority closer to the consumer or beneficiary (Winkler, n.d.). Since more decision making is entrusted to internal stakeholders, decentralization is a major priority for leadership within education. Decentralization has been a key component for increased accountability efforts for many education systems. For example, the Virginia higher education system has been working to decentralize operating responsibilities to its state-supported colleges

and universities as noted in 1997 Report of the State Council of Higher Education for Virginia. As a part of the decentralization plan, the Virginia "state government has moved toward relinquishing direct operating control of many standard activities" (Davies et al., 1997). This referenced report for the Virginia higher education system highlights the strategic plan for increased decentralization and accountability. A prominent aspect from this report, states that there is a link between decentralization and accountability. Institutions that are decentralized have more autonomy and responsibility for the outcomes of their colleges and universities. These institutions in turn are invested in the performance indicators of their institution and what to demonstrate to stakeholders that they are getting their money's worth (Davies et al., 1997). As noted in their strategic plan for increased decentralization and accountability, the Virginia higher education system firmly believes that decentralization promotes accountability among higher education systems. Previous and current research supports this notation and other higher education systems are following suit.

Standardization

Standardization refers to higher education institutions having a similar structure for curriculum, testing, credit hours, and degree awarding requirements (Shin & Harman, 2009). To address "inconsistency of delivery and quality across sections" of courses at universities, accreditors are calling for greater standardization at higher education institutions (Reed, 2017). The topic of quality is not new in higher education, however more questions surrounding the quality of online courses have surfaced, due to the rise in online enrollment and online course offerings. The debate over quality of online courses has also led to the increased need for standardization. Standardization of higher education entities is already in practice among European countries who participate in the Bologna Process. The Bologna Process, which ensures

"quality via the development of comparable criteria and assessment methodologies for collegiate learning," has developed standardized achievement criteria and credit hours for the various degrees they offer (Kehm, 2010, p. 42). These standardization efforts which are a part of the Bologna Process enhance the consistency of higher education. Along with the standardization, the development of performance outcomes has led to quality enhancement and accountability among institutions. Standardization is important because it assists in assuring consistency and quality in education.

Increased Documentation of Education

The last trend that has reflected the importance of education in society, is the increased documentation of education. These highlighted trends, specifically massification and marketization, have led to the increase of transparency at higher education institutions. Transparency at institutions stemmed from the belief that "the public has a right to expect that its resources are being used responsibly and that public institutions are accountable for caretaking the public trust" (Supovitz, 2009, p. 215). To demonstrate to the public that resources are being used responsibly, there was a demand for increased documentation in higher education. This increase of documentation and the desire to assess student learning developed from the highly publicized 1983 federal report, *A Nation at Risk* (National Institute for Learning Outcomes Assessment, 2016). The argument outlined in this report was that American education needed to significantly improve (National Institute for Learning Outcomes Assessment, 2016). This report sparked an assessment movement, which focused on enhancing the quality of higher education. For over three decades now "institutions, accreditors, blue ribbon commissions, faculty, staff and others have invested considerable time and energy advancing efforts to document and enhance what students know and can do as a result of their studies" (National Institute for Learning

Outcomes Assessment, 2016). The enhanced efforts for documentation of education is important because this documentation assists in providing tangible evidence of learning. Additionally, the trend of increased documentation of education is essential because "documentation is a natural way to make learning visible" (Seitz, 2008, p. 91).

Rise of Accreditation as Result of Social Trends

Determining quality at an institution is insightful for stakeholders and can be informative when making educational decisions. Due to the rising number of students enrolling in higher education institutions and the need to demonstrate eligibility for federal funding, the demand for ensuring quality in higher education emerged (Turner, 2011). Ensuring quality in higher education was also influenced by the above-mentioned social trends. As a result of these trends, there grew a need for a formalized process to ensure quality. The formalized process that emerged from the demand to ensure quality, was the process of accreditation at higher education institutions. Accreditation was established to inform stakeholders and ensure institutions are meeting the necessary standards that are determined by an external body. To date, accreditation is the widespread review process employed to ensure and measure institutional standards of quality. This process also feeds into the social trend of society wanting a greater documentation of education.

An essential component of accreditation is documenting whether learning objectives are being met (Hall,2015). There are different accrediting bodies in the United States which are all "recognized by the United States Department of Education through the Council for Higher Education Accreditation" (Hall, 2015, p. 33). Quality standards are set by these accrediting bodies. An institution and/or program that is seeking accreditation conducts a self-study once

these standards are set (Hall, 2015). During the self-study, the strengths and weakness of the institution and or program are reviewed in depth.

Following the self-study, external peer reviews that are selected by the accrediting body reviews evidence that was gathered during the self-study, to determine if the set standards are being met (Hall, 2015). The external review team develops a report of growth areas, which includes recommendations for the institution and/or program. The accrediting agency reviews the report from the external team "then makes a decision regarding whether the institution or program will be accredited, reaccredited, placed on probationary status, or denied accreditation" (Hall, 2015, p. 34). Following the site visit, the institution and/or program is "expected to utilize recommendations made by the site visit team when making improvements in between accreditation reports" (Hall, 2015, p. 34). The accreditation process will then be repeated after a designated time period, which usually equates to several years. The two main outcomes of accreditation are "ensuring that post-secondary educational institutions and their units, schools, or programs meet appropriate standards of quality and integrity," as well as improving "the quality of education these institutions offer" (American Library Association. (2017). Accreditation is a crucial process for higher education institutions that assists in improving quality.

Prestige Related to Quality

Consumers of higher education have multiple opinions related to higher education. Differences in opinions can range from the prestige of institutions, likability of their sporting teams, quality of courses, etc. Another area where individuals' decisions differ, is deciding on which institution to attend. There are many factors that stakeholders consider when determining what institution to enroll in. The importance of each factor and individuals' perceptions of each

factor will be different and unique to them. One major factor when deciding on an institution to attend is related to quality. Higher education consumers are invested in the overall quality of the institution, academic program, student life, faculty teaching, etc. Potential students want to attend an institution that is "high quality." High quality and the prestige of an institution are two facets that are closely tied. When an institution is deemed of being high quality, it is viewed as being prestigious, and the opposite is true as well. Therefore, demonstrating quality and ensuring high quality in higher education is essential.

Quality in higher education is important for a multitude of constituents. As evident from previous research and current practices, "quality matters to colleges and universities, students, parents, employers, graduate and professional schools, federal and state governments, [and] communities" (Huber, 2017, p. 45). Since quality is a significant factor to an array of groups, demonstrating the quality of an institution is also crucial. A quality measurement effort that higher education institutions can participate in, that demonstrates to the public that they are deemed as high quality, is through the process of being accredited. The process of accreditation "assures the public that individuals who have graduated from accredited schools or programs have received a quality education" (American Library Association, 2017). Additionally, programs that have been accredited assure students that after graduating from these programs they will "meet the standards of the profession that they seek to enter" (American Library Association, 2017). Participating in quality assurance efforts is mutually beneficial for both institutions and stakeholders, which can be seen throughout the history of quality in higher education.

History of Quality in Higher Education

The topic of quality in higher education has been relevant over the past few decades. The invested interest of quality in higher education was driven by a multitude of factors. The perception that higher education is a public good, considerably ignited this interest. When viewing the different outputs of an institution, the education of its students is the most public facing function (Kehm, 2010). This has led to the growing concern and scrutiny surrounding the quality of teaching and learning at college and universities (Kehm, 2010). Due to this growing concern of quality, a system of quality review emerged in the United States. How quality is perceived and defined has evolved over the past few decades. In their 2007 book, *Quality Assurance In Higher Education- Trends in Regulation, Translation, and Transformation*, Westerheijden, Stensaker, and Rosa state that the "evolution of external quality review in United States higher education can be roughly divided into four periods. Each of these periods features a distinctive mix of lead actors and institutional reactions" (p. 123). These periods helped shape how quality is defined and perceived presently.

The first period, known as the Pre-Quality period, spans the years 1965-1982 (Westerheijden et al., 2007, p. 123). Researchers have indicated that this first period is characterized by the passing of the Higher Education Act (HEA) in 1965. The Pre-Quality period consisted of a "significant expansion of higher education capacity" in which student enrollments at universities almost doubled in size (U.S. Department of Education, National Center for Education Statistics 2,004). A significant number of new public institutions were established, and higher education policy was concerned with managing this growth as well as funding related to this expansion (Jones,1984). In addition to the "gatekeeping" function of accreditation that was created during this period, higher education governance arrangements were also constructed

(Westerheijden et al., 2007, p. 123-124). Quality during this period was characterized by "an expression of established institutional reputation and prestige" (Westerheijden et al., 2007, p. 125). Efficiency was the key concept during the latter half of this Pre-Quality period in the 1980s (Milliken & Colohan, 2004).

Following the Pre-Quality period, was a time frame known as Quality I, which ranged from 1983-1991 (Westerheijden, Stensaker, & Rosa, 2007). The conceptualization of quality "as a distinct arena of higher education performance in the United States" emerged during this era (Westerheijden et al., 2007, p. 125). According to Schwarz and Westerheijden (2004), quality was the touchstone of the 1990s. This emergence of quality in higher education performance was the result of several components. First, the beginning of this period saw lower student enrollments after the surge that occurred during the Pre-Quality period (Westerheijden et al., 2007, p. 125). Due to "flat enrollments and a largely enrollment-driven funding approach, public higher education had to come up with new reasons to argue for increased resources." (Westerheijden et al., 2007, p. 125). The desire to determine quality in higher education was also driven by a *A Nation at Risk: The Imperative for Educational Reform* (1983), which was a distinguished federal report to address the declining quality in elementary and secondary education but had implications for colleges and universities (The National Commission on Excellence in Education, 1983). Lastly, this quality movement was reinforced by "a bipartisan group of 'education governors' that included the future President Bill Clinton" which emphasized strategic investment and viewed higher education as a public good (Westerheijden et al., 2007, p. 125). Additionally, these developments led to a call of the assessment of collegiate learning (Westerheijden et al., 2007, p. 125). This quality period encompassed the development of two reports, *Integrity in the College Curriculum* and *Time for Results* (Westerheijden et al.,

2007, p. 126). These two reports emphasized that "higher education was a strategic investment for states" and called for attention to "assessing the outcomes of higher education to help determine the return on this investment" (Westerheijden et al., 2007, p. 126). Following these reports, participating public institutions were mandated "to prepare 'assessment plans' for approval by the governing or coordinating board" (Westerheijden et al., 2007, p. 126). For these plans' intuitions were

> "a) develop statements of student learning outcomes for general education and for each major programme; b) propose concrete evidence-gathering mechanisms on student performance against these goals; c) create organisational pathways to use the resulting information to improve curriculum and pedagogy; and d) prepare a public report summarising both assessment results and what was done with them (Westerheijden et al., 2007, p. 126-127).

Following these mandated state assessment reports, this quality period involved the emergence of colleges and universities being asked to collect information related to student learning (Westerheijden et al., 2007, p. 127). Additionally, the end of this period saw many institutions adopt the process of "quality assessment" (Westerheijden et al., 2007, p. 128).

As the evolution of the quality movement continues in higher education, the third quality period is known as Performance Measures and spanned from 1992-1999 (Westerheijden et al., 2007, p. 128). During this period, society was recovering from a recession and state budgets were still in the process of recovering (Westerheijden et al., 2007, p. 128). This period included "isolated instances of institutional resistance to assessment" which "erode[d] the basic conditions of trust and 'residual deference' to the academy that characterised the 'Pre-Quality' and early 'Quality I' periods" (Westerheijden et al., 2007, p. 128). Quality was linked to performance

during this period and stakeholders were interested in the cost-effectiveness of outputs (Ewell, 1997). Institutional resistance to assessment reinforced the rigid perspective that quality was only perceived as performance. This quality period further emphasized higher education as a 'public good' and was viewed as a "strategic investment in economic development" (Westerheijden et al., 2007, p. 128). Due to this viewpoint,

> "by the mid-1990s, the majority of states had adopted such measures addressing a variety of domains ranging from degree completion (by far the most common measure), cost per unit of output, employment rates for students in vocational programmes, equity of access with respect to race/ethnicity, and degree production in relation to designated employment needs (Burke and Serban 1998)."

Succeeding a quality period that highlighted measures of performance, the final quality period focused on the role of institutional accreditation (Westerheijden et al., 2007, p. 130).

The final quality period is the Quality II period which occurred beginning 2000 to the present date (Westerheijden, Stensaker, & Rosa, 2007). Based on limited dollars available to states and budget cuts identified by the State Higher Education Executive Officers Association (SHEEO), it was more difficult to "enforce existing quality review processes or to construct performance indicators" (Westerheijden et al., 2007, p. 130). Following the recession in 2001, "public institutions [had to] rapidly increased tuition and fees to cover their operating expenses" during this period (Westerheijden et al., 2007, p. 130). This time period also witnessed fundamental changes in the accreditation process (Westerheijden et al., 2007, p. 130).

One of these accreditation changes was the result of federal pressure, which "directed accreditors to pay much more attention to student learning outcomes" (Westerheijden et al., 2007, p. 130).

Accrediting organizations were "being asked explicitly by federal recognition panels what 'standards' of learning they held their constituents to" (Westerheijden et al., 2007, p. 130). As accreditation has emerged over the different periods, there has been a shift in the focus of accreditation within the 21st century. The main theme related to current accreditation practice in the 21st century for higher education institutions is tied to improvement. Accrediting bodies in higher education are focused on "improv[ing] student learning, completion, and success (Phillips & Kinser, 2018, p. 251).

Given this new focus, accreditation bodies, administrators, and faculty have become increasingly responsive to the emerging aspects of quality, namely student learning. As quality management evolves in United States higher education and a new period of external quality review emerges, the principle of students being the main stakeholder in high education will be pertinent. Arguably, the upcoming period of external quality will be characterized and shaped by student perceptions of quality. Accordingly, accreditation and quality management in higher education will need to incorporate students in the quality process at institutions.

Defining Quality in Higher Education

Defining quality in higher education has been nebulous at best and there is yet to be a widely agreed upon definition. As explained by David Turner in his book *Quality in Higher Education,* "quality in higher education is a complex subject, with many ways of interpreting quality, and many theories, models, and performance indicators used to try and quantify and evaluate quality" (Turner, 2011, p1). Many researchers agree with Turner and believe that quality in higher education can be described in a multitude of ways.

Further, how quality is defined can differ based on the constituent or stakeholder view of the purpose of higher education. Doherty (2008) further discusses key aspects of quality in

education stating that quality "like 'beauty is subjective—a matter of personal judgement" (p. 256). The matter of personal judgement that Doherty refers to is dependent on the stakeholder who is viewing the level of quality of the institution, program, or course, rather than the global sense of quality across institutions. Although there is a consensus that stakeholders have their own conceptualizations of quality, there are few studies that have specifically addressed stakeholder expectations (Prakash, 2018). The viewpoints of quality from "consumer-level" stakeholders needs to be explored further, including their conceptions and determinants of quality.

Globally, two guiding principles have emerged in terms of quality in higher education: fitness for purpose and value for money (Cheng, 2016). In one direction, fitness for purpose is linked to the Total Quality Management philosophy in industry (Cheng, 2016, p. 2). The principle of fitness for purpose "emphasises the establishment of national and institutional structures for evaluating quality, and it takes on the practice of assuring structural organisational, and managerial processes within institutions" (Cheng, 2016, p. 2). Fitness for purpose of quality in higher education has assisted in decision making such as determining allocation of resources by funding councils (Cheng, 2016). The principle of fitness for purpose can be viewed as a determinant of quality by stakeholders since it equates quality with the fulfilment of outcomes (Harvey, 2004).

Since fitness for purpose has been connected to resource allocation, accountability is also tied to this concept of quality (Cheng, 2016). Many institutions feel an "obligation to report to others, explain, justify and answer questions about how resources have been used" (Amaral, 2007, p. 38). A key aspect in fitness for purpose is defining what the purpose is within quality in higher education. Similarly, to the definition of quality, there are various opinions on the overall

purpose of higher education. As stated by Timothy Simpson (2013) in his book, *The Relevance of Higher Education* in today's society, universities are multifunctional and have a "three-fold mission of teaching, research, and public service" (p. 5). This three-fold mission relates back to the overall purpose of higher education. Additionally, the purpose of higher education is also dependent on who the consumer of higher education is. One widely accepted viewpoint that was expressed in the 2003 White Paper, *The Future of Higher Education* is that the purpose of higher education is to satisfy the needs of its customers, which are students (Department for Education and Skills, 2003). This perspective connects higher education to industry by being customer focused through quality management (Cheng, 2016, p. 3).

An important distinction to make is that focusing on customer satisfaction within higher education makes "quality individual and subjective" (Cheng, 2016, p. 3). Students, who serve as customers in the context of purpose in higher education, expectations can vary and therefore satisfaction is individualized. This individualized nature of customer satisfaction "contradicts the current practice of quality evaluation in higher education which checks institutional performance instead of individual student's learning experience" (Cheng, 2016, p. 3). Many current studies and literature are related to focusing on institutional performance and faculty perspectives related to quality in higher education.

There is a current gap in studies and literature related to *individual* student's learning experience. Additionally, previous work relates to student experience of quality in higher education and there is a lack of focus on how students define and perceive quality in current practice. Based on the increased demand for incorporating technology into higher education, as well as the current nature of society, there is a sufficient absence of understanding related to students' expectations of online quality. As expressed in the fitness for purpose viewpoint of

quality in higher education, students serve as the main customers at institutions. Gaining an insight into students' individual definitions of quality in higher education is monumental for assessment professionals. The proposed study will contribute to redeveloping the practice of quality evaluation in higher education, which focuses on individual student's learning experiences.

Within the frame of determining quality in higher education, the second widely accepted concept that has emerged is value for money (Cheng, 2016, p. 1). Value for money was "first presented by the 1984 Audit Commission" and this viewpoint "associates quality with expense and economic exchange" (Cheng, 2016, p. 4). This popular view for quality in higher education rationalizes that "what pleases a customer most is superior quality for the same money or less money" (Cheng, 2016, p. 4). Value for money is also related to the idea of 'economic ideology' in which "education should contribute to a country's industrial development" (Cheng, 2016, p. 5). Within this perspective of quality, funding councils audit institutional performance to "assure that money allocated to the universities is properly and effectively used" (Cheng, 2016, p. 5). Value for money assists in ensuring a certain level of quality is met at higher education institutions.

The two concepts of quality, fitness for purpose and value for money, that have emerged have contributed to "input and accountability from academics and higher education institutions" (Cheng, 2016, p. 7). These quality concepts emphasize resource allocation through financial contributions and incorporate external agencies in the quality process. Additionally, within these notations of quality "performance is related to an institution's proficiency in having quality mechanisms in place" (Cheng, 2016, p. 7). Cheng states that these approaches "reflects a 'passive' view of quality and student learning, ignoring that learning is an individual activity and

that students' interest and commitment in learning are as important as the input from academics and the university" (Cheng, 2016, p. 7). In his book, Cheng argues that there needs to be another understanding related to quality. I agree with Chengs' statement, and firmly believe that this study will assist in furthering an understanding related to quality that incorporates students' perspectives. More specifically this understanding will be connected to quality of online courses.

Quality in Online Education

Determining quality at higher education institutions is a practice that is still in development. Deciding which methods are best to measure quality and what elements best determine quality, are questions still being researched by higher education professionals (Mitchell, 2010). Traditionally, "effectiveness in online learning has been defined in terms of face-to-face learning." (Swan, 2004, p. 1). When referring to the quality of online learning, the benchmark has been that online courses are "at least equivalent to learning through an institution's other delivery modes, in particular, through its traditional, face-to-face, classroom-based instruction." (Swan, 2004, p. 1). As indicated, measuring online quality is a developing practice and a primary concern (Mitchell, 2010). Instructors, administrators, and researchers are focused on developing effective methods for measuring the quality of online courses.

However, these stakeholders are struggling with the notion of determining how best to measure online instruction and outcomes related to online courses. Many of these online courses rely on utilizing "completion rates of courses and programs" as measures for quality (Mitchell, 2010, p. 89). Research indicates however, that completion rates may not be the best measure for quality (Mitchell, 2010). This research demonstrates how the practice of measuring quality of online courses still needs to be explored. As online courses continue to increase and remain

relevant following the recent pandemic, further inquiry and research is needed on determining quality of online education.

Online education began in the 1990s and has provided consumers with “innovative technology and pedagogy” that has “broadened access to higher education” (Chao et al., 2006). Since the inception of online education, there have been pros and cons to this instruction method. Online education has allowed many individuals to access education, which many have not been possible in a physical way. Additionally online learning has assisted in the expansion of designing “flexible, accessible, and inclusive learning and learning systems” (Moore et al., 2021). Being able to participate in courses online, has been beneficial for students since the establishment of online education.

Along with these positives, online education has struggled in some areas. One area which has been a challenge for administrators of online education is proving the legitimacy and quality of online courses. Online education has also had to live in the shadows of face-to-face instruction (Mitchell, 2010). Online courses and online instructors constantly have had to prove that online education is equivalent to face-to-face instruction. A challenge for online education is the “underlying assumption in comparing online and face-to-face courses [which] builds on the ideal that face-to-face courses are inherently better” (Mitchell, 2010). Unfortunately for online educations, “online courses are given legitimacy if they are able to measure up to existing, sometimes outdated, standards and expectations set for face-to-face courses” (Mitchell, 2010). These assumptions for online courses create a challenge for educators when trying to measure online quality.

Research from the *Elements of Quality Online Education*, noted that when online instructors attempt to make online learning “as good as face-to-face,” they maybe “overlooking,

even sacrificing, its distinct potential" (Swan, 2004, p. 1). Based on this, many researchers have been focusing on "aspects of online learning they view as unique, such as personalization, support for reflective inquiry, interactivity, and support for collaboration" when measuring quality of online learning (Swan, 2004, p. 1). Current research of online education has focused on the distinctive facets of online learning to address this shortcoming. In Swans article (2004), related to current research of online education, she explores three areas related to learning effectiveness in online education: interface issues, investigations of Teaching Presence, and research on learner characteristics. The focus of interface is students' various interactions with course content, instructors, and peers (Swan, 2004). The focus of Teaching Presence in the context of online learning is "the design, facilitation, and direction of cognitive and social processes for the purpose of realizing personally meaningful and educational worthwhile learning outcomes" (Anderson et al., 2001, p. 5). Lastly learner characteristics refers to how "asynchronous online learning might be differentially effective for different kinds of students" based on specific characteristics of each student (Swan, 2004, p. 9). Incorporating these three areas of effectiveness in online education could assist in creating high quality online courses.

Defining quality in education is a challenging task, and this challenge is relevant for online education. Knowledge surrounding online education is still developing and researchers are still actively working to further explore how quality of online education is measured. A point of interest since the educational quality review movement began in the United States, is how to improve quality of online courses. Education quality is a key component and affects many facets of an institution, such as funding, student enrollment, and overall prestige (Mitchell, 2010). Previous research states that interface design, Teaching Presence, and learner characteristics are the three major facets that are significant and meaningful for online learning (Swan, 2004). All

three of these facets were supported by empirical findings which "clearly demonstrate that course interfaces, Teaching Presence, and learner characteristics affected the quality of students' learning online" (Swan, 2004, p. 13). Current research on quality in online education conclude that there is opportunity for future research.

Stakeholder Expectations of Quality in Higher Education

The goal of this study is to gain an understanding of students' perspectives of quality in online learning environments at higher education institutions. This study will expand on students' expectations of quality in online courses. Students are core stakeholders at higher education institutions and therefore their perspective's on quality is crucial to incorporate into quality management practices. To develop a holistic understanding of quality in higher education and to develop a background for this study, it is important to outline higher education stakeholders and their expectations.

There are numerous stakeholders within the frame of higher education. Expectations from these various stakeholders have impacted the evolving definition and concept of quality in higher education. In a paper authored by Gyan Prakash (2018) that operationalizes quality in the context of Higher Education, Prakash concludes that the "expectations of stakeholders such as students, parents, teachers and employers influence each other and in turn generate demand for various facets of quality" (Prakash, 2018, p. 741). It is important to consider how current literature identifies each group's conceptualization of quality. The systematic literature review that Prakash conducted reviewed 308 articles published in numerous peer-reviewed articles between 1999 and 2017. These 308 articles were all related to quality in higher education institutions. From Parkash's systematic review, he concluded that each of these stakeholder groups conceptualize quality of higher education in their own way. As stakeholders in higher education,

"parents view quality as related to current investment and future employment" (Prakash, 2018, p. 741). The systematic review concluded that students conceptualize quality as "related to the educational process and future employability" (Prakash, 2018, p. 741). Teachers, as discovered in Parkashs' paper "perceive quality as related to the whole education value chain" (Prakash, 2018, p. 741). Lastly it was determined from the insights of the 308 articles that "employers view quality as primarily related to the student's fitness for the intended work" (Prakash, 2018, p. 741). As demonstrated by Parkashs' systematic literature review, quality is conceptualized at a stakeholder level.

The results of Parkashs' systematic review were confirmed in by an empirical study that included twelve focus group interviews with main stakeholders. These stakeholders included, employers, university rectors, academic staff, government officials, and students (Beerkens, & Udam, 2017). Stakeholders in the study were prompted with questions related to the purpose of quality assurance and/or the expectations of a quality assurance system. The findings from Beerkens and Udams' study (2017) found that "employers expectedly link quality assurance with labor and market needs" which aligns with Parkashs' systematic literature review (Beerkens, & Udam, 2017, p. 351). Beerkens and Udams' focus groups interviews indicated that university rectors believe "quality assurance should have a primary role in helping the organization" (Beerkens, & Udam, 2017, p. 352). Academic staff through focus group interviews mentioned that "quality assurance should give information to external partners and also comparative information to universities themselves" (Beerkens, & Udam, 2017, p. 351-352). Utilizing quality assurance as an "input for policy decisions" was expressed by governmental representatives in this study (Beerkens, & Udam, 2017, p. 351-352). The last stakeholder group in this study were current and prospective students. These stakeholders defined the "purpose of quality assurance

particularly through the quality of the graduates" (Beerkens, & Udam, 2017, p. 353). Students want to ensure that their education remains "labor market relevant" and they are employable post-graduation (Beerkens, & Udam, 2017, p. 353). As demonstrated in these studies, quality is a concept that is formed based on the type of stakeholder within education. Additionally, both studies speak to the *purpose* of quality assurance in higher education. These two studies conducted by Prakash and Beerkens & Udam do not incorporate any information related to how stakeholders specifically *define* quality. Additionally, these two studies also fail to recognize that as well as quality being conceptualized at a stakeholder level, quality is also conceptualized at an individual level. Every individual has their own definition of quality, and each person is exclusively unique in their own perceptions of what constitutes quality.

Currently, there is not much literature that addresses how quality is defined at an individual level. It is important to develop an understanding of how individual stakeholders define quality and perceive quality in higher education. Students are the stakeholder group of interest for this study. This study strives to determine student definitions and perceptions of quality for online classes. From an assessment framework, gaining insight into how students' perceptions of quality will assist in being able to assess quality in higher education. Conducting studies that involve students will assist in creating buy-in from this stakeholder group. Diving further into the viewpoint of quality from a student perspective is helpful in gaining more knowledge related to online quality and can assist faculty in designing online courses. Information gathered from students in this study could be significant for higher education as an industry.

Student Perspectives of Quality in Higher Education

Students are an imperative aspect of higher education and are viewed as the primary stakeholders in higher education (Amaral & Magalhães, 2002). Due to their role as consumers at institutions, gathering feedback from students is important. As stated by Veronica Okogbaa in her 2016 article, "[s]tudents in higher institutions are part and parcel of the system, thus their opinions should count in decision making" (Okogbaa, 2016, p. 139). Okogbaa (2016) went on to further discuss how feedback and knowledge from students can help "institutions self-assess and re-position to make better choices to increase the quality assurance of their processes and services" (p. 139). If institutions gather student feedback related to the quality of online courses, administrators and faculty can make changes based on this feedback that improve quality overall at the institution.

Another article that insists it is essential to gather feedback from students is written by Kim Watty. In her article, Watty (2006) poses a fundamental question related to determining quality of a higher education institution. Watty (2016) questions who you should ask when deciding on quality at an institution- the academic registrar, looking at a quality audit report, or asking faculty about their perceptions of quality? (p. 291). While there is no one correct answer, or there may even be additional answer choices outside of the ones provided, the implicit notion is that "if you really want to know about quality in higher education, then ask those closest to the student-academic interface—the academics or the students" (Watty, 2016, p. 291). Currently, there is a decent amount of research surrounding faculty feedback of quality in higher education. However, there is little research to date related to student feedback of quality in higher education.

Majority of research related to student opinion of quality in higher education has been conducted outside of the United States. I would like to advocate that more research needs to be conducted on this topic within the United States. The rationale for this, is that there are significant differences in educational culture and federal quality standards among education in the United States and foreign countries. Additionally, feedback related to online quality at an institution specifically from students is seldom collected. Understanding students' expectations of quality in higher education, will assist administrators in planning a positive educational experience for students.

As contended in Chapter 1, developing a conception of quality for current undergraduate students at a large public research institution will assist in advancing the field of assessment and will provide important insights for quality management in higher education. In a study conducted by Prakash (2018) of relevant literature in Higher Education, the findings of this study reveal that "the student perspective is gaining central attention and HEIs are striving to meet students' expectations by operationalising various levers of quality" (p. 741). This study and the findings from this study, indicate that higher education institutions need to understand specifically how students operationalize quality.

Throughout this chapter, it has been explained that the definition of quality differs based on the stakeholder who is defining quality. In order to meet students' expectations, which is highlighted as crucial in Prakashs' study, higher education institutions need to ask students how they perceive quality in higher education. You are unable to meet students' expectations if you do not know explicitly know what their expectations are. Additionally, you want to hear these expectations from the students themselves. Understanding students' expectations of quality and expectations of quality in online courses will help inform the overall quality assurance process.

As many assessment professionals and higher education administrators know, student evaluation is a key aspect in the assessment cycle at an institution. In an article on the importance of student feedback, Leckey and Neil (2010) state that it is "evident that student evaluation, whether of courses, teaching quality or the overall student experience, is extremely important and has a significant role to play in the quality assurance process." (p. 19). Student evaluation is not the only important factor in quality assurance, student feedback and perceptions of quality are also crucial. Based on the major role of online courses, as well as the anticipated presence that online courses will have in the future at higher education institutions, evaluation and feedback from students of online courses needs to be incorporated into the quality assurance process.

The viewpoint on the significance of obtaining student feedback, is further supported by Leckey and Neil (2010). These two authors reveal that "gathering relevant, representative and useful student opinion is a necessary part of the quality assurance process." (Rowley, 1995, p. 19). I believe that the "useful" component related to Leckey and Neils' point, is gathering data related to how students perceive quality in higher education. By conducting the present study, information will be gathered that is relevant, representative, and useful on student opinions of online courses that will inform the quality assurance process.

Practitioners in assessment and higher education realize the added value of including stakeholders in the quality assurance process (Beerkens & Udam, 2017). Developing a quality culture in higher education is an aspirational goal for many institutions. The "involvement of students through participation in education and institutional decision making is deemed important for quality culture development" (Bendermacher et al., 2017, p. 46). By allowing

students to participate in decisions and conversations related to online course quality, students will be empowered, and quality culture will be furthered at an institution.

Student Attributes Affecting Quality Perspectives

How individuals perceive quality can be affected by multiple aspects. When determining how students perceive quality of online courses, various factors need to be considered. As mentioned in Dicker et al. (2017), "student expectations with regard to what comprises quality in higher education can impact upon their learning, engagement and overall satisfaction" (p. 1). This article also explains that "perceptions of quality are not always clearly articulated" and may vary by various factors. (Dicker et al., 2017, p. 1). Particularly, this study discovered that there were differences related to quality perceptions based on year of study, gender, and ethnicity. However, after conducting their study related to student perceptions, Dicker et al. (2017) stated that more studies must be conducted for quality perceptions in higher education to confirm these findings. There have been additional studies where student attributes have been researched related to the effect on quality perceptions.

Other student attributes affecting quality perceptions have been analyzed in previous studies. Factors explored in these studies are age, gender, and course meeting structure. In a study by Dobbs et al. (2009), it was discovered that there are significant different between males and females in perceptions of online courses. However, research related to gender as a student characteristic that affects perception related to quality of online education has been varied (Barnes, 2017). Some studies, for example Richardson and Swan (2003), have found that gender is a significant factor related to student perceptions of quality. Although there are some studies which contradict this conclusion, such as Hong (2002) and Lim (2001), who did not find statistical significance as gender affecting student perceptions.

Additionally, studies related to student age as a predictor of perception for online quality, have also varied. Dobb et al (2009), found that "older students have more favorable views of online classes than younger students" (p. 13). The findings in this study were confirmed by Barczyk et al. (2017), who found in their study that "students' perceptions of online course quality differ with age" (p. 181). However, research conducted by Hong (2002), showed that age was nonsignificant to student perceptions of their online courses. This conclusion was further supported by Thurmond et al. (2002), Richardson & Swan (2003), and Simpson (2013) who also found no relationship between student age and online course perceptions.

An additional student demographic factor of interest related to perceptions of online quality is race/ethnicity. In a more recent doctoral study, Su (2016) who was interested in investigating the relationship between graduate students' perceptions and student success in online courses, conducted analysis on various student demographics. Based on the data from Sus' study (2016), no relationships were found among race/ethnicity and graduate students' online course learning perceptions. This study utilized participants at the graduate level. A study which investigates the relationship between gender and student perceptions of online quality is needed at the undergraduate level.

As online education continues to expand and develop, the demand for a continual growth in quality will be expected from stakeholders. As colleges and universities find "ways to improve the quality of online learning [in order] to maximise learning," it is important to further research these attributes, as well as include additional factors that may influence quality perceptions (Kauffman, 2015, p. 11). As noted, previous research has explored the relationship among student characteristics and students' perceptions of online quality. These studies have indicated that there are mixed results on various student demographics that affect perceptions of online

quality. Additional research will be beneficial to help improve research related to online quality in higher education (Astani, Ready, & Duplaga., 2010). This study will help contribute to the body of current literature on this topic. Specifically, this study will employ the factors of academic year, gender, and race/ethnicity to determine if students' perceptions of online courses differ based on these attributes.

Course Attributes Affecting Quality Perspectives

Online courses have grown in popularity out of necessity and pedagogical interest precipitating interest in understanding course delivery modalities. Online delivery may vary by synchronous, asynchronous, or hybrid and is likely a factor that affects students' perceptions of online course quality. A review of literature found that previous studies have employed meeting structure as a factor in determining learning effectiveness. In her dissertation, Salloum (2011), concluded that students seem to associate greater learning effectiveness with synchronous courses versus asynchronous courses. Another study conducted by Ashong & Commander (2012), found that race/ethnicity affects students' perceptions of meeting structure (synchronous/ asynchronous). This study found that African American student have a less positive perception of asynchronous courses than students who identify as white (Ashong & Commander, 2012).

Even with the findings of the above mentioned two studies, the attribute of meeting structure has yet to fully be explored related to the effect of how students perceive quality of online courses. Further research related to meeting structure and perceptions of online quality is needed. This study will incorporate meeting structure as a factor to determine if there is a difference among synchronous and asynchronous classes in students' perceptions of quality.

Another course attribute related to students' perceptions of online quality is academic discipline. In their dissertation study, which explored factors affecting perceptions of online

education quality and effectiveness, Reifschneider (2009) researched the relationship between academic units and perceptions of quality. Reifschneider (2009), completed a quantitative study in which regression analyses on various course attributes and demographic factors were conducted. One of the attributes that was a focus of the study was academic unit. Reifschneider (2009) employed a questionnaire which asked students to indicate what academic unit they belonged to at the university: Science of Education and Humanities, Science and Technology, Applied Social Science, and Life Science. The results from this study found that "students in the life science academic unit tended to have an increased perception of quality, compared to those in the education and humanities" (p. 211). However, Reifschneider (2009) concluded that further research is needed for this course attribute. Not much research has been conducted to understand the relationship between academic discipline and students' perceptions of quality of online education. This study would investigate how academic discipline affects undergraduate students' perceptions of quality.

Previous research has indicated that class size affects educational quality. Cho and Baek (2019), focused on the aspect of class size in their study which identified factors that affect the quality of teaching in basic science education courses. This study collected data for courses that were face-to-face and hybrid. Cho and Baek (2019) concluded that smaller class sizes had a more positive influence on student satisfaction. This research is aligned with an article that was published in the *Journal of Information Systems Education* by Dykman and Davis (2008). In their third series of three papers about online pedagogy and educational practice, Dykman and Davis (2008), provide insight as it relates to class size for online courses. Dykman and Davis (2008), state that to help assure a quality online educational experience you want to ensure a smaller class size. Additionally, they explain in their article that the "quality of the online

educational experience for both teachers and students will suffer if online classes include too many students" (Dykman & Davis, 2008, p. 287). Along with this conclusion, a study conducted by Swan (2001), found that "class sizes of 11 to 20 students may be optimal for online formats because of the importance of teacher-student and student-student interactions within them" (p. 319). Further research is needed to confirm the conclusions from previous research and studies and evaluate the factor of class size as a predictor of quality from a student's perspective.

As noted, previous research has explored the relationship among course attributes and students' perceptions of online quality. Additional research will be beneficial to assist in enhancing online quality in higher education. This study will employ the factors of class size, class modality, and course pedagogy to determine if students' perceptions of online courses differ based on these attributes and provide more insight to the limited current research on this topic.

Perceived Value Expectations from Students

In gaining student perspectives on quality, higher education institutions need to understand what students' expectations are related to quality. A service marketing and management concept that is extremely relevant for online courses due to the national health pandemic is "perceived value" (Teeroovengadum et al., 2016, p. 431). Perceived value is defined as "the difference between the prospective customer's evaluation of all benefits and all the costs of an offering and the perceived alternatives" (Kotler, 2003, p. 60). As the enrollment of online classes continues to grow at higher education institutions, administrators are not concerned with simply ensuring the context of the course is online (Huss & Eastep, 2013). Higher education institutions are interested in the perceived value that students have of online courses. As noted by Huss and Eastep (2013), "data provided by traditional student course evaluations [is] rather

limited, [and therefore there is a] need to more systematically examine the medium from the perspectives of those who actually take the courses" (p. 2). Public and private 4-year institutions are having to prove their worth to stakeholders in order to remain competitive in today's educational environment. By developing an understanding of quality from a student point of view, higher education institutions can utilize knowledge related to students perceived value of quality to enhance overall quality at their institutions.

Since many institutions have decided to hold classes online and the future of class formats is unforeseeable, students are searching for cheaper alternatives to 4-year institutions. Students are deciding to pursue community colleges which are more affordable and accessible. To recruit students and have them enroll; higher education institutions need to prove the value of their institution. They also need to prove the value of their online courses. Additionally, higher education institutions need to understand students perceived value of the institution. More specifically, because of the current national pandemic and online status of universities and colleges, higher education administrators need to understand students perceived value of online courses at their institution.

An overall goal for higher education institutions is to ensure students feel they are receiving a return on their investment (Menon, 2014). To meet this goal, institutions need to determine students' perceived value of online education. In their 2020 article, Cavallone and colleagues urge that "particular attention should be paid to the capability of educational institutions to detect the students' value expectations and to implement timely innovation processes in order to increase the quality of educational services" (p. 204).

Another rationale for this study that is supported by literature, is related to the lack of research on students' perceptions of value and quality in higher education. Cavallone et al.

(2020) additionally state that “little is known about the factors that steer the perceptions of value among students involved in higher education programs” (p. 204). Additionally, little is known about “the interventions that could be planned – at the strategic, organization and management levels” which could “improve students’ perceived quality of educational services” (p. 204). Higher education institutions need to determine students’ perceived value of online courses, in order to make changes at various levels that will increase student’s overall quality perceptions of educational programs.

Perception of value among students at higher education institutions is important for administrators to conceptualize. A deeper understanding of this perception and actionable changes from practitioners at various institutional levels can impact student satisfaction. Understanding students’ perceptions of quality allows higher education administrators to implement practices that meet student expectations of online courses. Ensuring students expectations of online quality for courses are met is valuable because if students are satisfied with the level of quality of online courses, they are more likely to view the overall institution as being high quality. As additionally supported by Young and Norgard (2006), “in order to assure quality and consumer satisfaction, institutions and their faculty must pay close attention to their students' perceptions of online courses and programs” (p. 113). Higher education administrators are aware that satisfaction of students at their institution is important. However, I would argue that few institutions are truly developing a deep understanding of how *students* are perceiving quality.

As previously mentioned, literature supports the abovementioned argument and institutions need to be doing more related to students’ perceptions of online course quality. More studies are needed that develops a deeper understanding of students’ perceptions and definitions

of quality in online higher education courses. Previous studies, such as the ones conducted by Alves & Raposo (2007) and Brown and Mazzarol (2009) found that the "perception of value has a direct effect on satisfaction of students in higher education" (Teeroovengadum et al., 2019, p. 431). The relationship between the two concepts of student satisfaction and perception of value, are important for higher education institutions to comprehend. Teeroovengadum, et al. (2019), state that evidence "provides support for a positive relationship between the two constructs" (Teeroovengadum et al., 2019, p. 432). However, in a "higher education context, such a relationship has rarely been investigated" (Teeroovengadum et al., 2019, p. 432). The only exception, which is stated by Teeroovengadum, et al. (2019) in their article, is research conducted by Alves & Raposo (2007) and Clemes et al. (2013) who validated a positive relationship between service quality and value perceptions (Teeroovengadum et al., 2019, p. 432). The findings from this study will further assist research in determining the relationship among the constructs of perceived value, student satisfaction, and quality expectations.

Measuring Quality in Higher Education

As noted, quality is a significant component within higher education institutions. Many stakeholders are aware of the importance of measuring quality at higher education institutions, but also acknowledge the underlying difficulties of measuring this conceptual concept (Turner, 2011). There have been several previous studies conducted which have resulted in these two findings. The challenge for higher education institution administrators is to demonstrate the level of quality within their institutions through valid and accurate measurements. Since there is no collective agreed upon definition of quality among higher education institutions, and since quality "may mean different things to different people who therefore demand different quality outcomes and methods of assessing quality" the notion of measuring quality is problematic

(Tam, 2001, p. 47). Regardless of a clear definition of "quality," individuals make regular decisions and judgements about the quality of higher education institutions. These individual judgements can be viewed as informal "measures" related to quality in higher education. These informal "measures" of higher education can vary from how a student perceives the value of an academic course or how a faculty member feels about how successful their academic program is. Informal individual judgements of quality by stakeholders, will be relevant in higher education and will continue to exist. Making overall judgements related to quality is a natural occurrence for individuals. Even though measuring quality can be difficult due to the lack of a well-defined definition of quality, higher education institutions can attempt to influence these informal judgements of quality through more formalized quality measures.

Due to the numerous types of stakeholders in higher education and since quality is a "relative concept," there are various ways in which quality in higher education can be measured (Harvey & Green, 2006). The measurements of quality and the standards applied for quality depend on the notion of how quality is defined by stakeholders (Tam, 2001, p. 48). Within the conceptualization of quality, Barnett (1992) states there is "a threefold connection between different conceptions of higher education, different approaches to quality, and the identification of different outcome measures" (Tam, 2001, p. 48). These different outcome measures were termed performance indicators or PIs (Tam, 2001, p. 48). From these three folded conceptions of quality, different methodologies are needed and employed to measure quality in higher education (Tam, 2001). In his article, Barnett (1992), explains that there is an "interconnectedness between conceptions, approaches, and outcomes in the context of four dominant contemporary conceptions of higher education" (Tam, 2001, p. 48). From these four conceptions of higher

education, emerged different performance indicators (PIs) for measuring higher education quality.

Performance Indicators of Quality

The first conceptualization of quality identified by Barnett (1994), is conceived as the production of highly qualified manpower. Under this first conceptualization, PIs are viewed through characteristics of graduates from the institution. These graduates from the institution are "seen as products whose career earnings and employment will relate to the quality of the education they have received" (Tam, 2001, p. 48). Barnetts' second conceptualization of quality is based on the notion of training for research career (Tam, 2001, p. 48). PIs for this conceptualization of quality are "the research output of staff and students and the input measures of their research ability" (Tam, 2001, p. 48). The efficient management of teaching provisions, if the third conceptualization of quality explained by Barnett (1992). Efficiency indictors, such as "completion rates, unit costs, student-staff ratio, and other financial data" serve as the PIs for this conceptualization (Tam, 2001, p. 48). The final conceptualization of quality is viewed as a matter of extending life circumstances (Tam, 2001). PIs for this fourth conceptualization include "participation rate or percentage growth of students from under-represented backgrounds" (Tam, 2001, p. 48). Identifying these four conceptualizations of quality, along with their different PIs, will assist in quantifying more formalized measures of quality in higher education.

Quality Control

Along with the various conceptualizations and definitions of quality in higher education, different systems have been developed in order to monitor and determine quality at institutions (Tam, 2001, p. 49). One of the approaches developed to monitor quality is *quality control*. Quality control is "a system to check whether the products produced, or services provided have

reached the pre-defined standards" (Tam, 2001, p. 49). As a part of this approach, quality is "usually inspected at the end of the production and is undertaken by someone external to the workforce" (Tam, 2001, p. 49).

Quality Assurance

Another system of monitoring quality at higher education institutions is *quality assurance.* This common and widely practiced approach is defined as "systematically monitoring and assessing various dimensions of a project/service/institution in order to determine whether it meets the quality standard" (Basari et al., 2016, p. 107). This quality approach is characterized on the premise that "everyone in an organisation has a responsibility for maintaining and enhancing the quality of the product or service" (Tam, 2001, p. 49). Additionally, this quality approach "requires time, effort, and willingness for everyone in the institution to change to a culture which is quality-driven and ever-improving" (Tam, 2001, p. 49). The quality system of a *quality audit* is achieved by "checking that relevant systems and structures within an institution support its key teaching mission, and to ensure that provision is at or beyond a satisfactory level of quality" (Tam, 2001, p. 49). This quality approach mode can be "conducted either internally or externally" (Tam, 2001, p. 49).

Quality Assessment

Quality assessment is an additional quality approach for higher education institutions. Quality assessment "involves the judgement of performance against criteria, either internally or externally" (Tam, 2001, p. 50). As further explained by Tam (2001), quality assessment "examines the quality of education provision against the expressed aspirations of the individual institution" (p. 50). The final quality system explained by Tam (2001) is *indictor systems.* An indictor systems approach "compares performance across a range of indictors" (Tam, 2001, p.

50). As these three systems of quality management are employed at institutions, it is crucial for administrators to ensure students are included in these processes as the field of assessment and education emerges.

Accreditation as Quality Measurement

A more formalized measurement of quality that is present among higher education institutions around the world, is the process of accreditation. The principal quality mechanism for measuring quality at higher education institutions in the United States has been, and still is, accreditation (Ewell, 2010). Accreditation is a quality assurance process that has been relevant and valued within the realm of postsecondary education for centuries. In fact, systems of accreditation in the USA "date from the late 19th and early 20th century" (Woodhouse, 2004, p. 77). During this time, two systems of accreditation arose that are still being employed today. These two types of accreditations are general accreditation, which testifies "to the standing of institutions" and professional accreditation, which "testifies to the standards of courses in professional disciplines" (Woodhouse, 2004, p. 77). General accreditation was needed due to "because of the impossibility of institutions and individuals in different parts of a large country knowing about the standards being used elsewhere" (Woodhouse, 2004, p. 77). While professional accreditation arose due to the concern for consumer protection (Woodhouse, 2004, p. 77). These two types of accreditations employed in the United States focuses on different aspects and are managed by different accrediting bodies. General accreditation, also known as institutional accreditation,

> "focuses on the characteristics of the institution as a whole, such as educational offerings (and their outcomes – learning outcomes assessment has been an important innovation in U.S. quality assurance in recent decades, instigated by governmental demands), services

> to students, financial conditions of the institution, and its administrative strength" (Schwarz & Westerheijden, 2004, p. 25).

Additionally, institutional accreditation is "operated by six 'regional' agencies that each serve most higher education institutions in a number of states" (Schwarz & Westerheijden, 2004, p. 25). Institutions within the Unites States that are considered specialized, such as religious institutions, are managed by institutional accreditation agencies (Eaton, 2003). These institutional accreditation "agencies also oversee many for-profit colleges (Eaton, 2003).

As previously mentioned, the second type of accreditation is professional accreditation, which is also referred to as specialized accreditation (Schwarz & Westerheijden, 2004, p. 25). This is accreditation of specific study programs "against standards of the profession associated with that field" (Schwarz & Westerheijden, 2004, p. 25). Examples of specialized accreditation programs include business studies and teacher training (Schwarz & Westerheijden, 2004, p. 25). As stated by Schwarz & Westerheijden (2004), there are about 70 specialized accreditation agencies, which operate nationwide (p. 25). Even though these two types of accreditations are operated by various accrediting bodies, all of these accrediting bodies are recognized by the United States Department of Education through the Council for Higher Education Accreditation (Hall, 2015, p. 33). Both types of accreditations serve stakeholders of higher education institutions and emerged "to help ensure that schools provide a quality education to students" (U.S. Government Accountability Office, 2017, p. 4). As it stands, accreditation in the United States is a voluntary process (Schwarz & Westerheijden, 2004, p. 24). Higher education institutions are not mandated to be accredited. However, to receive student financial aid from the government, higher education institutions must successfully be accredited by "entities

recognized by Education as reliable authorities on assessing academic quality" (U.S. Government Accountability Office, 2017, p. 1).

The Higher Education Act of 1965, as amended (Higher Education Act), outlines this requirement of accreditation for institutions to receive federal student aid. The rationale for the process of accreditation as stated by a report to congressional requesters by the United States Government Accountability Office (2017) is to "help ensure that postsecondary schools with access to federal student aid provide a quality education to students" (p. 1). Additionally, in order to receive certain types of external research funding, accreditation is also required. (Hall, 2015). Despite the "voluntary" nature of accreditation, it is apparent to higher education administrators that in practice accreditation is necessary to function as an institution.

The progression of accreditation is similar for institutional and specialized accreditation, regardless of the different accrediting bodies that manage these quality assurance processes. The process of accreditation is ongoing and there are five key features of accreditation. Each accrediting body will set their own specific standards. The first aspect of accreditation is where the institution completes an internal "self-study" and reviews different components of the program/institution and writes up performance summaries for the accrediting bodies standards. Once the self-study is completed, a peer-review is conducted in which members of the peer-review team review evidence and determine if the program/institution is meeting the specified standards outlined by the accrediting body. Following the peer review, a site visit takes place. During these visits, a team will physically attend the institution and develop a report in which they document the outcomes of the trip and recommendations for the institution. After the completion of the site visit, the accrediting organization then acts and makes judgment on the accreditation status of the program/organization. The accrediting body will determine if "the

institution or program will be accredited, reaccredited, placed on probationary status, or denied accreditation" (Hall, 2015, p. 34). Succeeding this decision, is a period of monitoring and oversight. During this period, the institution is expected to make changes based on the recommendations they received from their site visit. The program/institution will continue to monitor their process and are reviewed through the process of accreditation every few several years (Council for Higher Education, 2002).

Even though the "voluntary" process of accreditation has been deemed time consuming and complex by higher education administrators, accreditation still is viewed by many stakeholders as having merit (Suskie, 2015, p. 21). As noted by Suskie in her recent 2015 book, *Five dimensions of quality: a common sense guide to accreditation and accountability*, "accreditation remains a well-regarded seal of approval on college quality" (p. 21). One crucial output of accreditation is the result of necessary improvements for an institution (Suskie, 2015, p. 21). Suskie (2015), refers to accreditation processes as community-building exercises "that generate useful introspection and ideas, yield helpful recommendations from the review team, and force colleges to address issues that would otherwise be swept under the rug" (p. 23).

Accreditation assists in quality assurance and has a lasting impact on a program and/or institution. As the path of accreditation moves forward and since accreditation "sits at the intersection of traditional higher education autonomy and the increasing importance of colleges and universities in a knowledge economy," individuals need to take note of the shift in accreditation culture (Phillips & Kinser, 2018, p. 267). As the process of accreditation emerges there is a change in the focus of valuing accountability, and more of an emphasis on student outcomes. Allowing students to contribute to the assessment cycle related to quality will assist in a new assessment culture at higher education institutions.

Measuring Quality of Online Courses

Online classes at higher education institutions are not a new phenomenon. Higher education institutions have been offering distance education options since the late nineteenth century (Berg, 2002). However, assessing online courses related to students' perceptions of quality is a new phenomenon that has yet to be fully explored. Whereas there have been several studies that focus on the "perceptions of faculty and administrators, there has been a paucity of research conducted on students' perceptions toward the quality of online education." (Yang & Cornelius, 2004, p. 861). Currently, it is not common practice for higher education institutions to involve students in the quality management process. However, a recent trend in the field of assessment is engaging students in the assessment process. Many higher education stakeholders feel that students are a major parcel of the institutional system and "thus their opinions should count in decision making concerning the quality of the education they are receiving" (Okogbaa, 2016, p. 139).

In this framework of assessment, students are critically involved and there is an assessment culture in which students share the responsibility of assessment (Joughin, 2009). An area in which students can be impactful for providing insight related to assessment is with providing feedback at higher education institutions. As measuring quality at higher education institutions has become common place, so has the practice of involving students in the quality process (Okogbaa, 2016). In their article, Williams and Cappuccini - Ansfield (2007), state that "collecting feedback from students about their experiences in tertiary institutions has become one of the central pillars of the quality process" (p. 159). Having students provide insights to their perspectives of quality for online classes, will assist higher education institutions in improving the quality of online courses. Research conducted by Harvey (2003), supported how student

feedback will assist in improving educational quality. Harvey (2003), stated that feedback from students is important because it is "action oriented." Feedback from students is crucial because it "provides internal information to guide improvement and external information for potential students and other stakeholders, including accountability and compliance requirements" (Okogbaa, 2016, p. 140). Harvey (2003) also goes on to explain that the most important use of student feedback "is in providing senior management with invaluable information from the student's perspective to assist in an institution's continuous quality improvement process" (Okogbaa, 2016, p. 140). Therefore, not including student feedback in an institution's assessment process, would make the process incomplete (Okogbaa, 2016). Research from these authors demonstrates the importance of involving students in the quality process, without students' input, the entire process would be lacking a key stakeholder.

The involvement of students is even more crucial as online education becomes more pertinent in society. As new technologies continue to grow and expand into the higher education realm, "online learning has now become an integral part of higher education institutions' expanding curriculum" (Yang & Cornelius, 2004, p. 861). With this growth, however, concerns have developed as it relates to the quality of online education (Yang & Cornelius, 2004). An area of concern related to quality of online education is measuring online quality. Higher education administrators and researchers are trying to determine how to effectively and efficiently measure online quality. Measuring online quality is significant since a study on online education conducted by Allen and Seaman's (2003), found that "at least 80% of the course content delivered by those institutions were delivered online" (Yang & Cornelius, 2004, p. 861). Additionally, data from the National Center for Education Statistics reported that there were over 7 million "students enrolled in any distance education courses at degree-granting postsecondary

institutions" among the 50 states and the District of Columbia (National Center for Education Statistics, n.d). Along with these quantifiable findings, Jennifer Mathes, who is the CEO of the Online Learning Consortium, a nonprofit association focused on best practices for quality online learning, states that "more and more students want distance education, so institutions have to be ready to adapt" (Smalley, 2021).

This adaptation to the rapid increase of online education includes determining innovative ways to measure online quality. Current and previous research advocate for involving students in the quality review process (Yang & Cornelius, 2004;Okogbaa, 2016). Involving students at higher education institutions in the feedback process on quality, is already a success practice among other countries. A prime example of this practice is that The Higher Education Funding Council for England (HEFCE), "which distributes government funding to higher education institutions in England, requires that a range of student views on their experience of higher education be collected and made public" (Okogbaa, 2016, p. 140). The major takeaway from the practice of involving students in the feedback process at higher education institutions is that "feedback from students can be an invaluable source of information" and the opportunity for students to provide feedback sheds "more light on what they think and how they feel" (Okogbaa, 2016). In her article, Okogbaa (2016), makes the conclusion based on previous research and her own study that including the student perspective "is a practice that should be given a more prominent place in our tertiary education system" (p. 140).

The current assessment process among higher education institutions, particularly in the United States, does not involve students in the process. In her own research, Okogbaa (2016), states how numerous studies have been conducted that focus on the quality of online education from a faculty and administrator perspective (Bennett & Bennett, 2002; Goodwin, 1993; Hara &

Kling, 1999). To date, there has been little research that focuses on online quality from a student perspective (Okogbaa, 2016). A study is needed related to involving students in the assessment of quality of online courses at higher education institutions.

Previous Studies of Measuring Quality

After reviewing literature on quality in higher education, it is important to gain insight into measuring quality of online courses. For example, Meyer (2002) noted that there is no definite definition of quality in more traditional classrooms, so it is "unwise to except such clarity for online learning" (p. 2). However, the search to obtain more clarity related to quality in online courses needs to be addressed (Meyer, 2002). Online courses continue to grow due to their access, convenience, and flexibility (Harris et al, 2012). The attractiveness of online classes due to these factors, further increases the need to develop a better understanding quality in online education.

The importance of developing a deeper understanding of online quality can be seen throughout various studies and in the work of many authors. An online report card by Allen et al. (2016) underscores the importance and relevance of measuring online courses. This online report card summarized the "state of online education among U.S. institutions of higher education" and was developed to answer, "fundamental questions about the nature and extent of online education" (Allen et al., 2016, p. 3). The authors of the report noted that "distance education enrollments continue to grow at a healthy rate, showing a 7% increase overall between fall 2012 and fall 2014" (p. 13). Data indicates that this trend will continue and that online courses at higher education institutions will continue to grow and increase (Huss & Eastep, 2013). Combined, these point to a need to respond to the rapid growth of online enrollment and a more robust documentation of quality.

With rising demand for online education, a multitude of questions are posed that administrators must consider. The continued growth of online programs in higher education has sparked several concerns regarding support services, learning resources, and effectiveness of instruction (Hirner & Kochtanek, 2012). These issues generate certain questions about the overall quality of online programs (Hirner & Kochtanek, 2012). Questions generated from these concerns have led institutions to evaluate how they "monitor and assess the quality of their online programs" (Hirner & Kochtanek, 2012, p. 123). Various studies have been conducted that explore this notion. In their article, Lenert & Janes (2017), state that the "determination of what constitutes measures of quality in online higher education varies widely in the literature" (p. 2). Typically, quality in online courses is "often measured as student satisfaction with an online course and it is understood that quality is considered low if the rate of attrition is high" (Grace et al., 2012). Another primary method of assessing quality is through student perception and satisfaction surveys (Anderson, Tredway, & Calice, 2015). However, more research and an assessment method that incorporates how students perceive quality of online courses is needed.

In one study that was conducted by Hirner and Kochtanek (2012), which was developed from a study by Phipps and Merisotis (1999), raised questions related to online programs. In this study, quality indicators were identified related to online programs at a community college. Many of the quality indicators were "concerned with technology and timeliness of communication" (Hirner & Kochtanek, 2012, p. 127). Some examples of specific quality indicators from the study include, the online programs offered are consistent with the universities mission, regular evaluations, student learning outcomes of the course are assessed, and student persistence and attrition in online classes are monitored in comparison to institutional trends of the online course are conducted (Hirner & Kochtanek, 2012). A total of 77 quality indicators

arose from this study. Five categories emerged within these 77 quality indicators, which were supported by literature. The five categories are: institutional support, curriculum and instruction, faculty support, student support, and evaluation and assessment.

After identifying quality indicators, researchers collected stakeholders' perceived importance of each quality indicator (Hirner & Kochtanek, 2012). Results from this study, as well as previous research, indicated that support students receive in the course, as well as the design of the course, were the most important quality indicators (Hirner, 2008). Additionally, students believe timely communication is also an important quality indicator (Hirner, 2008). The results of this study concluded with these two authors advocating for the continued need to monitor the perceptions of stakeholders in online higher education (Hirner & Kochtanek, 2012). Further the implications for practice section of this study, these authors stated that given "the rapid evolution of all facets of technology coupled with the burgeoning growth of online education" continued research on this topic is important (Hirner & Kochtanek, 2012, p. 129). There is also a "need to periodically update what is known about the participants in online education, their expectations, and experiences is something that will continue to demand the attention of educators and researchers" (Hirner & Kochtanek, 2012, p. 129). Hirner and Kochtaneks' study (2012) caught the attention of many practitioners in the field. However, this study was conducted a few years ago before a national pandemic occurred and made online courses a societal norm for higher education institutions. This previous study was also conducted in the context of community colleges and there is a need for a study related to quality of online courses in the context of 4-year public research institutions. This 2012 study collected information from multiple stakeholders (students, faculty, support staff, and program

administrators) (Hirner & Kochtanek, 2012, p. 123). A current study is needed that focuses on the perspective of online course quality from students who are primary stakeholders.

Studies that focus on quality perceptions from faculty and staff, could be paired with studies that focus on quality from a students' perceptive. Viewing these studies holistically, could be insightful into how quality is affected by the relationship among these stakeholders. In a quantitative study related to factors that influence students' perceptions of online courses, Yang & Durrington (2010), summarized by stating that "online learning is the shared responsibility of instructors, students, and the institution" (Yang & Durrington, 2010, p. 356). Additionally, by "examining students' perceptions of quality online courses, institutions can link this information to what is known from the faculty and institutional perspective to prepare a productive online learning environment (Yang & Durrington, 2010, p. 357).

Due to the lack of recent studies related to online quality from a student's perspective within the United States and the continual growth of online courses, there is a need to pursue a study which includes these two components. Previous studies on quality of online courses, have been focused on the administrator and faculty perspective. A common practice in which higher education institutions gain student feedback, is through student satisfaction surveys. Student satisfaction surveys provide helpful insight for an institution; however, they do not directly target student perspectives related to quality. This study will be grounded in the current context of online courses, namely a global pandemic and current literature related to quality in higher education. To accomplish this, the Community of Inquiry (CoI) Framework will be used to understand student perceptions of quality beyond their notions of satisfaction.

Community of Inquiry Framework

As online education has rapidly grown over the past decade, various online programs and institutions that encompass online education have been exploring different frameworks for their curriculum. One framework that has grown in popularity among many different disciplines is the Community of Inquiry (CoI) framework. The Community of Inquiry (CoI) framework, "provides a structure for integrating a collaborative constructivist approach in course design, implementation, and evaluation" (Micsky & Foels, 2019, p. 293). The CoI framework consists of three main elements Social Presence, Cognitive Presence, and Teaching Presence (Micsky & Foels, 2019). This framework suggests that when all three of these essential elements are fostered in an online education platform, "a community of inquiry can be created to promote student engagement and learning" (Micsky & Foels, 2019). This framework can be seen utilized successfully by various fields such as for aspects of online education. Additionally, the CoI framework has been "continually evolving across a series of robust published studies, building on the original framework (Garrison, Anderson, & Archer, 2000), as a solid and foundation for a wide variety of audiences including researchers, practitioners, and administrators who deal with online learning in its various forms" (Semingson et al., 2018, p. 16).

The three elements are the CoI framework are essential in "creating a deep and meaningful (collaborative-constructivist) learning experience" (CoI Framework, n.d). The first element of the CoI framework is Social Presence. Social Presence within the framework is defined by Garrison (2009), as "the ability of participants to identify with the community (e.g., course of study), communicate purposefully in a trusting environment, and develop inter-personal relationships by way of projecting their individual personalities" (Garrison, Cleveland-Innes, & Fung, 2010). Additionally, Social Presence has been noted in literature as important due

to the lack of face-to-face communication in online courses. Previous studies have concluded that “evidence strongly support(s) the view that Social Presence can and should be established in online learning communities” (Swan, Garrison, & Richardson, 2009). The proposed study will assist in determining if students perceive Social Presence as being important in online courses.

The second element of the CoI framework, is Teaching Presence. The CoI framework states that “a thoughtful, focused and attentive Teaching Presence” is needed in online courses. Teaching Presence in the CoI framework 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, Garrison, & Archer, 2001). Within the CoI Teaching Presence, there are three responsibilities. The first of the primary Teaching Presence responsibilities is establishing curriculum content, learning activities, and timelines. The second responsibility is monitoring and managing purposeful collaboration and reflection. The third is ensuring that the community reaches the intended learning outcomes by diagnosing needs and providing timely information and direction. exploring causal relationship article (Garrison et al., 2010).

The third and final element of the CoI framework is Cognitive Presence. Garrison, Anderson, and Archer (2001) describe Cognitive Presence as the "extent to which learners are able to construct and confirm meaning through sustained reflection and discourse” (Garrison & Arbaugh, 2007). Within the Cognitive Presence there are four phases that were defined by the Practical Inquiry model (Garrison, Anderson, & Archer, 2001). The phases are definition of a problem or task; exploration for relevant information/knowledge; making sense of and integrating ideas; and, finally, testing plausible solutions (Garrison et al., 2010).

As outlined, the CoI framework is a "three-fold and multi-faceted way to consider effectiveness within an online, digital, and/or blended course setting" (Semingson et al., 2018, p. 1). Since the recent pandemic, higher education institutions have experienced a surge in online courses. Faculty and staff had to quickly convert face to face courses to on online platform in order to still resume classes and meet with students. Additionally, the enrollment of online courses at higher education institutions was over 7 million students in 2020 and is predicted to continue to increase (National Center for Education Statistics, n.d). Based on the large enrollment numbers for online education and the desire to increase quality for online courses, the CoI framework has been an effective framework to utilize in the realm of higher education.

Within the realm of higher education, the CoI framework has given insight to instructors by providing "a foundational set of guiding philosophies and ideals for online instruction" (Semingson, 2018, p. 3). Garrison, Anderson, and Archer (2000), who are credited with the original theoretical framework for the CoI, outline specific ideas and examples that instructors of online courses can implement that foster the three elements of the framework. In the book, *The Community of Inquiry Framework in Contemporary Education: Emerging Research and Opportunities* (2018), one of the authors Semingson, explains how she utilized many of the tools noted in order to enhance online community in many of her own courses she has taught. Semingson (2018) states she has utilized discussion boards with prompts to foster Teaching Presence in her online courses and build rapport among students (p. 6). To foster Social Presence in her own online courses, Semingson (2018) has required an online book club as an assignment, which has allowed students to share opinions with one another (p. 7). Lastly, Semingson (2018) has fostered Cognitive Presence, by asking students to "pose their own inquiries or what they are curious about on the discussion forums" that she creates for online courses (p. 7).

Previous and current research has cited that the CoI framework is mainly employed in higher education as "online course design tool" which is used to design and improve courses (Semingson, 2018, p. 8). Some examples of this include Burgess and Caverly (2010), who utilize the CoI framework to design developmental literacy courses for adult learners. In order to promote an effective online course, Lowenthal & Dunlap (2010), employed the CoI framework in courses that comprise of a digital storytelling component. Lastly, Vaughan & Garrison (2005) incorporated the CoI framework when developing initiatives at the institution level that support faculty who are creating blended courses (Semingson, 2018, p. 8). As noted, many researchers and instructors have had been very successful in employing the CoI framework in their research and courses. The CoI framework has been prominent in research for over 15 years and continues to grow in popularity (Semingson, 2018). As online enrollment at higher education institutions continues to rise, so will the use of the CoI framework in online courses. This study will utilize the CoI framework and determine how undergraduate students at a large public university perceive the importance of elements of the Community of Inquiry Framework in online courses.

Summary of Literature

If this study was being conducted 20 years ago, the topic of quality in higher education would be a relatively new concept. However, since the early 2000's, there has been a significant amount of literature developed related to quality in higher education. The conceptualization of quality is consistently evolving due to the large investment various stakeholders have in higher education. The early definition of quality was focused on quality management systems (Hall, 2015, p. 13). Then in the 1990s, quality was focused on impacts of higher education for stakeholders, specifically the improvement of the student experience (Hall, 2015, p. 14). Following this, research was conducted that interviewed and surveyed stakeholders related to

quality management at higher education institutions. Among these stakeholders were faculty members, employees, and administrators.

Students are and will remain the main stakeholders in higher education. Therefore, it is important to understand how students define and perceive quality in higher education. From the significant volume of literature related to quality in higher education, it has been determined that different types of stakeholders in higher education have different definitions of quality. With these varying definitions, comes different quality expectations and perspectives. Current research provides insight into the perspectives of various stakeholders within higher education. However, there is a substantial lack of information related to how students define quality in higher education. Some literature theorizes how students perceive quality, however there is little to no research related to how students in the United States at large research institutions define and perceive quality at their institution.

There is a need to gain more understanding of how quality of online courses are perceived by students. Following the 2020 national health pandemic, all institutions worldwide were forced to move classes online. This major change in the format of classes came with no preparation. Faculty and administration had to quickly adjust courses in order to complete the Spring 2020 semester online. As higher education institutions gear up for future academic years, it is predicted that more undergraduate courses will be conducted online. With the majority of classes being conducted online, higher education administrators need to do their due diligence and ensure the level of quality of online classes at their institution.

Due to the significant amount of online course offerings of community colleges, four-year public institutions are having to compete with these community colleges as a result of emerging technology and the national health pandemic. Current students enrolled in four-year

public institutions, as well as prospective students are making the challenging decision of enrolling at a community college or a four-year public institution. Since stakeholders are perceiving that these two types of institutions are offering the same services, community colleges and four-year public institutions are now in direct competition with each other for enrolling students. Students could easily decide to take online courses at their local community college instead of enrolling in a 4-year institution where most, if not all of their courses are online. All post-secondary higher education institutions, but especially four-year public institutions, need to demonstrate the quality of their online courses to stakeholders. These four-year institutions need to gain an understanding of how students perceive quality online, then employ their findings to ensure their online courses are meeting student's quality expectations. This present study will assist in gaining student insight into perspectives of quality for online courses. Additionally, the findings of this present study will add to literature on quality in higher education and empower higher education institutions to further advance their quality assurance processes by incorporating students.

Chapter Three

Methodology

The purpose of this study was to determine the relationship between the elements of the Community of Inquiry (CoI) framework and key characteristics of students and courses in online education. Specifically, this study sought to determine undergraduate student perceptions of contributing features of quality in an online course that they identified as being high quality. Additionally, this study was developed to investigate the importance of the three elements of the CoI among students in high quality online courses. The overarching aim of this study was to investigate Social Presence, Teaching Presence, and Cognitive Presence as quality indicators in online courses in a higher education context.

The Community of Inquiry (CoI) framework was the guiding framework in this study. The CoI framework has been used to create a deep and meaningful learning experience through three different elements: Social, Cognitive, and Teaching Presence (CoI Framework, n.d.). Similar to previous studies using this framework in other levels of education, here it "aims to articulate the social and academic factors necessary for the development of high-quality online education" (Shea & Bidjerano, 2008, p. 340). For this study, select demographic variables include gender, race/ethnicity, and academic year, which are known to influence student perceptions. Further, this study used select course attributes such as class size, class modality, and pedagogy of focus to determine if students' perceptions of online courses differ based on these attributes.

This quantitative study collected data from a sample of undergraduate college students who were enrolled in a selected college at a large public research institution. Participants of this study were asked to first identify a high-quality online course and then to complete an instrument

designed to measure aspects of the CoI. Data collection occurred during the Fall of 2022 semester. The data was then analyzed to answer the research questions in this study. The research questions were:

1. What student characteristics affect students' perceptions of quality for online courses in higher education?
2. What course characteristics affect students' perceptions of quality for online courses in higher education?
3. What is the relationship of student and course characteristics to Social, Teaching, and Cognitive Presence in the Community of Inquiry Framework?

This chapter discusses the methods used in this study to answer these three research questions. Included in this chapter are details pertaining to the sample of the study, the data set of the study, the data collection procedure, and anticipated data analysis.

Community of Inquiry Survey

Data for this survey was collected using the Community of Inquiry Survey (CoI Framework, n.d.). The survey was developed as a measure of components to the Community of Inquiry Framework. The framework was specifically created for understanding perceptions of online learning and to address the need for a "comprehensive view of a formal online education experience" (CoI Framework, n.d., p. 134). Three unique forms of presences—Social, Cognitive, and Teaching—construct the framework and provide the basis to measure a "deep and meaningful educational experience" (CoI Framework, n.d.). Given the complex nature of online learning, this instrument was designed to measure important elements unique to this learning environment.

The Community of Inquiry Survey is an open resource available to researchers under the Creative Commons license. This license grants permission “free of charge, to any person obtaining a copy of the CoI survey to use, share, copy, adapt, merge, publish or distribute the document in any medium or format for any purpose, provided that appropriate credit is given, and any modified material is distributed under the same Creative Commons license.” For the purposes of this study, appropriate credit is given to the team of researchers that developed the survey. Next, I describe the CoI Survey including sections and items.

Community of Inquiry Survey Outline

The Community of Inquiry Survey consists of 34 items that measure Social Presence, Cognitive Presence, and Teaching Presence. Each item on the survey uses a Likert scale with five response options: Strongly Agree, Agree, Neutral, Disagree, and Strongly Disagree. Each of the three elements of the CoI Framework are treated as distant subscale in the survey. The survey is comprised of nine items that measure Social Presence, twelve items that measure Cognitive Presence, and thirteen items that measure Teaching Presence. Each of the 34 items on the survey also corresponds to a dimension of the CoI Framework. In doing so, items, dimensions, and elements align. For example, nine items on the instrument measure Social Presence. This element has three dimensions: Affective expression, Open communication, and Group cohesion. Similarly, Cognitive Presence has 12 items with four dimensions: Triggering event, Exploration, Integration, and Resolution. The third element, Teaching Presence, has 13 items and three dimensions: Design & Organization, Facilitation, and Direct Instruction. The relationship among items, dimensions, and elements of the CoI Framework is outlined in Table 1.

Table 1

Alignment of survey items, dimensions and CoI elements

Community of Inquiry Element	Total # of items on scale	Dimension/Phase	# Category Items
Cognitive Presence	12	Triggering Event	3
		Exploration	3
		Integration	3
		Resolution	3
Social Presence	9	Affective Expression	3
		Open Communication	3
		Group Cohesion	3
Teaching Presence	13	Design & Organization	3
		Facilitation	3
		Direct Instruction	3

In this study, the three Community of Inquiry elements, will be used as proxy for quality and analysis of individual and course characteristics. As noted in the Community of Inquiry framework, a deep and meaningful educational experience exists where the three presences overlap (Garrison, 2009).

Since the purpose of this study was to gain a deeper understanding of how students perceive quality in online learning environments, I decided it was important to focus my analysis on the three CoI elements. A meaningful learning experience is grounded in the three independent elements of this framework. In this study, the CoI dimensions are not analyzed. As the researcher, I decided to explicitly analyze the CoI elements which will allow for a more nuanced analysis. I will also review the overall instrument scores for a comprehensive measure of the CoI. Next, I will describe the instrument in further detail and include example items for the elements and dimensions of the survey.

Instrumentation

The authors of the Community of Inquiry Survey do not have a preferred method of administration. The CoI Survey can be administered online or on paper. For the purposes of this study, the Community of Inquiry Survey was administered on-line via QuestionPro. QuestionPro is an online survey platform where surveys can be created and distributed through email. The decision to administer the survey online via QuestionPro was based on ease of access for data collection and analysis. Participants of this study are likely accustomed to an online format, which further supports the decision to administer the CoI Survey through QuestionPro. The survey consists of instructions, preliminary questions, and 34 Likert items which correspond to the three elements of the Community of Inquiry Framework: Social Presence, Cognitive Presence, and Teaching Presence.

At the beginning of the Community of Inquiry Survey are instructions for participants. These instructions inform participants to answer the 34 Likert items based on an online course they have taken within the past academic year. Additionally, the instructions state that participants should answer all survey questions based on an online course they perceive as being high quality. These specific instructions are unique to this study and were added by the researcher to develop an understanding of the elements of the CoI within the context of a perceived high quality online course.

Following the instructions, four screening questions are used to ensure participants meet the criteria for participation. After the four preliminary questions, the survey is divided into three sections that reflect each element of the CoI framework. These three elements are divided into three different sections in the Community of Inquiry Survey. The response options for items in

all three sections are on a 5-point Likert scale: Strongly Agree, Agree, Neutral, Disagree, and Strongly Disagree

The first section of the survey focuses on 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 et al., 2001, p. 5). For example, an item in the Teaching Presence section of the survey asked respondents to reflect on the extent to which the instructor of the online course clearly communicated course goals. There are three different dimensions that comprise Teaching Presence: Design & Organization, Facilitation, and Direct Instruction. Design & Organization refers to how instructors design and organize their course. This dimension encompasses how instructors must think through the "process, structure, evaluation and interaction components of the course" based on the online format (Anderson et al., 2001, p. 5).

An example question of Design & Organization is "The instructor clearly communicated important course topics." The facilitation dimension refers to the instructor engaging with students to maintain their interest and motivation in the course. An example question of facilitation is "The instructor helped to keep course participants engaged and participating in productive dialogue." The last dimension of teaching presence, Direct Instruction refers to instructors providing intellectual and scholarly leadership as well as sharing their subject matter knowledge with students (Anderson et al., 2001). An example question of Direct Instruction is "The instructor provided feedback in a timely fashion."

The second section of the survey is Social Presence. Social Presence is defined as the "ability of participants to identify with the community (e.g., course of study), communicate purposefully in a trusting environment, and develop inter-personal relationships by way of

projecting their individual personalities." (Garrison, 2009, p. 352). An item in the Social Presence section asks respondents to reflect on how getting to know other course participants gave them a sense of belonging in the course. Similar to Teaching Presence, there are three dimensions of Social Presence: Affective Expression, Open Communication, and Group Cohesion. Affective expression refers to learners sharing personal expressions and values (University of Virginia, n.d). An example question of Affective Expression is "I was able to form distinct impressions of some course participants." The Open Communication dimension is where learners develop aspects of mutual awareness and recognition (University of Virginia, n.d). An example item of open communication is "I felt comfortable participating in the course discussions." The third dimension of Social Presence is Group Cohesion whereby learners build and sustain a sense of group commitment (University of Virginia, n.d). An example question of group cohesion is "Online discussions help me to develop a sense of collaboration." As noted on the resource document on the Center for Teaching Excellence website (University of Virginia, n.d), the social presence of the CoI framework is designed to address how online courses allow "students to show up as themselves and building a sense of community and belonging within the online environment."

The third section of the survey focused on cognitive presence within the CoI framework. Cognitive presence is defined as the "extent to which learners are able to construct and confirm meaning through sustained reflection and discourse" (Garrison, Anderson, & Archer, 2001, p. 11). An item in the cognitive presence section of the survey asked respondents if they are able to apply the knowledge created from the online course they took to other work and non-class related activities. There are four different dimensions that comprise cognitive presence: Triggering event, Exploration, Integration, and Resolution (Yusuf et al., 2016). Triggering event

refers to “question, problems, or dilemmas, which stimulate the inquiry process” (Epiguem, n.d., p. 2) for students. An example question of triggering event is “Course activities piqued my curiosity.” The exploration dimension refers to “seeking of new information, insights and ideas about the problem.” An example question of exploration is “Online discussions were valuable in helping me appreciate different perspectives.” The integration dimension refers to “reflecting on how the new knowledge discovered can be integrated into a coherent idea or concept.” An example question of integration is “learning activities helped me construct explanations/solutions.” The last dimension of cognitive presence, resolution refers to “solution to the problem or refinement of new questions, leading to new cycles of inquiry.” An example question of resolution is “I can describe ways to test and apply the knowledge created in this course.” To review the entire Community of Inquiry survey, including all the questions for the cognitive dimension, refer to Appendix A.

Finally, the last few items of the survey ask respondents to identify demographic and course characteristics. Items pertaining to demographics include gender identity, race/ethnicity, and academic year (freshman, sophomore, junior, senior). Next, several items are included that are related to course characteristics. One question added asks students to identify if the course they are answering the CoI survey about is in the STEM field. Many previous studies utilize the CoI framework for STEM related courses and programs. Having a greater understanding if the high-quality courses that students are using for their frame of reference is in the STEM field for this specific study, will be insightful. Additional items added related to course characteristics include class size, class modality, and course pedagogy. Refer to Appendix B for the demographic and course characteristics questions added to the Community of Inquiry survey for the purpose of this study. Next, I address reliability and validity of the CoI instrument.

Reliability and Validity

Two important psychometric properties related to survey design are reliability and validity. The first psychometric property of a survey is reliability. Reliability refers to the consistency of a survey. Reliability is "the extent to which an instrument would give the same results if the measurement were to be taken again under the same conditions" (Morrison, 2019a). Reliability of a survey can be determined based on internal consistency of correlation among variables. Internal consistency is "the extent to which the questions in the survey all measure the same underlying construct" (Morrison, 2019a). When analyzing internal consistency of the CoI survey, the variables of interest are cognitive, teaching, and social presence (Swan et al., 2008). Split-half reliability and Cronbach's alpha are two measures of internal consistency.

The second psychometric property of a survey to measure is validity. Validity relates to a survey's accuracy. Validity is the "extent to which an instrument measures what it is supposed to measure" (Morrison, 2019b). Validity can be assessed through construct validity. Construct validity is the "extent to which the survey measures the theoretical construct it is intended to measure" (Morrison, 2019b). Construct validity can be measured by Confirmatory Factor Analysis (CFA). CFA assesses the "fit between observed data and a prior conceptualized, theoretically grounded model that specifies the hypothesized causal relations between latent factors and their observed indicator variables" (Science Direct, n.d.). These various ways of measuring reliability and validity are important to consider when utilizing a survey in a research study. The reliability and validity of the Community of Inquiry survey has been previously studied.

The Community of Inquiry survey has been deemed a valid and reliable instrument in research related to the Community of Inquiry Framework. The Community of Inquiry survey has

been employed in numerous studies and research endeavors. In his article *A systematic review of the Community of Inquiry survey,* Stenbom (2018) addresses the validity and reliability of the CoI survey. Stenboms' article provides an "exhaustive search and analysis of 103 peer reviewed journal articles that used the CoI framework and survey" (Garrison, 2018). From reviewing the collection of articles that employ the CoI survey, Stenbom concluded that "the combined result of this study is that the CoI survey is a widely accepted instrument for revealing participants' perceptions of a learning experience" (Garrison, 2018). Additionally, Stenbom (2018) states in his article that "it is clear that the CoI survey provide[s] a reliable and valid measure of cognitive, social, and teaching presence as outlined in the CoI framework" (p. 27). Finally, in the summary of Stenboms' (2018) article, he concludes that the "CoI survey is a widely accepted instrument for revealing participants' perceptions of a learning experience" (p. 27). This conclusion that the CoI survey is a widely accepted instrument is consistent with many other researchers.

Another study that further validates the CoI survey, is a survey by Secil Caskurlu. Caskurlus' article (2018), *Confirming the subdimensions of teaching, social, and cognitive presences: A construct validity study,* reviews the construct validity of the CoI presences (Garrison, 2018). Caskurlus (2018) employs a study with a sample of twelve online graduate courses, which includes 310 participants. A CFA was conducted for this study. The results of the CFA of this study "supported the conceptualization of all three presences as initially proposed by the CoI framework" (Caskurlu, 2018, p. 9). Additionally, the CFA supported the reliability and validity of the CoI survey (Caskurlu, 2018). Furthermore, a large-scale study involving 2,159 online learners conducted a CFA which supported the construct validity of the survey by

validating a three-factor solution of the CoI framework (Diaz et al., 2010). These two studies demonstrate the reliability and validity of the CoI survey.

A previous article explored the reliability and validity of the CoI survey (Swan et al., 2008). The authors of this study looked at Cronbach Alpha measures to determine reliability. In the context of the Community of Inquiry Survey, Cronbach Alpha "measures how well a set of variables measures a single unidimensional construct" (Swan et al., 2008, p. 8). From the variables employed in this study, Cronbach Alpha measures were reported as: 0.94 for Teaching Presence, 0.91 for Social Presence, and 0.95 for Cognitive Presence. The Cronbach Alpha measures yielded in this study are "indicative of high intercorrelations leading to internal consistencies" (Swan et al., 2008, p. 8). Swan et al. (2008), concluded from their study after administering the Community of Inquiry Survey at four institutions during the summer of 2007 that the CoI survey "provides a reliable measure for the existence of a community of inquiry in online learning environments." The Cronbach alpha measures for the CoI survey used in this study were: 0.93 for Teaching Presence, 0.91 for Social Presence, and 0.93 for Cognitive Presence. These reliability coefficients nearly match the measures reported from Swan et al., (2008). Due to the widely accepted nature of the CoI survey, since its development in 2008, it has been employed in a multiple of studies and research. Previous research and reliability analyses of the Community of Inquiry Survey, indicate the survey is a reliable and valid instrument.

Sample Selection

The target population for this study was undergraduate students at a large public research institution who have been enrolled in an online course. In order to be a participant, students needed to meet a specific set of criteria that were established for this study. The four criteria for

sample selection in this study were: (1) enrolled in the selected academic college, (2) undergraduate student, (3) full-time enrollment status at selected institution, (4) enrolled in an online course in college.

The first sample criterion for this study is being a student within the selected academic college. The rationale for this criterion was based on research from the literature review I conducted. Previous research indicates that the CoI survey has been utilized in specific contexts and student populations. However, there is a specific gap in literature related to employing the CoI survey with students who fall within a broad academic college. Having students from a particular academic college serve as the sample for the survey, allows a wider focus on a range of topics and courses, as opposed to one specific program. Additionally, this academic college was selected due to the wide range of courses and programs offered, the diversity of students, and I had direct access to the college. Only responses from students that are members of this selected academic college were included in this study. Confirmation from the registrar's office, assisted in determining if student participants were members of the selected college.

The second selection criterion was undergraduate student status. This criterion was determined based on findings from the literature review. Graduate students have been the sample for the CoI survey in many previous studies. Therefore, as the researcher believe it would be informative to have undergraduate take this survey. Only responses from undergraduate students were included in this study.

The third selection criterion is related to student enrollment status. Full-time status is defined as being enrolled in 12 or more credit hours of courses during the semester in which the CoI survey was administered. The rationale for this criterion, is the assumption that students who are enrolled as full-time students will have more experience in taking online courses. I also

assumed that full-time students may have less outside life disturbances and therefore would be able to actively engage more in online courses than compared to part-time students. Additionally, I assumed that due to the previous assumption, full-time students would be able to better judge the quality of online courses. Because of this criterion, only responses from full-time students during the semester they participated in the CoI survey were included in this study.

The fourth and final selection criterion was based on online course enrollment. Students needed to be enrolled in at least 1 online course at the selected large public research institution. The rationale for this criterion is due to the CoI framework being interested in exploring student learning experiences in an online learning environment (Abbitt & Boone, 2021). Based on this final criterion, the analysis of this study is comprised from students enrolled in at least one online course. I will ensure that the criterion for this study were met by my participants by including four preliminary questions at the beginning of the survey.

The participants in this study had to meet all four selection criteria. I selected a large public institution to draw my sample from, due to higher enrollment numbers. Since a larger institution offers more classes than a smaller institution, there was a greater opportunity for students to have participated in an online course. To obtain a sample for this study, I worked closely with administrators in the Deans' office of the selected academic college.

I partnered with the academic college and explained the importance of the study to the associate dean. This collaboration created buy-in from key stakeholders throughout the college. The associate dean sent the CoI survey via email to prospective students in the targeted population. In the email to students, the associate dean stated how student insight from the survey would be appreciated and that results from this survey would be beneficial for the college. Having the associate dean send the survey would hopefully contribute to more survey responses.

The sponsorship from the academic college assisted in developing support from faculty, students, and staff in distributing and completing the survey. Following the completion of this study, the sponsored college will be able to review the findings and practical implementations developed from the overall study. The results from this study could be very impactful for the academic college and could assist in the quality of online learning for students enrolled in their courses.

In order to ensure that the four criteria for the study sample were met, four preliminary questions were included in the Community of Inquiry Survey that addressed each of these criteria.

The four preliminary questions included in the Community of Inquiry Survey were:

1. Are you a member of the [sic] college?
2. Are you a current undergraduate student?
3. Are you a current full-time student?
4. Have you been enrolled in at least 1 online college course?

Variable Selection

Independent variables for this study were based on insights from literature. These variables were determined based on student and class attributes that have been used in prior studies and shown to influence student experiences and perceptions of quality. I summarize items I added to the CoI Survey in Tables 2 and 3. In Table 2, student demographics and response options are detailed. These are: gender, race/ethnicity, and academic year. In Table 3, class attributes and response options are detailed. These are: class size, class modality, and pedagogy of focus. Student responses to these items will allow for categorization into the different independent variables for later analysis. Dependent variables for this study include each of the 3 elements of the CoI framework: Cognitive, Teaching, and Social Presence. The developers of the

CoI Survey outline which survey items are a part of each of the 3 elements. Tables 4-6 outline the items that comprise each of the 3 elements of the CoI framework.

Table 2

Student Demographics Variables from the Community of Inquiry Survey

Variable	Survey Item	Response Options	Coded As
gender	To which gender identity do you most identify?	Male Female Non-binary Other Prefer not to answer	1= Male 2= Female 3= Non-binary 4= Other 5= Prefer not to answer
raceI	What is your racial identification?	American Indian or Alaska Native Asian Black or African American Native Hawaiian or Pacific Islander White Other I prefer not to respond	1= Majority (White) 2= Non-majority (American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or other Pacific Islander, OR Other) 3= I prefer not to respond OR response unknown
ethnicI	Are you Hispanic?	Yes No	1= Hispanic 2= Non-Hispanic
academicY	What is your undergraduate student class standing?	Freshman Sophomore Junior Senior	1= Freshman 2= Sophomore 3= Junior 4= Senior

Table 3

Class Attribute Variables from the Community of Inquiry Survey

Variable	Survey Item	Response Options	Coded As
csize	How would you classify the size of the online class?	Small Medium Large	1= Small 2= Medium 3= Large
cmodality	What was the main modality of the online course?	Asynchronous Synchronous Hybrid	1= Asynchronous 2= Synchronous 3= Hybrid
cpedagogy	What was the main pedagogy of the online course?	Writing intensive Lecture Seminar	1= Writing intensive 2= Lecture 3= Seminar

Table 4

Teaching Presence items from the Community of Inquiry Survey

Survey Question	Response Options	Coded As
	Design and Organization	
The instructor clearly communicated important course topics.	Strongly Disagree Disagree Neutral Agree Strongly Agree	1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree
The instructor clearly communicated important course goals.	Strongly Disagree Disagree Neutral Agree Strongly Agree	1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree
The instructor provided clear instructions on how to participate in course learning activities.	Strongly Disagree Disagree Neutral Agree Strongly Agree	1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree
The instructor clearly communicated important due dates/time frames for learning activities.	Strongly Disagree Disagree Neutral Agree Strongly Agree	1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree

Table 4 (continued)

Teaching Presence items from the Community of Inquiry Survey

Survey Question	Response Options	Coded As
	Facilitation	
The instructor was helpful in identifying areas of agreement and disagreement on course topics that helped me to learn.	Strongly Disagree Disagree Neutral Agree Strongly Agree	1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree
The instructor was helpful in guiding the class towards understanding course topics in a way that helped me clarify my thinking.	Strongly Disagree Disagree Neutral Agree Strongly Agree	1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree
The instructor helped to keep course participants engaged and participating in productive dialogue.	Strongly Disagree Disagree Neutral Agree Strongly Agree	1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree
The instructor helped keep the course participants on task in a way that helped me to learn.	Strongly Disagree Disagree Neutral Agree Strongly Agree	1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree

Table 4 (continued)

Teaching Presence items from the Community of Inquiry Survey

Survey Question	Response Options	Coded As
	Facilitation	
The instructor encouraged course participants to explore new concepts in this course.	Strongly Disagree Disagree Neutral Agree Strongly Agree	1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree
Instructor actions reinforced the development of a sense of community among course participants.	Strongly Disagree Disagree Neutral Agree Strongly Agree	1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree
	Direct Instruction	
The instructor helped to focus discussion on relevant issues in a way that helped me to learn.	Strongly Disagree Disagree Neutral Agree Strongly Agree	1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree
The instructor provided feedback that helped me understand my strengths and weaknesses relative to the course's goals and objectives.	Strongly Disagree Disagree Neutral Agree Strongly Agree	1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree

Table 4 (continued)

Teaching Presence items from the Community of Inquiry Survey

Survey Question	Response Options	Coded As
	Direct Instruction	
The instructor provided feedback in a timely fashion	Strongly Disagree Disagree Neutral Agree Strongly Agree	1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree

Table 5

Social Presence items from the Community of Inquiry Survey

Survey Question	Response Options	Coded As
	Affective Expression	
Getting to know other course participants gave me a sense of belonging in the course.	Strongly Disagree Disagree Neutral Agree Strongly Agree	1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree
I was able to form distinct impressions of some course participants.	Strongly Disagree Disagree Neutral Agree Strongly Agree	1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree
Online or web-based communication is an excellent medium for social interaction.	Strongly Disagree Disagree Neutral Agree Strongly Agree	1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree
	Open Communication	
I felt comfortable conversing through the online medium.	Strongly Disagree Disagree Neutral Agree Strongly Agree	1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree

Table 5 (continued)

Social Presence items from the Community of Inquiry Survey

Survey Question	Response Options	Coded As
	Open Communication	
I felt comfortable participating in the course discussions.	Strongly Disagree Disagree Neutral Agree Strongly Agree	1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree
I felt comfortable interacting with other course participants.	Strongly Disagree Disagree Neutral Agree Strongly Agree	1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree
	Group Cohesion	
I felt comfortable disagreeing with other course participants while still maintaining a sense of trust.	Strongly Disagree Disagree Neutral Agree Strongly Agree	1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree
I felt that my point of view was acknowledged by other course participants.	Strongly Disagree Disagree Neutral Agree Strongly Agree	1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree

Table 5 (continued)

Social Presence items from the Community of Inquiry Survey

Survey Question	Response Options	Coded As
	Group Cohesion	
Online discussions help me to develop a sense of collaboration	Strongly Disagree Disagree Neutral Agree Strongly Agree	1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree

Table 6

Cognitive Presence items from the Community of Inquiry Survey

Survey Question	Response Options	Coded As
	Triggering Event	
Problems posed increased my interest in course issues.	Strongly Disagree Disagree Neutral Agree Strongly Agree	1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree
Course activities piqued my curiosity.	Strongly Disagree Disagree Neutral Agree Strongly Agree	1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree
I felt motivated to explore content related questions.	Strongly Disagree Disagree Neutral Agree Strongly Agree	1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree
	Exploration	
I utilized a variety of information sources to explore problems posed in this course.	Strongly Disagree Disagree Neutral Agree Strongly Agree	1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree

Table 6 (continued)

Cognitive Presence items from the Community of Inquiry Survey

Survey Question	Response Options	Coded As
	Exploration	
Brainstorming and finding relevant information helped me resolve content related questions.	Strongly Disagree Disagree Neutral Agree Strongly Agree	1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree
Online discussions were valuable in helping me appreciate different perspectives.	Strongly Disagree Disagree Neutral Agree Strongly Agree	1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree
	Integration	
Combining new information helped me answer questions raised in course activities	Strongly Disagree Disagree Neutral Agree Strongly Agree	1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree
Learning activities helped me construct explanations/solutions.	Strongly Disagree Disagree Neutral Agree Strongly Agree	1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree

Table 6 (continued)

Cognitive Presence items from the Community of Inquiry Survey

Survey Question	Response Options	Coded As
	Integration	
Reflection on course content and discussions helped me understand fundamental concepts in this class.	Strongly Disagree Disagree Neutral Agree Strongly Agree	1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree
	Resolution	
I can describe ways to test and apply the knowledge created in this course.	Strongly Disagree Disagree Neutral Agree Strongly Agree	1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree
I have developed solutions to course problems that can be applied in practice.	Strongly Disagree Disagree Neutral Agree Strongly Agree	1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree
I can apply the knowledge created in this course to my work or other non-class related activities.	Strongly Disagree Disagree Neutral Agree Strongly Agree	1= Strongly Disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly Agree

Collection Procedures

The Community of Inquiry survey was sent to undergraduate students in a single academic college with a focus on liberal arts and social sciences at a large public research university. Since undergraduate students were part of the data collection process, IRB approval was requested and granted. The IRB approval letter appears in Appendix C (will add when received).

To collect data for this study, I contacted the IRB office and the academic college the sample was comprised from. The IRB office was contacted for approval to send the CoI survey to undergraduate students. The associate dean of the academic college was contacted for approval to use undergraduate students within the college, as the sample for this study. An outline of the CoI survey was sent to the associate dean of the college for approval. Following approval of the survey, the associate dean reached out to all students who met the participant requirements and emailed the survey link directly to these individuals.

The email with the survey link states the purpose of the survey was for dissertation research the academic college is sponsoring. Further, the email states that the survey is an important initiative for the college and highly encourages students' completion. See Appendix D for the email sent to students within the academic college that met the participant requirements. A flyer to recruit students for survey participation was created and posted in buildings at the university (see Appendix E for survey recruitment flyer).

The CoI survey is an open resource under Creative Commons license and therefore was able to be employed in this study. The CoI survey consisted of 34 Likert items. For the purpose of this study, I added 4 additional questions to the beginning of the study in order to ensure students met the 4 sample criteria. Additionally, 4 questions were added to end of the survey in

order to collect demographic information from students who completed the survey. The 34 Likert items as a part of the CoI survey and the additional questions for the survey were inputted into QuestionPro. A generic survey link within QuestionPro was developed in order to send the survey out to undergraduate students. See Appendix A-B for an outline of the CoI survey and additional questions employed in this study.

The purpose of the study was to answer the three research questions included in the study. These questions surrounded students' perceptions related to the quality of online courses. In order to develop an understanding of how students conceptualize high quality online courses, students were instructed in the instruction section at the beginning of the survey to select an online course they have previously taken they view as being high quality when completing the CoI survey. The survey instructions also informed participants about the importance of the study, the purpose of the study, and the date the survey would be closing (see Appendix F for the instructions in the CoI survey.

Before the survey closed, 2 reminders emails were sent via QuestionPro (see Appendix G for reminder emails sent). The entire Community of Inquiry Survey that was sent to students via QuestionPro can be referenced in Appendix H.

Once the CoI survey closed on 11/04/2022 for participants to respond to, the raw data in QuestionPro was exported. In order to ensure student privacy, no data related to personal identifying information was collected- emails, etc. After exporting the raw data from QuestionPro into an Excel sheet, the data was reviewed and cleaned.

Data Analysis Procedures

The data analysis procedures for this study involved three steps: cleaning the data, recoding of the data, and analyzing the data. The data analysis for this study involved descriptive

statistics, t-tests, ANOVA analysis, and a regression analysis. The data statistical package that was employed in this study was Statistical Packages for the Social Sciences, SPSS (George & Mallery, 2003).

Cleaning the Data

The first aspect before data analysis is cleaning the data. In cleaning the data, I had to review the data for missing responses. It was pertinent to the study that all questions related to student demographics and class attributes were completed. Since the dependent variables of the study were student demographics and classes attributes, if any case did not include a response to these questions, the respondent was removed. Additionally, all questions related to elements of the CoI framework needed to have answers. Since the CoI survey was administered through the online survey platform QuestionPro, I was able to require a response for all questions. This function was able to account for missing data. However, I still reviewed the data to ensure surveys were not started and then submitted without responses. In selecting an entire academic college as the target population for this study, this assisted in a large enough sample even with the removal of missing data.

Coding the Data

The CoI survey is comprised of Likert scale questions. The answer choices were coded 1-5; strongly disagree-1, disagree-2, neutral-3, agree-4, strongly agree-5. Student demographic and class attribute questions were added to the survey for the purpose of this study. The student demographic question related to race needed to be recoded for data analysis in this study. The question of race on the CoI survey asks students to select their racial identity. The response options for this question were as followed: American Indian or Alaska Native, Asian, Black or African American, Hispanic or Latino, Native Hawaiian or Pacific Islander, White, Other, and I

prefer not to respond. This student demographic was recoded to be able to compare the majority and non-majority races, instead of using each unique race. White was recoded as 1, to represent the majority. All other races listed were recoded as 2, to represent the non-majority. If a respondent selected "I prefer not to respond" or a race was not selected, this was recoded as 3. Tables 1-3 show the items and responses for the CoI survey as well as the demographic and class attribute questions. These tables also indicate the coding for each item on the survey.

Analyzing the Data

The data in this study was collected and analyzed in order to address the stated research questions. The student and course characteristic data analyzed from the CoI survey were nominal and ordinal in nature. The measures from the 34 Likert Scale questions from the CoI survey are continuous in nature. Mean scores from all participants were calculated for each of the three elements of the CoI Survey- Social, Cognitive, and Teaching Presence.

The first research question explored the extent to which student characteristics affect students' perceptions of quality in online classes. To address this question, I analyzed the student characteristics that were included in this study. These characteristics emerged from recent and previous literature. These student characteristics included gender, race/ethnicity, and academic year.

In order to analyze gender as it relates to perceptions of online quality, I developed five categories for participants to select. The five categories which were response options on the CoI survey were: male, female, non-binary, other, and prefer not to respond. See Table 2 for how these responses were coded. I reviewed data from the CoI survey and grouped responses into the corresponding category. I then calculated mean scores for each of the five gender groups for the three CoI elements. I conducted one-way ANOVAs for the three elements of the CoI framework

to determine if there were differences in means among the five gender groups within each element. Conducting one-way ANOVAs were appropriate tests for this task, since I wanted to compare mean differences of a continuous variable in more than two groups (George & Mallery, 2003). If following my analysis, the results from the ANOVA indicated there were significant differences in the CoI elements between the different gender groups ($p < .05$), I ran a post hoc test to determine which groups the difference occurred among (ex. male vs. female, female vs. other, etc.). If the gender groups had a statistically significant relationships to the CoI elements ($p < .05$), these would later be included into the into a multiple linear regression model.

I followed these same steps for the remainder of the student attribute variables in this study. For the independent variable of race/ethnicity, I created three categories that students self-selected into. The three responses for race/ethnicity on the CoI survey were: majority, minority, and prefer not to answer. Within the CoI survey a description for race/ethnicity was included to assist students in selecting the appropriate category.

The final student characteristic for the survey is academic year (Sophomore, Junior, and Senior). The instructions for the questions related to student demographics on the CoI survey informed students to select their response based on their student class standing. Additionally, definitions related to class standing according to the registrars' office at the selected university, were included on the survey instructions as a reference for students.

I reviewed the results for race/ethnicity and academic year. I then divided the sample into the various groups for these two independent variables. See Table 2 for how these responses were coded. I calculated group mean scores for each group within race/ethnicity and academic year for the three elements of CoI. I also conducted ANOVA tests to compare mean scores for each of the two independent variables for the three elements in the CoI framework. If the results

from any of the one-way ANOVA tests revealed that there was a significant difference ($p < .05$) between the CoI mean scores, I ran a post hoc test to determine where the differences in the mean scores occurred within race/ethnicity and academic year. If any race/ethnicity or academic year pairs had a statistically significant relationship to the CoI elements ($p < .05$) these pairs were included into the linear regression model.

The second research question in this study asked about the extent to which course characteristics affect students' perceptions of quality in online courses. To address this question, I repeated the same steps to address the first research question, except course attributes were the focus for this analysis. The course attributes that were included in this study which arose from emerging research and researcher interest were: class size, class modality, and pedagogy of focus.

The first independent variable for course attribute of class size was categorized into three groups: small, medium, large. See Table 3 for how responses for class size were coded. The CoI survey instructed students on the parameters for each of these class size groups. A small class size is 50 students or less, a medium class size is 51 to 150 students, and a large class is more than 150 students. Class modality was separated into three groups: asynchronous, synchronous, and hybrid. The instructions on the CoI survey included a description for each of these modality types. The instructions explained that asynchronous courses are made up of prebuilt course components, which allows students to complete these components at the time and pace of their choosing. Synchronous courses are live online courses which occur in real-time. Hybrid courses are a combination of face-to-face and online instruction.

The instructions also informed students to select the main modality employed in the class. The last class attribute variable of pedagogy of focus was categorized into three groups: writing

intensive, lecture, and seminar. The CoI survey included descriptions for these pedagogy focuses to assist students when selecting a response. The instructions explained that writing intense courses use the writing process to help students learn course material and improve their writing skills. Additionally, Virginia Tech indicates if a class is writing intensive in the Undergraduate Course Catalog. Lecture style courses are led by an expert or qualified representative in the subject or discipline in which the material is delivered in a lecture setting. Seminar courses are structured in support of student conversation, shared experiences, shared readings, and led by an expert or qualified representation in the subject area. The explanations for each of the class pedagogies were based on descriptions found on the university's registrar's website. Additionally, the instructions informed students that for the purpose of the study, they needed to select the main pedagogy employed in the online course.

The responses for each independent variable for class attribute were sorted based on the corresponding grouping. Following the grouping, mean scores were calculated for each group within the independent variables for the three CoI elements: Cognitive, Teaching, and Social Presence. One-way ANOVAs were conducted to compare mean scores between the different independent variable groups for the three CoI elements. If the results from any of the one-way ANOVA tests revealed that there was a significant difference ($p < .05$) between the CoI element mean scores, a post hoc test was run to determine where the differences in the mean scores occurred. If any pairs with the independent variables (class size, class modality, and pedagogy of focus) had a statistically significant relationship to the CoI elements ($p < .05$) they were entered into the multiple linear regression model. This procedure was repeated for the independent variables for student attributes. If any of the pairs within student demographics (gender,

race/ethnicity, academic year) had a statistically significant relationship to the CoI elements ($p < .05$) they were also entered into the multiple linear regression model.

The last research question in this study analyzed the relationship between student and course characteristics to the three elements of the CoI. To address this final research question, I conducted a regression analysis. Due to the complexity of the relationship of student characteristics, course attributes, and perceptions of quality, a multiple regression is appropriate for examining how educational quality is best explained as perceived by students in online courses. Multiple regression is used to assess "the association between two or more independent variables and a single continuous dependent variable" (Boston University School of Public Health, n.d., p. 7) In this study, the multiple regression was conducted to determine whether facets within the independent variables (student characteristics and course attributes) explained the differences in students' perceptions of online quality.

This study employed SPSS to conduct multiple regression analyses. For this multiple regression analysis on students' perceptions of online quality, the various independent variables (student demographics and class attributes) and the dependent variable were entered into SPSS. After entering this information into SPSS, various tables were generated for the multiple regression analysis: (1). goodness of fit summary, (2) ANOVA table, (3) coefficients table. The first table, goodness of fit summary reports a coefficient of determination (R^2) which indicates how strongly this model explains the predicted variable- students' perceptions of online quality. The second table that is produced, the ANOVA table, indicates if the overall model is statistically significant. The last table, the coefficients table, indicates which independent variables are statistically significant predicators of the predicted variable.

The statistically significant pairs among student characteristics and the statistically significant groups within course characteristics were included in the multiple regression model. The model employed for the regression analysis is $Y=\beta_0+\beta_1X_1+\beta_2X_2+\ldots+\beta_pX_p+\epsilon$. In this model, Y represents students' perceptions of online quality. Additionally, X_1 through X_p represent independent variables that were statistically significant from the study (student demographics and classroom attributes). In this model, β_0 is the value of Y when all the independent variables are equal to zero. Lastly, β_1 through β_p represent the estimated regression coefficients for each independent variable. The results from the regression model allowed for the determination of whether student characteristics and course attributes affected how students perceive quality of online course. The specific results from the regression model are further discussed and explained in chapter fours data analysis section.

To conclude, the purpose of this study was to examine how student demographics and course attributes affect how students perceive online course quality. The methodology and statical tests outlined in this chapter were deemed sufficient to address the research questions posed in this study.

Chapter Four

Results of Study

This study explored the perception of quality among undergraduate students enrolled in online courses. This study used the Community of Inquiry framework (CoI) (Garrison et al., 2000) and related survey to explore aspects that contribute to perceptions of online education quality. Data from this study were collected by an online survey administered through QuestionPro. The Senior Director of Academic Support for the college sent the survey link to students via email to their registered student email addresses. There were three reminder emails to complete the survey sent to students during the duration of the survey being open for responses.

The purpose of this chapter is to discuss the results from the study. This chapter begins with a description of the study sample. The sample is representative of students enrolled in a single academic college at a research university who are likely to have been enrolled in at least one online course. Next, I reported results of the data analysis which includes t-tests, ANOVA's, and regression models. Findings are then reported by research question.

Respondents Demographic Characteristics

I followed the steps outlined in Chapter Three to ensure the sample included the intended participants. After cleaning the data, the original sample of 169 responses was narrowed to 145. First, I removed one respondent that did not confirm their consent to the study. I then eliminated nine cases where there was missing data for course characteristics and student demographics. These nine cases were eliminated because information on course characteristics and student demographics were essential for data analysis in the study. Next, I removed eight participants that identified as freshman.

Finally, I removed six respondents due to very small response rates within gender identity groups. These individuals were removed because analysis was not possible with such small numbers. The respondents that were removed from this category were: two individuals that identified as non-binary, 1 individual who identified as “other,” and three individuals who selected “prefer not to answer.” After removing these respondents, the variable of gender identity had two categories remaining: male and female. These steps reduced the total sample size from 169 to 145. However, statistical tests where gender was not a variable of interest, were run with these six respondents included, making the total response number 151.

Participant demographics are presented in Table 7. In this study, the majority of the sample was comprised of females (83%). Most study participants identified as non-Hispanic or non-Latino (93%). In terms of racial identity, 78% of respondents were members of the majority category. Lastly the class standing of survey respondents included 42 sophomores, 50 juniors, and 59 seniors. Course characteristics of the sample are also presented in Table 7. Table 8 displays the number of survey respondents by class modality and class pedagogy in a cross tab table.

The majority of respondents completed the CoI survey for an online course that was categorized as small, which had 50 or fewer students (49%). Medium classes comprised 27% of the survey responses and large courses accounted for 24%. More than half of the survey respondents selected an online course that was asynchronous (54%). Lastly, most of the survey responses were for courses where lecture was the main pedagogy (60%). Descriptive statistics for each of the three CoI presence can be seen in tables 9, 10, and 11. Descriptive statistics for all student and course characteristics within each CoI presence, can also be seen in these tables.

Table 7

Student Demographic and Course Characteristics of the Sample (*n*=151)

Student Demographic	*n*	%
Gender Identity		
Male	20	13
Female	125	83
Non-Binary	2	1
Other	1	1
Prefer not to answer	3	2
Ethnicity		
Hispanic or Latino	10	7
Non-Hispanic or Non-Latino	141	93
Race		
Majority	118	78
Non-Majority	33	22
Class Standing		
Sophomore	42	28
Junior	50	33
Senior	59	40
Class Size		
Small	74	49
Medium	41	27
Large	36	24
Class Modality		
Asynchronous	82	54
Synchronous	56	37
Hybrid	13	10
Class Pedagogy		
Writing Intensive	31	21
Lecture	99	60
Seminar	30	20

Note. Percentages were rounded, therefore many not =100%

Table 8

Crosstabulation Class Modality and Class Pedagogy (N=151)

	Class Pedagogy			
Class Modality	Writing Intensive	Lecture	Seminar	Total
Asynchronous	25	41	16	82
Synchronous	3	43	10	56
Hybrid	3	6	4	13
Total	31	90	30	151

Table 9

Descriptive Statistics for Teaching Presence (*n*=151)

Variable	Mean	SD	Variance	Min	Max	Skewness	Kurtosis
Teaching Presence	52.01	9.574	91.653	13	65	-1.074	1.830
Gender Identity							
Male	51.65	9.880	97.608	26	65	-.857	1.259
Female	52.38	9.224	85.075	13	65	-1.072	2.169
Non-Binary	57.00	5.657	32.000	53	61	-	-
Other	49.00	-	-	49	49	-	-
Prefer not to answer	37.00	16.703	279.000	22	55	.782	-
Race Identity							
Minority	48.61	11.264	126.871	22	65	-.693	-.028
Majority	52.97	8.866	78.614	13	65	-1.164	2.940

Ethnicity							
Hispanic/Latino	52.90	10.546	111.211	26	65	-1.966	5.467
Non-Hispanic/Latino	51.95	9.539	90.990	13	65	-1.028	1.787
Sophomore	50.05	11.270	127.022	13	65	-1.199	2.038
Junior	52.60	7.882	62.122	26	65	-.766	1.693
Senior	52.92	9.531	90.838	23	65	-.896	.568
Class Size							
Small	51.46	9.684	93.786	22	65	-1.051	1.338
Medium	52.80	9.081	82.461	35	65	-.650	-.593
Large	52.25	10.075	101.507	13	65	-1.544	5.2557
Class Modality							
Asynchronous	51.85	10.102	102.052	13	65	-1.002	1.748
Synchronous	52.34	9.008	81.137	22	65	-1.402	2.737
Hybrid	51.62	9.170	84.090	33	65	-.352	.037
Class Pedagogy							
Writing Intensive	49.48	13.158	173.125	13	65	-.846	.393
Lecture	51.39	8.418	70.870	22	65	-.988	1.747
Seminar	56.50	6.972	48.603	41	65	-.443	-.516

Table 10

Descriptive Statistics for Social Presence (*n*=151)

Variable	Mean	SD	Variance	Min	Max	Skewness	Kurtosis
Social Presence	29.70	7.5656	57.224	9	45	-.232	1.57
Gender Identity							
Male	30.45	7.708	59.418	16	43	.204	-.721
Female	29.74	7.400	54.760	9	45	-.242	.394
Non-Binary	37.00	1.414	2.000	36	38	-	-
Other	26.00	-	-	26	26	-	-
Prefer not to answer	19.67	10.693	114.333	13	32	1.715	-
Race Identity							
Minority	28.79	7.127	50.797	13	41	-.218	-.176
Majority	29.96	7.692	59.169	9	45	-.255	.258
Ethnicity							
Hispanic/Latino	28.30	9.592	92.011	13	45	-.053	-.169
Non-Hispanic/Latino	29.80	7.433	55.246	9	45	-.235	.232
Class Standing							
Sophomore	29.19	8.710	75.865	12	45	-.356	-.715
Junior	29.46	6.993	48.907	9	45	-.645	2.296
Senior	30.27	7.244	52.477	14	45	.281	-.509
Class Size							
Small	28.77	7.782	60.563	9	43	-.429	.050
Medium	30.83	6.942	48.195	18	45	.020	-.532

Large	30.33	7.753	60.114	9	45	.069	.649
Class Modality							
Asynchronous	30.49	7.286	53.092	14	45	.118	-.146
Synchronous	27.82	7.749	60.404	9	43	-1.146	2.687
Hybrid	32.85	7.093	50.308	16	42	-1.220	1.576
Class Pedagogy							
Writing Intensive	29.26	8.438	71.198	14	45	-.050	-.645
Lecture	28.73	7.379	54.445	9	45	-.342	.494
Seminar	33.07	6.357	40.409	20	45	.283	-.252

Table 11

Descriptive Statistics for Cognitive Presence (*n*=151)

Variable	Mean	SD	Variance	Min	Max	Skewness	Kurtosis
Cognitive Presence	46.12	8.892	79.066	12	60	-.810	1.724
Gender Identity							
Male	46.30	8.355	69.800	27	58	-.414	.275
Female	46.40	8.521	72.613	12	60	-.660	1.260
Non-Binary	50.00	14.142	2000.000	40	60	-	-
Other	45.00	-	-	45	45	-	-
Prefer not to answer	31.00	17.349	301.000	12	46	-.982	-
Race Identity							
Minority	43.73	9.944	98.892	12	60	-.744	1.803
Majority	46.79	8.500	72.254	12	60	-.794	1.737
Ethnicity							
Hispanic/Latino	44.50	8.502	72.278	27	53	-1.367	.991
Non-Hispanic/Latino	46.23	8.937	79.866	12	60	-.801	1.808
Class Standing							
Sophomore	43.88	11.445	130.985	12	60	-.875	1.085
Junior	46.54	7.880	62.090	24	60	-.555	.851
Senior	47.36	7.355	54.095	33	60	.031	-.699
Class Size							
Small	45.78	8.250	68.062	12	60	-.986	2.844
Medium	47.32	8.492	72.122	29	60	-.366	-.603

Large	45.44	10.587	112.083	12	60	-.864	1.685
Class Modality							
Asynchronous	46.76	9.111	83.002	12	60	-.718	1.399
Synchronous	44.86	8.798	77.387	12	60	-1.146	2.687
Hybrid	47.54	7.806	60.936	36	60	.047	-1.136
Class Pedagogy							
Writing Intensive	45.00	10.705	114.600	12	60	-.779	1.625
Lecture	45.26	8.539	72.911	12	60	-.813	1.738
Seminar	49.87	6.962	48.464	33	60	-.252	-.511

Results of the Data Analysis

Data from the CoI survey were analyzed to respond to the research questions posed in the study. The first research question examined what student characteristics effect students' perceptions of quality for online courses in higher education. The literature identified that student characteristics can have an effect on perceptions of quality. In their research, Dicker et al. (2017) stated that a student's class standing, gender, and ethnicity create differences in quality perceptions.

Independent sample *t*-tests were conducted to determine if there were differences between groups for the three student demographic variables that were bimodal (gender identity, ethnicity, and race). The minimum sample size needed for independent sample *t*-tests as calculated by G*Power (Faul et al., 2009) was 128. A fourth student characteristic, class standing, was analyzed using an ANOVA since this factor included three levels. The results from the three student characteristics assessed via *t*-tests are shown in Tables 12, 13 and 14.

Before conducting analysis via *t*-tests, I checked t-test assumptions. There four t-test assumptions I checked were independence of the observations, no significant outliers, normality, and homogeneity of variances. For independence of the observations, I ensured each survey respondent could only belong to one group. After reviewing the data, there were no significant outliers. Normality refers to the scores from the CoI survey being normally distributed. Normality was evaluated by the Shapiro-Wilks test. The assumption of homogeneity assumes that both groups have equal error variances. This was assessed by using the Levene's test for the Equality of Error Variances. The power for the statistical test for this analysis as calculated by G*Power (Faul et al., 2009) was 0.801. This was calculated using the G*Power default which was a medium effect size.

After conducting *t*-tests for the three bimodal variables for student characteristics (gender identity, race, and ethnicity), I did not find any significant differences for gender identity or ethnicity. The first set of *t*-tests were conducted on gender identity for the three CoI presences. An independent t-test did not report a significant difference between teaching presence for males (M=51.65, SD=9.880) and females (M=52.38, SD=9.224); *t*(143)= -.324, p=.747, there was a small effect size found (*d*= -0.078, 95% CI [-5.160, 3.708]). An independent t-test did not report a significant difference between social presence for males (M=30.45, SD=7.708) and females (M=29.74, SD=7.400); t(143)= .398, p=.691, there was a small effect size found (*d*= 0.096, 95% CI [-2.829, 4.257]). Lastly, an independent t-test did not report a significant difference between cognitive presence for males (M=46.30, SD=8.355) and females (M=46.40, SD=8.521); t(143)= -.049, p=.961, there was a small effect size found (*d*= -0.012, 95% CI [-4.146, 3.946]). These *t*-test results for gender identity, can be seen in Table 12.

Table 12

Results of t-test by Gender Identity (N=145)

	Males (n=20)		Females (n=125)		95% CI for Mean Difference	*t* (143)	*p*	Cohen's *d*
	M	*SD*	*M*	*SD*				
Teaching Presence	51.65	9.880	52.38	9.224	-5.160, 3.708	-.324	.747	-.078
Social Presence	30.45	7.708	29.74	7.400	-2.829, 4.257	.398	.691	.096
Cognitive Presence	46.30	8.355	46.40	8.521	-4.146, 3.946	-.049	.961	-.012

p<.05

The second set of *t*-tests conducted were on ethnicity for the three CoI presences. An independent t-test did not report a significant difference between teaching presence for Hispanic or Latino students (M=52.90, SD=10.546) and Non-Hispanic or Non-Latino students (M=51.95, SD=9.5439); t(149)=.302, p=.763, there was a small effect size found (*d*= 0.099, 95% CI [-5.260, 7.159]). An independent t-test also did not report a significant difference between social presence for Hispanic or Latino students (M=29.30, SD=9.592) and Non-Hispanic or Non-Latino students (M=29.80, SD=7.433); t(149)= -.605, p=.546, there was a small effect size found (*d*= -0.198, 95% CI [-6.403, 3.401]). Finally, an independent t-test also did not report a significant difference between cognitive presence for Hispanic or Latino students (M=44.50, SD=8.502) and Non-Hispanic or Non-Latino students (M=46.23, SD=8.937); t(149)= -.595, p=.553, there was a small effect size found (*d*= -0.195, 95% CI [-7.496, 4.028]). These *t*-test results for ethnicity, can be seen in Table 13.

Table 13

Results of t-test by Ethnicity Identity (*n*=151)

	Non-Hispanic/ Latino (n=141)		Hispanic/Latino (n=10)		95% CI for Mean Difference	*t*(149)	*p*	Cohen's *d*
	M	*SD*	*M*	*SD*				
Teaching Presence	51.95	9.539	52.90	10.546	-5.260, 7.159	.302	.763	.099
Social Presence	29.80	7.433	29.30	9.592	-6.403, 3.401	-.605	.546	-.198
Cognitive Presence	46.23	8.937	44.50	8.502	-7.496, 4.028	-.595	.553	-.195

p<.05

The last set of *t*-tests conducted were on race identity for the three CoI presences. An independent t-test did report a significant difference between teaching presence for Majority (M=52.97, SD=8.866) and Non-Majority students (M=48.61, SD=11.264); t(149)= -2.053, p=.046, there was a medium effect size found (*d*= -0.462, 95% CI [-8.651, -0.079]). An independent t-test did not report a significant difference between social presence for Majority (M=29.96, SD=7.692) and Non-Majority students (M=28.79, SD=7.127); t(149)= -.784, p=.434, there was a small effect size found (*d*= -0.154, 95% CI [-4.117, 1.778]). Lastly, an independent t-test also did not report a significant difference between cognitive presence for Majority (M=46.70, SD=8.500) and Non-Majority students (M=43.73, SD=9.944); t(149)= -1.760, p=.080, there was a small effect size found (*d*= -0.347, 95% CI [-6.497, 0.375]). These *t*-test results for race identity, can be seen in Table 14.

T**able 14**

Results of t-test by Race Identity (N=151)

	Majority (n=118)		Non-Majority (n=33)		95% CI for Mean Difference	*t*(149)	*p*	Cohen's *d*
	M	*SD*	*M*	*SD*				
Teaching Presence	52.97	8.866	48.61	11.264	-8.651, -.079	-2.053	.046	-.462
Social Presence	29.96	7.692	28.79	7.127	-4.117, 1.778	-.784	.434	-.154
Cognitive Presence	46.70	8.500	43.73	9.944	-6.497, .375	-1.760	.080	-.347

p<.05

The last variable within for student demographics, class standing, was analyzed using ANOVAs since this variable had three groupings. The power of these statistical tests for these ANOVA analyses as calculated by G*Power (Faul et al., 2009) was 0.805. This was calculated using the G*Power default which was a medium effect size.

The result from theses ANOVAs are reported in Tables 15, 16, and 17. A one-way ANOVA was performed to compare the effect of student class standing on teaching presence (TP_Score), social presence (SP_Score), and cognitive presence (CP_Score). A one-way ANOVA revealed that there was not a statistically significant effect on class standing on any of the three CoI presences at the $p<.05$ level for the three CoI presences. The first ANOVA was conducted based on student class standing for teaching presence. The results found that there were no significant differences between sophomores (M=50.05, SD=11.270), juniors (M=52.60, SD=7.882), and seniors (M=52.92, SD=9.531) for teaching presence ($F(2, 148) =1.245$, $p =.291$). These results can be seen in Table 15.

Another one-way ANOVA was conducted to determine if there were statistically significant differences among the three class standing groups for social presence. This second ANOVA found that there were no significant differences between sophomores (M=29.19, SD=8.710), juniors (M=29.46, SD=6.993), and seniors (M=30.27, SD=7.244) for social presence ($F(2, 148) =.286$, $p = .752$). These results can be seen in Table 16.

The final one-way ANOVA was conducted to determine if there were statistically significant differences among the three class standing groups for cognitive presence. This last ANOVA found that there were no significant differences between sophomores (M=43.88, SD=11.445), juniors (M=46.54, SD=7.880), and seniors (M=47.36, SD=7.355) for cognitive presence ($F(2, 148) =1.983$, $p =.141$). These results can be seen in Table 17.

Table 15

Results of One Way ANOVA on Class Standing and Teaching Presence (*n*=151)

Class Standing	M	SD	*F*(2,148)	*P*	η^2
			1.245	.291	.017
Sophomore	50.05	11.270			
Junior	52.60	7.882			
Senior	52.92	9.531			

p<.05

Table 16

Results of One Way ANOVA on Class Standing and Social Presence (*n*=151)

Class Standing	M	SD	*F*(2,148)	*P*	η^2
			.286	.752	.004
Sophomore	29.19	8.710			
Junior	29.46	6.993			
Senior	30.27	7.244			

p<.05

Table 17

Results of One Way ANOVA on Class Standing and Cognitive Presence (*n*=151)

Class Standing	M	SD	*F*(2,148)	*P*	η^2
			1.983	.141	.026
Sophomore	43.88	11.445			
Junior	46.54	7.880			
Senior	47.36	7.355			

p<.05

The three course characteristic variables (class size, class modality, and class pedagogy) were also analyzed using ANOVA. The results from the ANOVAs for class size are shown in Tables 18, 19, 20. One-way ANOVAs were performed to compare the effect of class size on teaching presence (TP_Score), social presence (SP_Score), and cognitive presence (CP_Score). These ANOVAs revealed that there was not a statistically significant effect on class size on any of the three CoI presences at the p<.05 level for the three CoI presences. The first ANOVA was

conducted based on class size for teaching presence. The results found that there were no significant differences between small (M=51.46, SD=9.684), medium (M=52.80, SD=9.081), and large classes (M=52.25, SD=10.075) for teaching presence (F(2, 148) =.272, p =.321). These results can be seen in Table 18.

Another one-way ANOVA was conducted to determine if there were statistically significant differences among the three class sizes for social presence. This second ANOVA found that there were no significant differences between small (M=28.77, SD=7.782), medium (M=30.83, SD=6.942), and large classes (M=30.33, SD=7.753) for social presence (F(2, 148) =1.144, p =.321). These results can be seen in Table 19.

The final one-way ANOVA conducted for class size was to determine if there were statistically significant differences among the three class size groups for cognitive presence. This last ANOVA found that there were no significant differences between small (M=45.78, SD=8.250), medium (M=47.32, SD=8.492), and large classes (M=46.12, SD=10.587) for social presence (F(2, 148) =.525, p =.593). These results can be seen in Table 20.

Table 18

Results of One Way ANOVA on Class Size and Teaching Presence (*n*=151)

Class Size	M	SD	*F*(2,148)	*P*	η^2
			.272	.321	.004
Small	51.46	9.684			
Medium	52.80	9.081			
Large	52.25	10.075			

p<.05

Table 19

Results of One Way ANOVA on Class Size and Social Presence (*n*=151)

Class Size	M	SD	*F*(2,148)	*P*	η^2
			1.144	.321	.015
Small	28.77	7.782			
Medium	30.83	6.942			
Large	30.33	7.753			

p<.05

Table 20

Results of One Way ANOVA on Class Size and Cognitive Presence (*n*=151)

Class Size	M	SD	*F*(2,148)	*P*	η^2
			.525	.593	.007
Small	45.78	8.250			
Medium	47.32	8.492			
Large	46.12	10.587			

p<.05

Class modality was analyzed using an ANOVA since there were three groupings: asynchronous, synchronous, and hybrid. Tables 21, 22, and 23 report the results from the ANOVAs for class modality. One-way ANOVA's were performed to compare the effect of class modality on teaching presence (TP_Score), social presence (SP_Score), and cognitive presence (CP_Score). The first ANOVA was conducted based on class modality for teaching presence. The results found that there were no significant differences between asynchronous (M=51.85, SD=10.102), synchronous (M=52.34, SD=9.008), and hybrid classes (M=51.62, SD=9.170) for teaching presence (F(2, 148) =.054, p =.947). These results can be seen in Table 21.

The second one-way ANOVA conducted for class modality was to determine if there were statistically significant differences among the three class size groups for social presence. This ANOVA found that there was a statistically significant difference for social presence between at least two groups for class modality at the p<.05 level. The results of this ANOVA for

the three class modality groups are; asynchronous (M=30.49, SD=7.286), synchronous (M=27.82, SD=7.749), and hybrid courses (M=32.85, SD=7.093) and social presence F(2, 148) =3.401, p =.036). However, the Tukey's HSD Test for multiple comparisons found that the mean values of social presence were not significantly different between any of the class modalities. This is a peculiar finding and should be further explored with additional analysis using a priori contrasts. These results can be seen in Table 22.

The last one-way ANOVA was conducted to determine if there were statistically significant differences among the three class modalities for cognitive presence. This second ANOVA found that there were no significant differences between asynchronous (M=46.76, SD=9.111), synchronous (M=44.86, SD=8.798), and hybrid classes (M=47.54, SD=7.806) for cognitive presence (F(2, 148) =.939, p =.393). These results can be seen in Table 23.

Table 21

Results of One Way ANOVA on Class Modality and Teaching Presence (*n*=151)

Class Modality	M	SD	*F*(2,148)	*P*	η^2
			.054	.947	.001
Asynchronous	51.85	10.102			
Synchronous	52.34	9.008			
Hybrid	51.62	9.170			

p<.05

Table 22

Results of One Way ANOVA on Class Modality and Social Presence (*n*=151)

Class Modality	M	SD	*F*(2,148)	*P*	η^2
			3.401	.036	.044
Asynchronous	30.49	7.286			
Synchronous	27.82	7.749			
Hybrid	32.85	7.093			

p<.05

Table 23

Results of One Way ANOVA on Class Modality and Cognitive Presence (*n*=151)

Class Modality	M	SD	*F*(2,148)	*P*	η^2
			.939	.393	.013
Asynchronous	46.76	9.111			
Synchronous	44.86	8.798			
Hybrid	47.54	7.806			

p<.05

The last course characteristic variable class pedagogy was analyzed using ANOVA due to having 3 groupings: writing intensive, lecture, and seminar. The results from theses ANOVAs for class pedagogy are shown in Tables 24, 25, and 26. One-way ANOVAs were performed to compare the effect of class pedagogy on teaching presence (TP_Score), social presence (SP_Score), and cognitive presence (CP_Score). The first ANOVA was conducted based on class pedagogy for teaching presence. The results found that there is a statistically significant effect on class pedagogy for teaching presences. The results of this ANOVA include the three groupings for course pedagogy: writing intensive (M=49.48, SD=13.158), lecture (M=51.39, SD=8.418), and seminar courses (M=56.50, SD=6.972), for teaching presence (F(2, 148) = 4.799, p =.010. These results can be seen in Table 24.

Post Hoc comparisons using the Tukey's HSD Test for multiple comparisons found that there were significant differences between means for teaching presence. The mean value for teaching presence is significantly different between writing intensive and seminar online courses (p = 0.011, 95% C.I. = [-12.68, -1.35]). Additionally, the Tukey's HSD Test also found that the mean value for teaching presence is significantly different between lecture and seminar online courses (p = 0.028, 95% C.I. = [-9.77, -.45]). There was no statistically significant difference in mean values for teaching presence between writing intensive and lecture online courses (p=0.591).

Table 24

Results of One Way ANOVA on Class Pedagogy and Teaching Presence (*n*=151)

Class Pedagogy	M	SD	*F*(2,148)	*P*	η^2
			4.799	.010	.061
Writing Intensive	49.48	13.158			
Lecture	51.39	8.418			
Seminar	56.50	6.972			

p<.05

Another one-way ANOVA was conducted to determine if there were statistically significant differences among the three class pedagogies for social presence. The results found that there is a statistically significant effect on class pedagogy for social presence. The results of this ANOVA include the three groupings for course pedagogy: writing intensive (M=29.26, SD=8.438), lecture (M=28.73, SD=7.379), and seminar courses (M=33.07, SD=6.357), for teaching presence (F(2, 148) =3.904, p =.022. These results can be seen in Table 25.

Post Hoc comparisons using the Tukey's HSD Test for multiple comparisons also found that there were significant differences between means for social presence. The mean value for social presence is significantly different between lecture and seminar online courses (p = 0.017, 95% C.I. = [-8.04, -.63]). There was no statistically significant difference in means for social presence between writing intensive and lecture (p=0.937) or between writing intensive and seminar (p=0.115).

Table 25

Results of One Way ANOVA on Class Pedagogy and Social Presence (*n*=151)

Class Pedagogy	M	SD	*F*(2,148)	*P*	η^2
			3.904	.022	.050
Writing	29.26	8.438			
Lecture	28.73	7.379			
Seminar	33.07	6.357			

p<.05

The final one-way ANOVA conducted for class pedagogy was to determine if there were statistically significant differences among the three class pedagogy groups for cognitive presence. The results found that there is a statistically significant effect on class pedagogy for cognitive presence. The results of this ANOVA include the three groupings for course pedagogy: writing intensive (M=45.00, SD=10.705), lecture (M=45.26, SD=8.539), and seminar courses (M=49.87, SD=6.962), for teaching presence (F(2, 148) =3.443, p =.035. These results can be seen in Table 26.

Post Hoc comparisons using the Tukey's HSD Test for multiple comparisons also found that there were significant differences between means for cognitive presence. The mean value for cognitive presence is significantly different between lecture and seminar online courses (p = 0.036, 95% C.I. = [-8.98, -.24]). There was no statistically significant difference in means for cognitive presence between writing intensive and lecture (p=0.989) or between writing intensive and seminar (p=0.079). Collectively, these results suggest that class pedagogy has an impact on a student's perception of quality based on the CoI presences.

Table 26

Results of One Way ANOVA on Class Pedagogy and Cognitive Presence (*n*=151)

Class Pedagogy	M	SD	*F*(2,148)	*P*	η^2
			3.443	.035	.044
Writing Intensive	45.00	10.705			
Lecture	45.26	8.539			
Seminar	49.87	6.962			

p<.05

My last research question in this study analyzed the relationship between student and course characteristics to the three elements of the CoI. To address this final research question, I conducted a series of simultaneous regression analyses where all independent variables (i.e., student and course characteristics) were entered into the models at the same time. These

variables were selected based on sound theory. The purpose here was to understand the extent of influence on each of the independent variables on unique elements of the CoI framework.

Multiple Regression Assumptions Testing- Teaching Presence

Multiple regression analyses use the following assumptions: residuals are normally distributed; homoscedasticity; all observations are independent, independent errors-for any two observations, residuals terms are not related; relationships between dependent variables and independent variables should be linear, and no perfect collinearity. (Hasan, 2020). For these regression analyses, the total sample size needed was 103 and the power of these statistical tests as calculated by G*Power (Faul et al., 2009) was 0.800. This was calculated using the G*Power default which was a medium effect size.

The first regression model sought to determine if there was a relationship between student characteristics and course characteristics with teaching presence in the CoI framework. To assess multicollinearity, I examined Tolerance and Variance Inflation Factor [VIF] values. To demonstrate no multicollinearity, these values should be above .1 and below 10 (Shrestha, 2020). Tolerance values ranged from .732 to .988 and VIF values ranged from 1.012 to 1.366, indicating no multicollinearity among predictor variables and covariates (see Table 27 for values). A Durbin-Watson score of 1.902 indicates there are no worrisome levels of correlation between residuals (Table 28). To assess the presence of influential outliers, I examined the minimum and maximum values of Cook's Distance. If Cook's Distance maximum value is greater than 1, there are influential data points within the data set (Cook, 1977). The maximum value (.225) was not greater than 1, indicating there were no influential outliers.

Table 27

Teaching Presence Collinearity Statistics

Variable	Tolerance	VIF
Constant		
Class Size	.752	1.330
Class Modality	.732	1.366
Class Pedagogy	.936	1.068
Gender Identity	.906	1.103
Ethnicity	.988	1.012
Race	.972	1.028
Class Standing	.933	1.071

Table 28

Teaching Presence Model Summary

1	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
Model	.295	.087	.040	9.096	1.902

As an assumption of multiple regression analyses, there should be a linear relationship between the variables in the study. I assessed linearity of the study variables by a visual inspection of a histogram of standardized residuals for the dependent variable of teaching presence (see Figure 1). The data met this assumption. Finally, I assessed normality of residual distribution via visual inspection of a normal probability plot using the P-P plot for the regression model (see Figure 2). Linearity of the normal P-P plot provides evidence that the error terms are normally distributed. Therefore, the data also met this regression assumption.

Figure 1

Histogram of Standardized Residuals- Teaching Presence

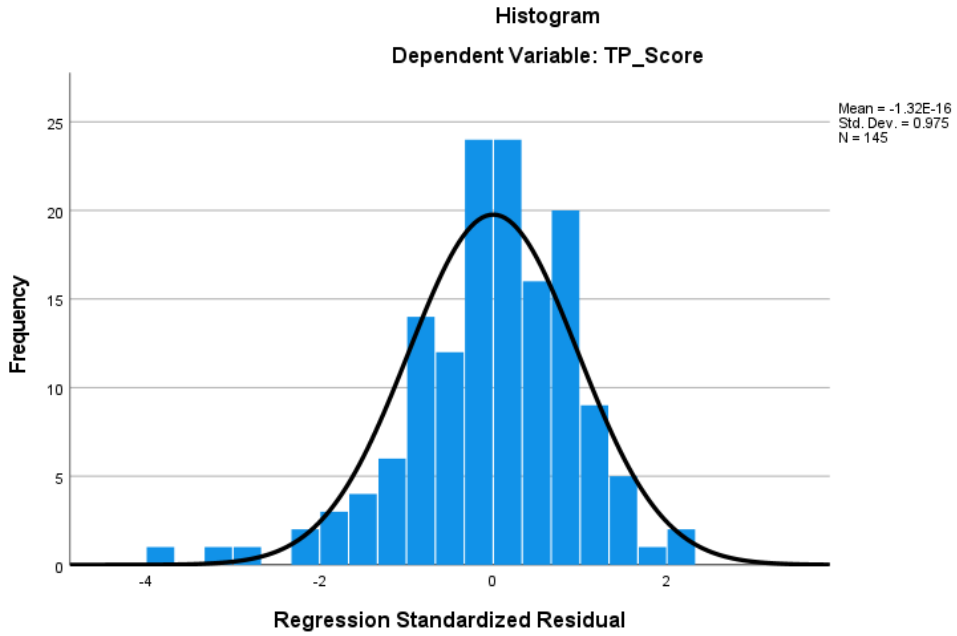
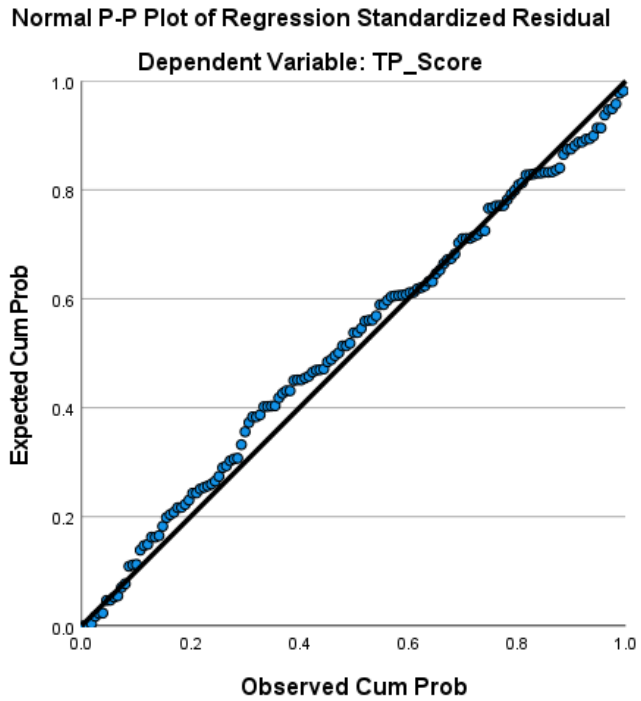


Figure 2

Normal P-P Plot- Teaching Presence



Teaching Presence Results

Results are summarized in Table 29 for the regression model for the relationship between student characteristics and course characteristics for teaching presence. I entered all independent variables into this regression model. There were student characteristics (race, gender identity, and ethnicity), as well as course characteristics (class size, class modality, and class pedagogy). With the exceptions of writing intensive (p=.004) and lecture (p=.004) as variables for class pedagogy, all other independent variables yielded p values above .05, making them non-significant. The F^2 for this regression model was .115 which is a small to medium effect size. This regression model accounted for 10.3% (R^2=.103) of the variance in teaching presence. The two course pedagogies, writing intensive and lecture, were significant in this regression equation.

Table 29
Summary of Multiple Regression Analysis for Student and Course Characteristics on Teaching Presence (*n*=145)

	Model 1			
Variable	*B*	*SE B*	β	Sig
(Constant)	54.185	4.339		<.001
DummyC_medium	.774	1.945	.038	.691
DummyC_large	-1.198	2.335	-.055	.609
DummySynchronous	-.134	2.036	-.007	.948
DummyHybrid	-2.392	2.997	-.074	.426
DummyWriting_I	-7.405	2.560	-.324	.004
DummyLecture	-6.107	2.109	-.323	.004
gender_identity	1.272	2.381	.047	.594
Ethnic Background	-1.053	3.058	-.029	.731
Race	3.419	1.904	.150	.075
DummyJunior	.163	2.126	.008	.939
DummySenior	1.829	1.993	.097	.361
R^2		.103		
F for change in R^2		1.391		

p<.05

Multiple Regression Assumptions Testing- Social Presence

The second regression model sought to determine if there was a relationship between student characteristics and course characteristics with social presence in the CoI framework. In this study the dependent variable was a dichotomous variable with exhaustive categories. To assess multicollinearity, I examined Tolerance and Variance Inflation Factor [VIF] values. To demonstrate no multicollinearity, these values should be above .1 and below 10 (Shrestha, 2020). Tolerance values ranged from .732 to .988 and VIF values ranged from 1.012 to 1.366, indicating no multicollinearity among predictor variables and covariates (see Table 30 for values).

A Durbin-Watson score of 1.608 indicates there are no worrisome levels of correlation between residuals (see Table 31). To assess the presence of influential outliers, I examined the minimum and maximum values of Cook's Distance. If Cook's Distance maximum value is greater than 1, there are influential data points within the data set (Cook, 1977). The maximum value (.149) was not greater than 1, indicating there were no influential outliers.

Table 30

Social Presence Collinearity Statistics

Variable	Tolerance	VIF
Constant		
Class Size	.752	1.330
Class Modality	.732	1.366
Class Pedagogy	.936	1.068
Gender Identity	.906	1.103
Ethnicity	.988	1.012
Race	.972	1.028
Class Standing	.933	1.071

Table 31

Social Presence Model Summary

1	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
Model	.175	.031	-.019	7.489	1.608

As an assumption of multiple regression analyses, there should be a linear relationship between the variables in the study. I assessed linearity of the study variables by a visual inspection of a histogram of standardized residuals for the dependent variable of teaching presence (Figure 3). The data met this assumption. Finally, I assessed normality of residual distribution via visual inspection of a normal probability plot using the P-P plot for the regression model (see Figure 4 below). Linearity of the normal P-P plot provides evidence that the error terms are normally distributed. Therefore, the data also met this regression assumption.

Figure 3

Histogram of Standardized Residuals- Social Presence

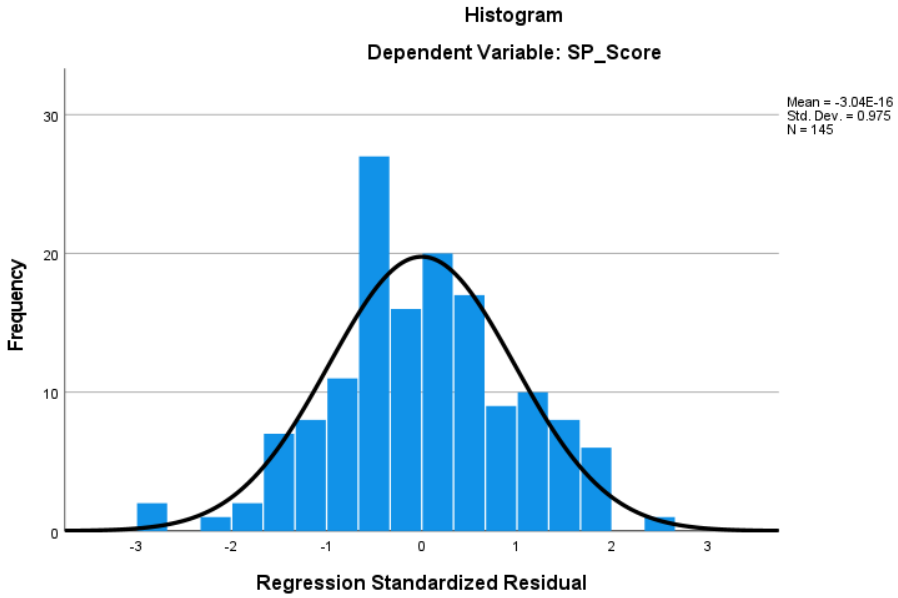
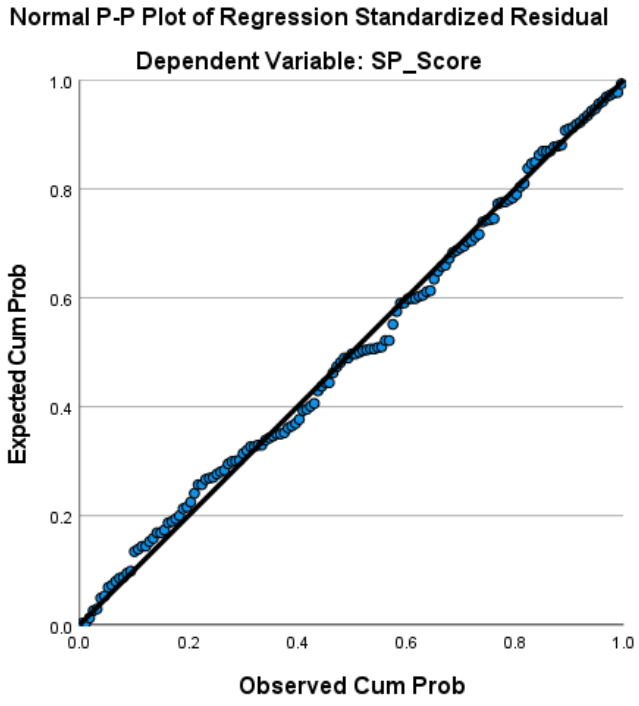


Figure 4

Normal P-P Plot- Social Presence



Social Presence Results

Results are summarized in Table 32 for the regression model for the relationship between student characteristics and course characteristics for social presence. I entered all independent variables into this regression model. There were student characteristics (race, gender identity, and ethnicity), as well as course characteristics (class size, class modality, and class pedagogy). With the exceptions of writing intensive (p=.028) and lecture (p=.006) as variables for class pedagogy, all other independent variables yielded p values above .05, making them non-significant. The F^2 for this regression model was .122 which is a small to medium effect size. This regression model accounted for 10.9% (R^2=.109) of the variance in social presence. The two course pedagogies, writing intensive and lecture, were significant in this regression equation.

Table 32
Summary of Multiple Regression Analysis for Student and Course Characteristics on Social Presence (*n*=145)

	Model 1			
Variable	B	SE B	β	Sig
(Constant)	33.167	3.458		<.001
DummyC_medium	1.050	1.550	.064	.499
DummyC_large	-.987	1.860	-.057	.597
DummySynchronous	-.2.986	1.622	-.195	.068
DummyHybrid	-.765	2.388	.030	.749
DummyWriting_I	-4.533	2.040	-.248	.028
DummyLecture	-4.657	1.680	-.309	.006
gender_identity	.280	1.897	.013	.883
Ethnic Background	1.000	2.437	.034	.682
Race	.017	1.517	.001	.991
DummyJunior	-.687	1.694	-.044	.686
DummySenior	1.061	1.588	.070	.505
R^2		.109		
F for change in R^2		1.472		

p<.05

Multiple Regression Assumptions Testing- Cognitive Presence

The final regression model sought to determine if there was a relationship between student characteristics and course characteristics with cognitive presence in the CoI framework. In this study the dependent variable was a dichotomous variable with exhaustive categories. To assess multicollinearity, I examined Tolerance and Variance Inflation Factor [VIF] values. To demonstrate no multicollinearity, these values should be above .1 and below 10 (Shrestha, 2020). Tolerance values ranged from .732 to .988 and VIF values ranged from 1.012 to 1.366, indicating no multicollinearity among predictor variables and covariates (see Table 33 for values). A Durbin-Watson score of 1.980 indicates there are no worrisome levels of correlation between residuals (see Table 34). To assess the presence of influential outliers, I examined of the minimum and maximum values of Cook's Distance. If Cook's Distance maximum value is greater than 1, there are influential data points within the data set (Cook, 1977). The maximum value (.123) was not greater than 1, indicating there were no influential outliers.

Table 33

Cognitive Presence Collinearity Statistics

Variable	Tolerance	VIF
Constant		
Class Size	.752	1.330
Class Modality	.732	1.366
Class Pedagogy	.936	1.068
Gender Identity	.906	1.103
Ethnicity	.988	1.012
Race	.972	1.028
Class Standing	.933	1.071

Table 34

Cognitive Presence Model Summary

1	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
Model	.272	.074	.027	8.357	1.980

As an assumption of multiple regression analyses, there should be a linear relationship between the variables in the study. I assessed linearity of the study variables by a visual inspection of a histogram of standardized residuals for the dependent variable of teaching presence (Figure 5). The data met this assumption. Finally, I assessed normality of residual distribution via visual inspection of a normal probability plot using the P-P plot for the regression model (see Figure 6). Linearity of the normal P-P plot provides evidence that the error terms are normally distributed. Therefore, the data also met this regression assumption.

Figure 5

Histogram of Standardized Residuals- Cognitive Presence

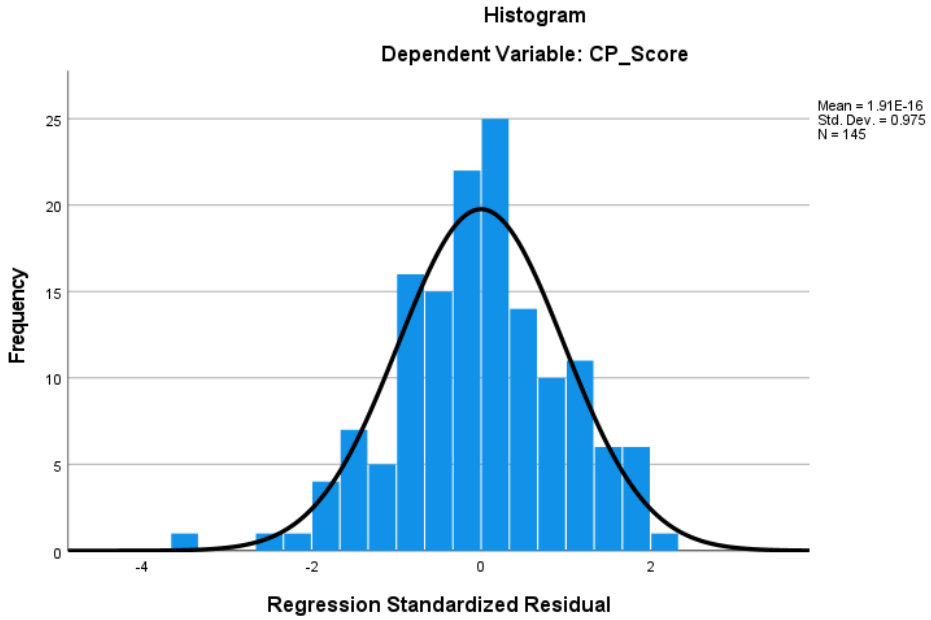
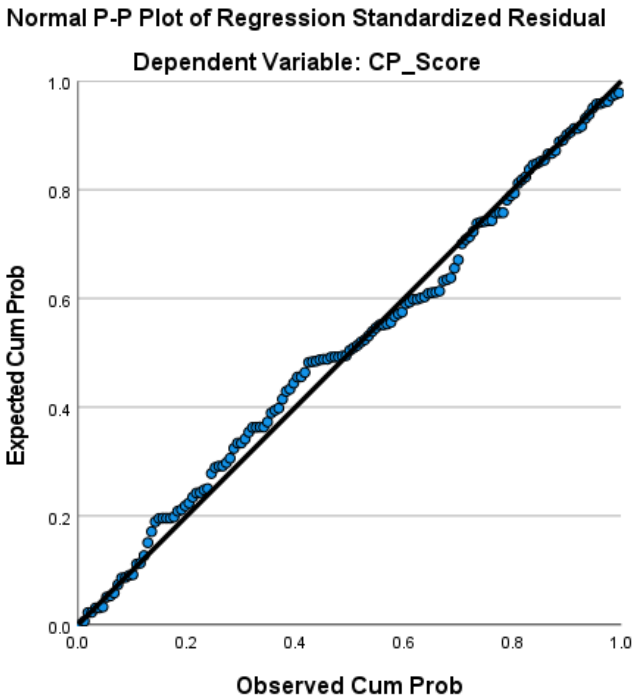


Figure 6

Normal P-P Plot- Cognitive Presence



Cognitive Presence Results

Results are summarized in Table 35 for the regression model for the relationship between student characteristics and course characteristics for cognitive presence. I entered all independent variables into this regression model. There were student characteristics (race, gender identity, and ethnicity), as well as course characteristics (class size, class modality, and class pedagogy). With the exceptions of writing intensive (p=.006) and lecture (p=.005) as variables for class pedagogy, all other independent variables yielded p values above .05, making them non-significant. The F^2 for this regression model was .519 which is a large effect size. This regression model accounted for 34.2% (R^2=.342) of the variance in cognitive presence. The two course pedagogies, writing intensive and lecture, were significant in this regression equation.

Table 35
Summary of Multiple Regression Analysis for Student and Course Characteristics on Cognitive Presence (*n*=145)

	Model 1			
Variable	B	SE B	β	Sig
(Constant)	48.297	3.929		<.001
DummyC_medium	.374	1.761	.020	.832
DummyC_large	-3.495	2.114	-.175	.101
DummySynchronous	-.3.267	1.843	-.187	.079
DummyHybrid	-2.171	2.714	-.073	.425
DummyWriting_I	-6.537	2.317	-.314	.006
DummyLecture	-5.509	1.909	-.320	.005
gender_identity	.989	2.156	.040	.647
Ethnic Background	1.316	2.769	.039	.635
Race	1.964	1.724	.094	.257
DummyJunior	.647	1.925	.036	.737
DummySenior	2.546	1.805	.148	.161
R^2		.342		
F for change in R^2		1.596		

p<.05

These regression models found that there is a linear relationship between students who enroll in online seminar courses and an increase in their quality perceptions for all three presences in the Community of Inquiry framework. This data represents some new evidence to

explain students' perceptions of quality as it relates to the Community of Inquiry framework. A discussion of the results and their implications is offered in the next chapter.

Chapter Five

Discussions and Implementations

The results of this study offer exciting insights to the quality of online courses in higher education. In this chapter, I discuss key findings of this study and dive into some of the probable explanations of these findings. I also address whether the findings from this study confirm or challenge prior literature related to online quality. Additionally, I identify the limitations of my study. Following this section, I discuss the implications for future practice, education research, and policy.

Discussion of the Results

This study investigated three research questions pertaining to online quality in higher education that led to four principal findings. The first key finding from my study was that pedagogy does affect students' perceptions of online quality. Collectively, the results show that the central pedagogy of an online course (i.e., writing intensive, lecture, or seminar) led to a statistically significant difference in mean scores for all three elements of the Community of Inquiry framework. Of the three different pedagogies, seminars have the highest mean score for Teaching, Social, and Cognitive presence. When looking across pedagogies, seminars had significant mean differences for when compared to writing intensive courses and to lecture style courses.

Naturally, the level of engagement in seminar courses is important to student perceptions of the course because they are actively involved. Quality, therefore, may be tightly coupled with student perceptions of ownership in the course and their engagement in learning. This is particularly important in online courses where prevailing wisdom is that they are impersonal. Instructors who lean more heavily on other pedagogies might benefit from adopting some of the

strategies of online seminar courses. The use of discussion boards, virtual break out rooms, and assignments that foster critical thinking about contemporary, “real world” problems are strategies to be used in a wider range of online courses.

The second finding is connected to the first research question in this study in which I looked at how student characteristics affect students’ perceptions of quality in online courses. This study found that a range of demographic characteristics may not directly affect those perceptions. This finding that student characteristics do not affect student’s perceptions of quality of online courses in higher education was informative, since previous research found student characteristics affect quality perceptions (Dicker et al., 2017). Previous studies also reveal that student class standing and ethnicity are important student characteristics that affect quality perceptions (Dicker et al., 2017; Dobb et al., 2009). These characteristics were used as independent variables in this study and there were no significant differences discovered in quality perceptions among student groups.

The third interesting finding from this study relates to the student characteristic of gender identity. Historically, there have been mixed results related to gender identity as a student characteristic that affects perception of quality for online education. Some studies found that there are significantly different perceptions among males and females in perceptions of online courses (Dobbs et al., 2009). Other studies (e.g., Hong, 2022; Lim, 2001) have contradicted this conclusion in which they did not find statistical differences. My findings show that there are no discernable differences among males and females in perceptions of online quality and point to a possible link to gender equity in online spaces that have not yet been achieved in face-to-face classrooms. Even though this study found no differences among perceptions based on student characteristics, this is a meaningful finding.

The fourth key finding in this study concentrated on how course characteristics affect students' perceptions of quality. My study found that class size and class modality do not affect students' perceptions. In the case of class modality, the situation may be that the range of course experiences among students within the three different modalities in this study (asynchronous, synchronous, and hybrid) were not similar. The materials provided by the instructor as well as pedagogy were likely tailored to the modality and may have influenced variance among students scores on the CoI.

In other words, the activities "fit" the situation and did not contribute to perceptions of quality. For example, some students may have experienced an asynchronous course in which most of the content for the class was watching videos uploaded by the faculty member. Other students may have read a substantial quantity of papers and articles. While others could have taken quizzes and tests created by the instructor to test their knowledge. These probable disparities in experiences faced by students who indicated they were enrolled in an asynchronous modality could account for the reasoning why there was no significant difference in perceptions of online quality.

This logic could also be applied to synchronous and hybrid courses. For example, students enrolled in synchronous classes are likely taking courses in multiple subject matters. Even though the instruction is happening in real time for students, the subject of the course could affect students' perception of quality. An online science course in which students must conduct experiments or deal with data may be different than an online English course where students are tasked with writing essays. The subject matter differences, and corresponding activities, may be perceived as having different levels of quality that is informed by self-efficacy or interest in that

domain. Further, the scheduling of a course could affect how a student perceives the overall quality for that course.

There could be disparities in quality perceptions between a course that meets multiple times in a week versus once a week. Disparities in quality perceptions may also be seen when comparing a class that occurs on a Monday morning compared to Wednesday afternoon. Experiences from students in hybrid courses could also vary. An instructor in one hybrid course might have students meet in person twice a week, whereas another instructor only has students meet in person every two weeks. All the forementioned differences may impact students' perceptions of quality for online courses in higher education.

The results of this study show that students have different experiences in online courses that were dependent on course characteristics, such as class size and modality. The fact that there are no significant differences in perceptions of quality that are rooted in these student characteristics; gender, race, and ethnic identity, is important. It is crucial to note that participants were asked to identify a course of high quality. Seemingly faculty instructors have adapted their online courses accordingly to the point that perceptions of quality are relatively stable across course characteristics that have historically impacted face-to-face courses. This may be good news for online courses, because they may in fact mitigate some of the influence of class size and modality where students feel disconnected.

When looking at teaching and cognitive presence, my study found there was no relationship for class modality for teaching or cognitive presence. The next course characteristic in this study was class pedagogy. My study revealed there is a relationship among all three presences of the CoI framework. One-way ANOVAs revealed that class pedagogy was statistically significant for Social, Cognitive, and Teaching presences. The Post Hoc comparisons

indicated that there are significant differences between online writing intensive and seminar courses for teaching presence. Additionally, there is a significant difference between online lecture and seminar course for teaching presence.

Teaching presence in the CoI framework relates to the design, facilitation, and direct instruction on an online course (Beck, 2105). A strong teaching presence in on online course is characterized by a robust course structure and active instructor leadership (Broda, 2018). A strong teaching presence may appear differently among the three course pedagogies of an online class: asynchronous, synchronous, hybrid. Since writing intensive courses rely heavily on the writing process to help students learn material, instructors for these types of classes may appear less involved compared to lecture or seminar courses. This may also be the case for seminar courses.

Seminar courses are distinguished by shared experiences, shared readings and students actively participating in conversation. Therefore, students may perceive an instructor as being less active in a seminar course, which ultimately may lead them to think that there is an absence of the CoI teaching presence in an online course. When comparing lecture style course to writing intensive and seminar courses, teaching presence of an online class might seem more apparent to students since these courses are led by an expert or qualified representative in the subject.

Students in lecture style courses might be able to recognize teaching presence more easily, since instructors are at the front and center for the course and are the individuals providing the direct instruction of the online course. The descriptions of each course pedagogy provided on the CoI survey, as well as the distinguished attributes for each course pedagogy, could explain the significant differences among these three styles of courses and the presences of the CoI.

Post Hoc comparisons also revealed where there were differences among the three course pedagogies within social presence for the CoI framework. My study found that for social presence there is a significant difference between lecture and seminar online courses. There was no significant difference between any of the other groupings for course pedagogy within social presence. As noted in the literature review of my study, social presence is the "degree to which learners feel socially and emotionally connected with others in an online environment" (Mouzouri, 2016, p. 41). As was the case for teaching presence, the characteristics that differentiate each pedagogy, might explain why online lecture and seminar course differ significantly within social presence. Lecture courses are primarily facilitated by instructor. These courses are not focused on shared learning and intentional and purposeful interactions among students. Whereas seminar courses are created and planned so that student engagement and connection is at the core of the curriculum.

The findings for significant pairs for cognitive presence were similar to the findings for social presence. My study found that the mean values for cognitive presence were significantly different between lecture and seminar online courses. There were no other statistically significant pairs among the three course pedagogies for cognitive presence. As with all three presences in the CoI framework, I believe that how courses are categorized for each of the pedagogies and the various styles of these pedagogies, could assist in accounting for the difference between online seminar and lecture courses within the cognitive presence.

The final key findings of my study are related to the research question designed to explore the relationship of student and course characteristics to each element (Social, Teaching, and Cognitive Presence) in the Community of Inquiry Framework. These findings are related to the regression analyses completed for each of the CoI presences. Findings revealed that there

were not any relationships between student characteristics and any of the three elements of the CoI framework: Social, Teaching, and Cognitive. This study did reveal there are relationships among course characteristics and the three presences of the CoI framework. A simultaneous multiple regression model indicated that writing intensive (p=.004) and lecture (p=.004) were significant for teaching presence of the CoI. A second simultaneous multiple regression model for social presence was significant for writing intensive (p=.028) and lecture (p=.006) class pedagogies. Lastly, the final simultaneous multiple regression model in this study was significant for the class pedagogies of writing intensive (p=.006) and lecture (p=.005) for the cognitive presence of the CoI.

The three regression analyses indicated that there is a significant relationship for writing intensive and lecture courses in all three presences of the CoI famework. Overall, the three research questions posed in the study led to key findings: Student characteristics do not affect student's perceptions of quality for online courses in higher education; class size and class modality do not affect students' perceptions of online quality; class pedagogy does affect students' perceptions of online quality. These key findings are central to the discussion in the remainder of this chapter.

Limitations of the Study

The findings of this study need to be considered based on prior research, as well as the limitations of this study. This study asked students to complete the CoI study based on their experience in an online class they perceived as being high quality. This overall prompt for the survey should be considered when looking at limitations of the study. There are a few limitations of this study that need to be addressed. The first limitation of this study was how quality was measured for online classes in this study. As the researcher I chose to utilize the Community of

Inquiry Framework and look at overall high quality of online courses based on the three presences within this framework. As referenced in the literature review for this study, quality can be defined in multiple ways. There is no one correct way to determine quality. Therefore, quality can also be measured in many ways as well. Employing the Community of Inquiry Framework to gauge quality of online courses, is not the only avenue a researcher could take to develop an understanding of quality. There are numerous frameworks and instruments that can be used to measure quality.

In this study, unfortunately there was a limitation of sample size for some of the student characteristic variables. The variable of gender was originally separated into 5 categories: male, female, non-binary, other, and prefer not to answer. A limitation in my study was the sample size for non-binary, other, and prefer not to answer. The number of responses for these groups were not large enough to disaggregate the data by these specific gender identities. Therefore, these three gender identity groups were removed from the study, which led to gender being recoded as a dichotomous variable: male and female. If the sample size for the three gender identity groups had been larger, and gender could have remained an ordinal variable, this might have resulted in a different outcome for the student characteristic of gender and the relationship for quality of online courses.

The results of this study found that there were no differences in quality perceptions among undergraduate students for online courses in higher education based on gender identity. Survey responses in the study did not capture all gender identities and analysis was limited to male and female gender identities. Gender equity is a nuanced issue, and it is possible that online courses can mediate the disparity when it comes to gender, however this is not definitive.

It is also important for readers to be aware of the context of this study. During the time this study occurred, race and gender in education has become highly politicized resulting in inappropriate targeting of individuals and institutions. Overall findings can be used to understand student perceptions of quality and should not be extrapolated beyond the purposes of this study.

Another limitation relates to the sample for this study. As the researcher, I chose to distribute my survey to undergraduate students that were members of a single academic college with a focus on liberal arts and social sciences. This college is at a large public research university. I decided to select this college and focus my research on undergraduate students, based on the gaps in literature for this population. The previous research noted in my literature review was for studies that utilized the CoI framework for online graduate courses in higher education. A majority of these particular courses were focused on particular subjects, and not on a college which houses multiple courses and academic programs. If a different student population was selected for the participants completing the CoI survey, the data may have significantly differed which would have influenced the overall study results.

CoI Survey Limitations

The CoI survey itself could have posed as a limitation for this study. The CoI survey is a widely used survey to gather insight into experiences in online courses. The CoI survey is comprised of questions for each of the three presences within the CoI framework. In the survey there are 13 items for teaching presence, 9 items for social presence, and 12 items for cognitive presence. Due to the condensed nature of the CoI survey, it is highly probable that there may have been questions that were not included on the survey which could capture more aspects of an online course that influences overall quality perceptions.

An additional limitation that relates to the content of the CoI survey, are the student and course characteristic questions posed on the survey. I used previous studies to inform my decision in which student and course characteristics were the independent variables in this study. I made the decision to include gender identity, race, ethnicity, and class standing as the student characteristics of interest for my study. From these variables, I determined how to group the sections that were comprised for each variable. An example was for race, students could select from the seven choices I included on the CoI survey: American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or Pacific Islander, White, Other, and/or prefer not to respond. Students were able to make multiple selections for this variable. As the researcher, I decided to recode these selections into three groups: majority, non-majority, and prefer not to respond/ response unknown. If race or any of the other student characteristics in this study had been categorized differently, this may have led to different findings among the relationships of student characteristics and quality perceptions.

This limitation based on deciding how to categorize variables as the researcher, also applies to the course characteristics present in this study. One of the course characteristics in this study was class size. I decided to split this course characteristic into three groups: small, medium, and large. The small class group was categorized for courses with 50 students or less. Medium courses were composed of 51 to 150 students. Lastly, large courses had more than 150 students. I determined what the cutoff point should be for each number of students enrolled for the three class sizes. If class size had been based off different parameters for student enrollment numbers, this may have led to different outcomes for this variable and the impact on perceptions of quality.

Self-Selection as a Limitation

Another limitation of this study relates to the different explanations of the three course pedagogies that were outlined in the survey instrument. These explanations could have impacted how students made their selection when completing the survey. The survey stated that writing intensive courses use the writing process to help students learn course material and improve their writing skills. The instrument also stated that lecture style courses are led by an expert or qualified representative in the subject or discipline in which the material is delivered in a lecture setting.

Lastly, it was noted that seminar courses are structured in support of student conversation, shared experiences, shared readings, and led by an expert or qualified representation in the subject area. The descriptions for each course pedagogy were taken directly from the institution's undergraduate course catalog website. The institution does indicate in the catalog when a certain course is writing intensive; however, students ultimately selected the course pedagogy when completing the instrument and this could be different from any official designation. Unless the student directly referred to the course catalog or specifically knew for certain the course was writing intensive, the student may have strictly relied on the course pedagogy descriptions listed on the instrument.

Further, when completing the instrument students self-selected student characteristics and course characteristics. Since the population for this study were undergraduate college students who were sophomores through seniors, as a researcher I am confident that students could appropriately select how they identify in the student characteristic questions on the instrument. However, since the widespread administration of online courses is relatively new and the concept of course pedagogy can be challenging, students might have had a difficult time when choosing course characteristic groupings based on the online course they selected on the instrument. The

self-selection of student and course characteristics on a survey is an aspect of consideration for future researchers.

Environmental Context of the Study

Finally, I think it is important for readers to understand the context in which this study occurred. This study took place following the national COVID pandemic, which had multiple implications as a society. During the height of the pandemic, institutions were unable to conduct any in person classes. Therefore, all courses had to be taught virtually. Instructors who might have never taught an online course before, were now teaching all their classes online. The transition for courses switching to an online format occurred very rapidly. Staff may not have had the ample time and training needed to prepare for this major transition. Additionally, it may have been challenging to appropriately develop lesson plans for an online setting.

As the effects from the national pandemic began to settle and life has started to return to normal following this major historical event, it is important to recognize the effects still being faced within higher education. Since the pandemic started in 2020, there has been an overall surge in courses offered online even though institutions have been able to resume in person classes.

The timing of my study, in combination with the extent to which classes are still being offered online following the pandemic, could influence the overall study findings. The CoI survey employed in this study was distributed to students during the Fall 2022 semester. During this time frame, many courses were still being offered virtually. Students were instructed to complete the survey based off a course they have taken in the past academic year that they perceive as being a high-quality course.

Survey participants should have based their experience from an online course that they were enrolled in between Fall of 2021 to Fall of 2022. All these courses would have occurred following the height of the pandemic when classes were able to be conducted face to face. Pre-pandemic, instructors who were teaching classes online had elected to do so. These instructors may have been well versed in online teaching and methodology. However, since the pandemic and the demand for courses to still be offered online, instructors might not of had the choice if they wanted to resume in person teaching. Instructors teaching classes virtually post-pandemic, may not be as well versed in teaching online.

These instructors who are teaching virtually post-pandemic, may not have received the training and resources, as instructors who were teaching prior to the pandemic. Since all instructors within higher education had to teach virtually during COVID, it might be assumed that since they taught online during the pandemic, they have the training and knowledge to continue teaching online. Instructors that are currently teaching online might only have experience from teaching online during the pandemic, which may not be comparable to instructors who taught online pre-pandemic.

As a researcher, I think these aspects of the study are important to reflect on and consider when reviewing the findings and recommendations for future research. A previous study conducted prior to the pandemic which focuses on quality of online courses, might vary compared to the findings of a study conducted post pandemic. The limitations of this study should be considered by readers and can be insightful for future research ideas.

Implications for Future Practice

The results of this study have implications for future practice, research, and policy. An overall finding from this study that is informative for higher education instructors and staff is

that student characteristics do not affect students' perceptions of quality in online courses. However, this study found that course characteristics, specifically pedagogy, do affect students' perceptions of quality in online courses. Having a better understanding of what characteristics affect students' perceptions of quality in online courses, can assist instructors and administrators in increasing these perceptions.

My study can be impactful for higher education instructors because it shows that they should focus their time and energy on course characteristics when planning their classes for the semester. The findings from this study support other previous research, which also found that student characteristics do not influence students' perceptions of quality in online courses. Focus specifically on course characteristics, as opposed to student characteristics should be of interest in future studies for online courses. Specifically, researchers should gain a deeper understanding of why seminar courses were perceived by students in this study as being higher quality for all three Community of Inquiry presences.

My study demonstrates that seminar courses, as opposed to writing intensive and lecture courses, lead to higher student quality perceptions in online courses. Seminar courses are characterized by the engagement of student conversation, shared experiences, shared readings, and led by an expert or qualified representation in the subject area. Regardless of the subject matter, instructors should incorporate aspects of a seminar course into their online class. By including elements of a seminar course, such as encouraging student connections, this will help enhance the overall quality of the course from a student's perspective.

Higher education administrators will want to support instructors by providing informative trainings focused on teaching online courses. The pandemic resulted in instructors having to transition their in-person courses to an online format. Due to the rapid nature of the pandemic,

these faculty members may not have received the training and support needed when originally making the transition to teaching remotely. Even a few years after the beginning of the pandemic, the demand for online courses can be seen among institutions across the nation. Many of these faculty members who were teaching remotely during the pandemic are still having to teach classes virtually due to the overall demand for online classes.

Now that this national pandemic is starting to settle and institutions are resuming everyday functions, supporting instructors teaching remotely is crucial. Previously during COVID, administrators might not have had the resources to provide trainings and educational opportunities focused on online instruction for faculty members. With the growing popularity in online courses, and courses remaining online following the pandemic, administrators and leadership need to spend their efforts and energy on online instruction and faculty.

Training for faculty members could inform instructors on how to successfully conduct courses based on the class modality. Some activities indicative of quality may be transferrable across modalities. For example, online technologies may facilitate small group discussion in large lecture courses. Education for faculty members can also focus on awareness of the three presences of the CoI framework and the intersection of these where meaningful changes might occur. These intersections—Supporting Discourse, Selecting Content, and Setting Climate—might be operationalized in online courses differently across course modalities but likely influence student perceptions of quality. Lessons could focus on how each of the three presences of the CoI contribute to online quality. Additionally, instructors could receive resources on best practice frameworks for online courses. Leadership could provide support to faculty members by hosting workshops across academic departments where instructors can talk openly about strategies that have been useful when teaching online.

Implications for Future Research

In addition to implications for future practice, my study also can guide future research. First, my study only included four student characteristics (gender, race, ethnicity, and academic year). Future studies may want to include more student characteristics (academic major, SES, on-campus residency) to determine if those student characteristics further affect students' perceptions of online quality. Additionally, further research is warranted that incorporates the student characteristics I utilized in my study, but includes larger samples for marginalized groups. Unfortunately, in my study, some marginalized groups, such as non-binary and other, were removed from the gender identity variable due to low response rates for these groups. My study was not able to analyze data from these smaller groups and therefore perspectives from individuals that are members of these groups are not included.

This study also collected data from students that were members of a single academic college with a focus on liberal arts and social sciences. This college was at a large public research university. Additionally, my study was focused on undergraduate students that were academically classified as sophomores, juniors, or seniors. A future study could examine students enrolled in a different institution or not limit the study population to a single academic college. Further, a future study could focus on a different type of institution, such as a liberal arts college. Lastly, another study utilizing the CoI survey and framework could be conducted for graduate students or adult learners post pandemic. These future studies could provide insight into how these different student populations perceive quality in online courses.

A key component in this study was that students were asked to complete the CoI survey based on an online course they deemed as being high quality. The focus of this study was to determine what student and course characteristics contribute to students' perceptions of an online

course being high quality. A future study may want to focus on what aspects and characteristics lead to an online course being perceived by students as being low quality. It is important to note that this study was about perceptions of quality in high quality online courses. The research questions explored what contributes to high quality perceptions. There were no comparisons between high quality and low quality courses. Future studies could investigate the differences between low quality and high quality courses in online education. This crucial distinction could result in future research that informs instructors and administrators where there are areas of opportunity to improve students' perceptions of quality.

My most evoking finding, was that student characteristics do not affect students' perceptions of quality for online courses in higher education. I found that gender identity, race, ethnicity, and academic year, do not affect how students perceive the quality of an online course. Findings from previous research are mixed as to whether student characteristics do affect students' perceptions of quality in online courses. More research is needed to either support or refute my finding that student characteristics do not affect students' perceptions of quality in online courses. Additionally, future researchers should place their research efforts into other independent variables of interest.

The popularity of online courses is a relatively new trend following COVID. There is significantly less research on students' perceptions of quality for online courses compared to face-to-face classes. More research is needed that contributes to the literature in this area so that educators can develop a better understanding of the quality of online courses. Overall, more research is needed specifically for quality of online courses from a students' perspective.

Implications for Educational Research and Methods

My study has implications for educational research and methods. This study examined students' perceptions of online quality in higher education using quantitative research methods. After conducting this study, I realized as the researcher it would be helpful to understand the thought process that occurred for students when they selected the online course used to complete the CoI survey. Determining what initial "high quality" characteristics of an online course came to mind for students when having to select a class for the survey would assist in informing research on this topic.

Employing qualitative methods to collect his information could provide rich and detailed data. Utilizing focus groups, think-aloud sessions, or open-ended questions on the CoI survey would help capture this data. Using both quantitative and qualitative methodologies to study online quality is insightful for this research topic. This study can be used to inform educational research by exhibiting how it can be more impactful to study quality from a student perspective, by employing both research methodologies.

This study also has implications for educational research in studying quality of online courses. The overall quality and educational outcomes for online courses have become topics of concern in higher education. Stakeholders in higher education are beginning to question the quality of online courses and whether educational outcomes are being met. Administrators and higher education leadership need to be cognizant of how the quality of online courses are being perceived following the national pandemic. The proposal for this study was initially approved during the peak of the COVID pandemic. During this time, there was a lot of uncertainty as to the fate of online classes once institutions could return teaching in person.

Following institutions resuming face-to-face courses, enrollment in online courses has seen continual growth over the past few years. This increase in online course enrollment has also led to a rise in inquiry surrounding the lack of attention institutions have placed on understanding the quality of these courses. There is a need for further exploration in this area by educational researchers. Due to the recent nature of this topic, as well as the limited current insight into quality of online courses post pandemic, there are significant research opportunities for educators. My study can be a precursor to additional studies which explore the educational outcomes and quality of online courses post COVID.

Another way in which my study can inform educational research is related to instrument development. The CoI survey utilized in my study has been validated as a measurement of the extent to which students engage in collaborative online learning. Within my study, this survey was employed to develop a deeper understanding as to the characteristics that affect students' perceptions for online courses. Students were prompted to complete the survey based on an online course they deemed as being high quality.

The data collected from this survey was analyzed to determine what characteristics influenced students' perceptions of quality for online courses. Faculty members and researchers could use the existing CoI survey and administer to their own classes and student populations of interest. They could compare the data from their own studies to the results of my study. Faculty and researchers could make some comparisons and use my study to inform their own studies and research insights.

The CoI survey in my study was helpful in providing insight into which characteristics are important for instructors to focus on and consider when planning and teaching online classes. However, there is a need for an instrument that evaluates the quality of online courses from the

perspective of students. Courses evaluations and providing feedback on instructors can be biased and not the best measures of quality.

An assessment instrument is needed that measures online quality from a student perspective which can be used on a larger scale and a continual basis. The original version of the CoI survey does not include any questions about student and course characteristics. I added the questions related to student and course characteristics for the purpose of my study. To better inform educational research and practice, developing an instrument that can be utilized in assessment practices would be beneficial. This instrument could be based on the CoI framework, but incorporate elements related to student and course characteristics that were incorporated in my study. My study and findings could be used to inform the development of this assessment instrument.

Implications for Future Policy

The findings from my study also have implications for future policy. Policymakers who are responsible for academic affairs, assessment and evaluation departments, and curriculum and instructional design departments may benefit from the findings of this study. Policy makers in academic affairs may want to develop policies which encourage faculty members to focus on quality of their online courses. Additionally, leadership in academic affairs might want to require faculty members to complete a certain number of training courses or require various teaching certificates which certify them to be able to teach virtually. This attention on quality of online courses will demonstrate to stakeholders that leadership within higher education value the importance of online courses and the educational outcomes of these classes.

Policy makers may also want to engage with academic departments and advisors related to the findings of my study. Policy makers in academic affairs might want to inform academic

advisors about the importance of having conversations with students about the different class modality options when enrolling in courses for the semester. It could be beneficial to students to have a conversation with their academic advisor on which class modality option would be the best fit for them personally. Academic departments could also partner with student affairs departments to assist with the initiative in supporting students in online courses. Policy makers in divisions such as student affairs, could work with their orientation team to conduct sessions on how to successfully succeed in online courses. These partnerships and policy maker directives could potentially increase students' perceptions of the quality of online courses.

Policy makers and leadership in higher education may also want to devote resources and contribute financially to this national growth of online courses in higher education. Institutions might want to hire professionals who are experts in the areas of assessment and evaluation that can train and support staff in their efforts to measure the quality of their online courses. It is also crucial that institutional leadership supports technology for online courses.

Ensuring there are IT professionals who can assist and train faculty members with technology needed for online courses, to allow faculty to focus on teaching. Additionally, staff that are skilled in instructional design may be integral to developing curriculum that supports a high-quality online environment and experience for students. Further, leadership could provide financial support and encourage faculty to attend professional development opportunities that educate staff on best practices for online instruction. The goal for these training courses would be to better equip instructional faculty in teaching online courses that lead to higher overall quality courses.

A final way in which my study can inform future policy, concerns the evaluation of the quality for online courses. The quality of online courses is a major matter following the

pandemic, which caused a shift to fully remote instruction. During this time, institutions had little to no policies and/or protocols in place for evaluating online courses. Policy makers in partnership with assessment professionals could develop a standard procedure for specifically evaluating online courses. This standard way of assessing online courses could inform accreditation efforts and help in continual improvement efforts for classes at higher education institutions.

Connecting the Dots to Quality

After reflecting on the results of this study and the implications for future research and practice, it is also important to discuss the connection to quality. This study asked students to complete the CoI survey based on an online class they perceived as being high quality. The data from these surveys were analyzed based on the three presences of the CoI framework: social, teaching, and cognitive presence. Results are reflective of how the three different CoI presences show up in high quality online courses. Informing readers on how these presences relate to perceptions of high online quality and how to incorporate aspects of each presence into their online course to increase students' perceptions of quality is essential.

From the ANOVA and regression analyses in this study, there were statistically significant differences within course pedagogies for all three CoI presences. Social presence in the CoI framework is the "degree to which learners feel socially and emotionally connected with others in an online environment" (Mouzouri, 2016, p. 41). Seminar courses had the highest overall mean score for social presence and the mean scores for this course pedagogy were significantly different from lecture courses.

A takeaway for faculty is that even in an online environment, it is important for students to connect socially and emotionally. When social elements are incorporated into an online

course, such as a lecture style class, students are perceiving these courses as being higher quality. Faculty members should encourage conversations and engagement among students in their online courses. It could be beneficial for instructors to highlight the tools students can use to connect to one another online. Students could utilize the chat function that many online platforms contain. Additionally, faculty could inform students they can easily access all the members of the course by viewing the participant list and hoovering over each student name to be able to message them.

Teaching presence is another important aspect in the CoI framework that relates to students' high-quality perceptions in online courses. Teaching presence references the design, facilitation, and direct instruction of online courses (Beck, 2015). Seminar courses had the highest overall mean score for teaching presence and the mean scores for this course pedagogy were significantly different from writing intensive courses. Faculty need to understand that even though instruction is occurring remotely, that having a strong teaching presence impacts how students perceive the quality of a course.

Seminar courses are based on having shared experiences and lead by expert in the field. Students in this study perceived classes where there were shared experiences, and the professor took an active role in the course as being higher quality than the other course pedagogies. When faculty are teaching online, it is important that they are intentional when designing and facilitating their courses. To enhance teaching quality in online courses, faculty members can set up their online course platform to lay out all the course materials for each week of the semester.

Faculty can also really connect with students in smaller groups by using breakout sessions and holding office hours online. An advance that faculty have which increases teaching presence in online courses, is that they can connect online with students and make a connection

that may be more personal than in a classroom with 100 plus people. In a large classroom, students might be sitting in the back of the room where they can barely see the instructor and materials being presented. In an online course, the screen in which a student is viewing the faculty member and materials is directly in front of them. This proximity may lead to an increased perception of teaching presence in an online from a student perspective.

How cognitive presence is connected to high quality online courses is essential to understand. Garrison, Anderson, and Archer explain that cognitive presence is defined as the extent to which students can construct meaning through sustained communication (2001). Seminar courses had the highest overall mean score for cognitive presence and the mean scores for this course pedagogy were significantly different from lecture courses. Due to the collaborative nature of seminar courses, cognitive presence can easily be incorporated into this kind of class pedagogy.

Faculty members can enrich cognitive presence in their online classes by providing students with multiple resources and engaging content. Additionally, it would be beneficial for students to be exposed to multiple perspectives in online courses where civil discourse can occur. A multitude of sources and allowing for discussion from different viewpoints, helps promote a greater understanding of course material for students. Faculty members can promote cognitive presence in online course by posting discussion boards where students discuss viewpoints and comment on other classmates' posts. Faculty can also utilize breakout rooms on online platforms and have students participate in small discussions where students must reflect on their own learning.

Incorporating the CoI presences into an online course can be impactful for both students and faculty. Additionally, understanding how these three presences affect quality of online

courses is important for educators. The above sections state tangible ways that faculty members can increase the three CoI presences in their online courses. These methods will help faculty members to achieve higher quality perceptions from students in online courses.

Conclusion

As referenced throughout this study, quality in higher education is an important topic. How quality is perceived by stakeholders in education can have significant impacts. Quality perceptions vary based on each stakeholder and the overall goal for institutions is to strive for perceptions of high quality. Different stakeholder perspectives have been studied in trying to develop a deeper understanding of quality in higher education and increase overall quality. There is a significant gap in literature and research on students' perceptions on quality in higher education. Recently, this gap/lack of information has been at the forefront for leaders in higher education due to the national COVID pandemic. There has been concern surrounding the quality of online courses following the mass movement into online courses in higher education due to this national crisis. This study is timely based on the context and current spike in enrollment numbers in online courses.

Students who are the main stakeholders for online education are at the center of this study. Developing an understanding of quality from a student perspective is arguably the most important stakeholder perspective since they are the main stakeholder in higher education. This study has identified what student and course characteristics increase students' perceptions of quality in online courses in higher education. Administrators and leadership who are committed to continually improving quality in higher education should employ these findings to enhance quality of online learning for students.

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Appendix A

Community of Inquiry Survey

Teaching Presence

Design & Organization

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

Facilitation

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

Direct Instruction

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

Social Presence

Affective expression

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

Open communication

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

Group cohesion

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

Cognitive Presence

Triggering event

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

Exploration

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

Integration

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

30. Learning activities helped me construct explanations/solutions.

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

Resolution

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

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

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

5 point Likert-type scale

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

Appendix B

Demographic and Course Characteristic Questions added to the CoI Survey

Demographic Questions:

The following information is collected for the purposes of data analysis. Only aggregated data will be reported.

1. What is your gender identity? Mark one.
    a. Male
    b. Female
    c. Non-binary
    d. Other
    e. Prefer not to answer

2. Is your ethnic background Hispanic or Latino? *Mark one*
    a. Yes
    b. No

3. What is the best description of your race? *If you are more than one race, mark all that apply*.
    a. American Indian or Alaska Native
    b. Asian
    c. Black or African American
    d. Native Hawaiian or Pacific Islander
    e. White
    f. Other
    g. Prefer not to answer

4. What is your undergraduate student class standing?
    a. Freshman
    b. Sophomore
    c. Junior
    d. Senior

Course Characteristic Questions:

Please indicate the size of the online class for which you answered the previous questions: small, medium, or large.

1. How would you classify the size of the online class?
    a. Small (50 students or less)
    b. Medium (51 to 150 students)
    c. Large (more than 150 students)

Please indicate the main modality of the class for which you answered the previous questions: asynchronous, synchronous, and hybrid. **Asynchronous** courses are made up of prebuilt course components, which allows students to complete these components at the time and pace of their choosing. **Synchronous** courses are live online course which occur in real-time. **Hybrid** courses are a combination of face-to-face and online instruction.

2. What was the main modality of the online course?
    a. Asynchronous (online courses that you complete on your own time)
    b. Synchronous (online courses that meet live)
    c. Hybrid (meet online and face-to-face)

Please indicate the main pedagogy of the online course for which you answered the previous questions: writing intensive, lecture courses, seminar courses. **Writing intense** courses use the writing process to help students learn course material and improve their writing skills- Virginia Tech indicates if a class is writing intensive in the Undergraduate Course Catalog. **Lecture** style courses are led by an expert or qualified representative in the subject or discipline in which the material is delivered in a lecture setting. **Seminar** courses are structured in support of student conversation, shared experiences, shared readings, and led by an expert or qualified representation in the subject area.

3. What was the main pedagogy of the online course?
    a. Writing intensive (writing is the main focus of learning for course)
    b. Lecture (professor(s) deliver course material by lecturing)
    c. Seminar (Driven by discussion and shared experiences)

Appendix C

Institutional Review Board Approval Letter

VIRGINIA TECH

Division of Scholarly Integrity and Research Compliance
Institutional Review Board
North End Center, Suite 4120 (MC 0497)
300 Turner Street NW
Blacksburg, Virginia 24061
540/231-3732
irb@vt.edu
http://www.research.vt.edu/sirc/hrpp

MEMORANDUM

DATE: October 4, 2022

TO: David John Kniola, Jade Marie Kline

FROM: Virginia Tech Institutional Review Board (FWA00000572)

PROTOCOL TITLE: Perceptions of Quality Among Undergraduate Students in Online Courses

IRB NUMBER: **22-722**

Effective October 4, 2022, the Virginia Tech Human Research Protection Program (HRPP) determined that this protocol meets the criteria for exemption from IRB review under 45 CFR 46.104(d) category (ies) 2(ii).

Ongoing IRB review and approval by this organization is not required. This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these activities impact the exempt determination, please submit an amendment to the HRPP for a determination.

This exempt determination does not apply to any collaborating institution(s). The Virginia Tech HRPP and IRB cannot provide an exemption that overrides the jurisdiction of a local IRB or other institutional mechanism for determining exemptions.

All investigators (listed above) are required to comply with the researcher requirements outlined at:

https://secure.research.vt.edu/external/irb/responsibilities.htm

(Please review responsibilities before beginning your research.)

PROTOCOL INFORMATION:

Determined As: **Exempt, under 45 CFR 46.104(d) category(ies) 2(ii)**

Protocol Determination Date: **October 4, 2022**

Appendix D

Informed Consent for Surveys

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY
Informed Consent for Participants
in Research Projects Involving Human Subjects

Investigator(s):	Jade Kline	jadekline@vt.edu	540-308-5976
	David Kniola	dkniola@vt.edu	540-231-2246

I. Purpose of this Research Project
The purpose of this research study is to understand how undergraduate students within the Liberal Arts and Human Sciences academic college perceive quality of online courses. Results of this study will be employed for dissertation research and findings will be available for the academic college.

Research questions:

1. What student characteristics affect students' perceptions of quality for online courses in higher education?
2. What course characteristics affect students' perceptions of quality for online courses in higher education?
3. What is the relationship of student and course characteristics to social, teaching, and cognitive presence in the Community of Inquiry Framework?

II. Procedures
After gaining IRB approval, surveys will be sent out for participant response spring 2022. The survey will be administered via QuesionPro. Since the survey is an electronic survey, this page for informed consent will be included in QuestionPro. There will be a box that participants can select that will state "by clicking here you consent to participate." Individuals that wish to participate in the survey will select the box. Only data from surveys where individuals have selected and submitted the box for consenting to participate, will be utilized in the study. The survey participant may decide when and where to take the survey. The survey will take approximately 15-20 minutes for students to complete. The survey will consist of multiple-choice questions and one open ended question.

Data will be collected through QuestionPro, and data analysis will be conducted by utilizing SPSS. The survey is designed to gather responses about your experience with online courses and how you perceive the quality of a current and/or previous online course. Data from completed surveys will be coded and analyzed for survey scores and significant testing.

III. Risks
There are no percevied risks for participanting in these surveys. Participant names will not be included in data analysis. Additionally, no individual raw data will be shared to outside sources and you may withdraw at any point in the study.

IV. Benefits
A potential benefit of this study is to increase awareness and understanding of how students perceive quality in online higher education and can spark interest in overall quality in higher education.

V. Extent of Anonymity and Confidentiality
Your particiapation in the survey will be confidential. Only the researcher will know individuals who participated in the survey. Names and indentifying information will not be included during analysis or reported to the academic college.

VI. Compensation
A drawing for three $20.00 Starbucks gift cards for participants who complete the survey will take place following the survey closing. Participants will only be eligible to win one gift card. The odds of being selected for the gift card are determined based on the number of overall participants in the study (one in the total number of surveys completed).

VII. Subject's Consent
I have read the Consent Form and conditions of this project. I have had all my questions answered. I hereby acknowledge the above and give my voluntary consent:

VIII. Freedom to Withdraw
It is important for you to know that you are free to withdraw from participating in the survey at any time without penalty.

Please note that there may be circumstances under which the investigator may determine that survey responses should not be included in data analysis.

IX. Questions or Concerns
Should you have any questions or concerns about the study's conduct or your rights as a research subject, or need to report a research-related injury or event, you may contact the Virginia Tech Institutional Review Board at irb@vt.edu or +1 (540) 231-3732.

Appendix E

Community of Inquiry Survey Initial Email Invite

Email 1: 10/17

Subject: CLAHS Short Survey- provide feedback!

Hello,

This is a special opportunity for students in the college.

I am writing today to invite you to participate in a short survey to provide feedback about your experiences with online classes. This study is part of my graduate student dissertation research. The results of the study will also be used by the college to improve learning in online courses.

The survey will take 10-15 minutes to complete. As a thank you, there will be a drawing for $20 Starbucks gift cards for those that complete the survey and enter their email (you're email address will not be attached to your survey responses).

Click on the following link now to complete the survey:
https://questionpro.com/t/AWU7yZuopL

The survey is open now! Your feedback is important and is much appreciated! Ut Prosim!!

For any questions, you can contact me at: Jade Kline at jadekline@vt.edu.

Thank you,

Jade Kline
Doctoral Student
VT School of Education

Appendix F

First Reminder Emails for CoI Survey

Reminder Email 2: 10/24

Subject: Friendly Reminder: CLAHS Short Survey- provide feedback!

Hello,

This is a friendly reminder to complete a short survey about your experiences with learning in online class at Virginia Tech. The survey will close soon, and your participation is important to my research and to the college.

Please take a few minutes to complete the survey by clicking on this link: https://questionpro.com/t/AWU7yZuopL

The survey will take about 10-15 minutes to complete. As a thank you, there will be a drawing for $20 Starbucks gift cards for those that complete the survey and enter their email.

Your feedback is important and is much appreciated! Ut Prosim!!

For any questions, you can contact me at: Jade Kline at jadekline@vt.edu.

Thank you,

Jade Kline
Doctoral Student
VT School of Education

Appendix G

Final Reminder Emails for CoI Survey

Reminder Email 3: 10/31

Subject: Last Reminder: CLAHS Short Survey- provide feedback!

Hello,

This is the final time I will send a reminder to participate in a short survey related to your experience with online courses. If you have already completed the survey, thank you!

The survey WILL CLOSE IN TWO DAYS. Please consider completing the survey now. Here is the link to the survey: https://questionpro.com/t/AWU7yZuopL

The survey will take about 10-15 minutes to complete. As a thank you, there will be a drawing for $20 Starbucks gift cards for those that complete the survey and enter their email.

Your feedback is important and is much appreciated! Ut Prosim!!

For any questions, you can contact me at: Jade Kline at jadekline@vt.edu.

Thank you,

Jade Kline
Doctoral Student
VT School of Education

Appendix H

Community of Inquiry Survey

Thank you for willing to take a survey based on your experience in an online course you believe was ***high quality*** and that you have taken while in college. This survey will assist the College in improving online courses and will help a current student with her dissertation. The survey should only take about 10-15 minutes to complete, and your responses are confidential. As a reminder, while taking the survey, answers all questions based on your experience in an ***online course that you thought was high quality!*** If you have any questions about the survey, please email Jade Kline at jadekline@vt.edu

Thanks for your time and assistance!

Please use the below Likert scale for your responses to the survey questions:

5 point Likert-type scale
1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree

Teaching Presence

Design & Organization

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

Facilitation

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

8. The instructor helped keep the course participants on task in a way that helped me to learn.

9. The instructor encouraged course participants to explore new concepts in this course.

10. Instructor actions reinforced the development of a sense of community among course participants.

Direct Instruction

11. The instructor helped to focus discussion on relevant issues in a way that helped me to learn.

12. The instructor provided feedback that helped me understand my strengths and weaknesses relative to the course's goals and objectives.

13. The instructor provided feedback in a timely fashion.

Social Presence

Affective expression

1. Getting to know other course participants gave me a sense of belonging in the course.

2. I was able to form distinct impressions of some course participants.

3. Online or web-based communication is an excellent medium for social interaction.

Open communication

4. I felt comfortable conversing through the online medium.

5. I felt comfortable participating in the course discussions.

6. I felt comfortable interacting with other course participants.

Group cohesion

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

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

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

Cognitive Presence

Triggering event

1. Problems posed increased my interest in course issues.
2. Course activities piqued my curiosity.
3. I felt motivated to explore content related questions.

Exploration

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

Integration

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

Resolution

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

Appendix I

Demographic and Course Characteristic Questions added to the CoI Survey

Demographic Questions:

The following information is collected for the purposes of data analysis. Only aggregated data will be reported.

1. What is your gender identity? Mark one.
    a. Male
    b. Female
    c. Non-binary
    d. Other
    e. Prefer not to answer

2. Is your ethnic background Hispanic or Latino? *Mark one*
    a. Yes
    b. No

3. What is the best description of your race? *If you are more than one race, mark all that apply*.
    a. American Indian or Alaska Native
    b. Asian
    c. Black or African American
    d. Native Hawaiian or Pacific Islander
    e. White
    f. Other
    g. Prefer not to answer

4. What is your undergraduate student class standing?
    a. Freshman
    b. Sophomore
    c. Junior
    d. Senior

Course Characteristic Questions:

Please indicate the size of the online class for which you answered the previous questions: small, medium, or large.

1. How would you classify the size of the online class?
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    b. Medium (51 to 150 students)
    c. Large (more than 150 students)

Please indicate the main modality of the class for which you answered the previous questions: asynchronous, synchronous, and hybrid. **Asynchronous** courses are made up of prebuilt course components, which allows students to complete these components at the time and pace of their choosing. **Synchronous** courses are live online course which occur in real-time. **Hybrid** courses are a combination of face-to-face and online instruction.

2. What was the main modality of the online course?
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3. What was the main pedagogy of the online course?
    a. Writing intensive (writing is the main focus of learning for course)
    b. Lecture (professor(s) deliver course material by lecturing)
    c. Seminar (Driven by discussion and shared experiences)