USING ONLINE COLLABORATIVE LEARNING TO IMPROVE LEARNING GAPS AFTER COVID-19 IMPACTS ON HIGHER EDUCATION: A QUALITATIVE MULTIPLE-CASE STUDY

by

Teresa M. Henning

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

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Abstract

The purpose of this multiple-case study was to understand and discover the learning gaps created by emergency online learning due to the COVID-19 pandemic, and the impact it has had on instructors and students in institutes of higher education. A look at how online collaborative learning theory and the effect it has had on online learning was also examined. The theory that guided this study was the online collaborative learning (OCL) theory, which stresses the process involving memory, thinking, reflection, abstraction, and motivation. The central research question that this study investigated was how COVID-19 impacted institutes of higher education and their online programs. The study, composed of students and instructors from a local college took place online. The data was collected via individual interviews with students and instructors, observations, and a focus group consisting of students and instructors. The data was collected and examined as a whole. A holistic analysis was used to examine the entire case. The data was looked at collectively using a within-case analysis.

Keywords: online education, post-COVID, higher education, online collaborative learning theory

Dedication (Optional)

To my husband, this would have never been possible without your support and encouragement.

To my parents, who have always been consistent with support.

To my colleagues, who helped me by allowing me to interview them for assignments getting me to this point, and constantly encouraged me.

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List of Abbreviations

Coronavirus disease 2019 (COVID-19)

Discrete math with graph theory (DMGT)

Learning Management Systems (LMS)

Massive open online courses (MOOC)

Online collaborative learning (OCL)

CHAPTER ONE: INTRODUCTION

Distance education has been around for much longer than most people realize. The concept of distance education came about in the mid-19th century with the creation of postal services and correspondence courses (Harting & Erthal, 2005). Distance learning is now commonly referred to as online learning. Discussions of the history, social context, and theoretical context of distance or online education were examined. Finally, a historical review of distance education is discussed, the problem statement for the study was identified as well as the purpose statement, significance of the study and the research questions that were answered are given. Also included are pertinent definitions and a summary of the chapter.

Background

A discussion of the history of distance education will show the progression of online education and the continuation of changes in the future. Examining the social context of distance and online education will shed light on some of the struggles and positive results that this type of education can have for higher education students. A theoretical analysis will also help to explain best practices for a successful distance or online course in higher education.

Historical Context

Distance education has been utilized in the United States since the 1800s (Sun & Chen, 2016). These distance education courses were completed by correspondence. With the introduction of television, visual instruction became possible. The World-Wide Web, created in the early 1990s, triggered distance learning to experience a rapid expansion and growth in what is now known as online education.

Sir Isaac Pitman is called, by many, the father of distance education because of his development of a shorthand correspondence course (Archibald & Worsley, 2019). In the mid-

1800s, the post office prices had lowered, and pricing was changed to weight instead of distance, making it possible for the sender to pay for sending the mail. Pitman's operations continued to expand. This type of learning was prolonged, as it could take several weeks for a response from the instructor (Florida National University, 2019). Individuals conducted the majority of correspondence courses, and when colleges and universities realized the need for more course materials and topics, they ventured into the correspondence market (Hartin & Erthal, 2005).

The 1920s brought about schools using the radio for adult education (Hartin & Erthal, 2005). Reading lists and notes were part of the radio broadcasts, with book lists sent to librarians, so the books were available. There were issues with this type of learning also. The most significant problem was that this type of learning consisted of one-way communication; there was no interaction with the instructor or other students (Florida National University, 2019). According to Gershon (2020), by 1923, educational institutions owned more than ten percent of radio stations.

Computers were used in education beginning in the late 1970s and early 1980s (Harting & Erthal, 2005). However, due to the uninspired software and cost, they were not widely used until the 1990s. Increased communication technologies also increased the ability for distance learning courses to be held online. Most distance learning programs have now transitioned to this format, entitled online learning programs. The number of students registering for these online courses has continued to increase significantly over the past thirty years as the courses and methods of instruction have improved (Abuhassan & Yahaya, 2018; Capra, 2011).

Online education has evolved from distance education and, with it, so have social, political, economic, and ethical implications in the design and instruction of courses (Larreamendy-Joern & LeinHardt, 2006). This changing evolution of distance learning at higher

education institutions correlates directly to the growing use of online technology. This allows those populations that would otherwise be excluded to obtain a college education.

Online education provides learning opportunities for those who have busy everyday lives and offers them a way to be successful in both work and school (Larreamendy-Joerns & LeinHardt, 2006). History clearly shows that online education is here to stay, reinforced by the fact that it has grown rapidly with the development of the internet and advanced technologies (Sun & Chen, 2016). The flexibility and accessibility of online education make it possible for students globally to attend institutes of higher education no matter where they live.

Social Context

In the history of distance learning and online education, several positives and negatives have been highlighted and researched. One of the consistent findings has been that correspondence, distance, and online education are significant in that they offer educational alternatives for society beyond the traditional in-person courses (Harting & Erthal, 2005). Distance education provides adult learners the opportunity to learn because of the nature of its flexibility (Kara et al., 2019). It is necessary to design and implement courses in online programs that meet the needs of the diverse learners that will be taking the courses.

There can be many external and internal challenges for those taking online courses. Many internal challenges are connected to external challenges, typically coming from students' jobs or domestic circumstances (Kara et al., 2019). Many issues come from struggles with technology, lack of family support, and limited time or places to study (Paudel, 2021; Peimani & Kamalipour,2021; Sim et al., 2021). Institutes of higher education need to receive feedback from their students to find where the issues could be and if there is something that the institutes can do to assist students, so they are successful.

Bozkurt (2019) points out that distance education is a multidimensional and multi-layered ecology. This ecology overlaps and has intersecting boundaries. These interactions comprise living and non-living things that are essential factors to consider. There is a symbiotic relationship between distance education and technology, pedagogy, and other socioeconomic issues. Online courses have expanded educational learning with their ability to be open and flexible (Rice et al., 2020). Besides this growth, efforts must also be made to meet diverse learners' needs. Institutes of higher education need to ensure that the capacity for diversity is met in all forms. The COVID-19 pandemic made this even more apparent.

The COVID-19 pandemic transformed society and the way that individuals had to work, live, and interact with each other on a global scale (Garcia-Morales et al., 2021). This occurred suddenly. Crises, such as the pandemic, require society to reset to a new normal and adapt to meet the changes and challenges created by the emergency. The disruption to education begun by the pandemic facilitated the replacement of existing modes of learning face-to-face with the use of online learning. While online learning is not a new concept, the pandemic accelerated the move to online education at all levels. The movement to online or hybrid education (a mix of online and in-person instruction) in higher education began years ago. However, the pandemic has forced higher education institutions to redesign their course offerings to face this new normal.

One area that institutes of higher education need to pay attention to as they develop online course options is the social relations and obligations that happen in a student's daily life (Rye & Stokken, 2012). Family and work situations affect how a student will perform regarding their education. Another consideration is how much the institute of higher education can impact and interact as a community that becomes part of the student's social world. Creating a sense of

community can be a challenge in online courses and degree plans if they are not developed properly.

Students need to be able to self-regulate their work and interactions within an online course (Chu & Kim, 2013). Chu and Kim (2013) point out three areas of interaction as part of online courses and self-regulation. These include interaction between the student and the course content, the interaction between students, and the student and the instructor. Instructor support is imperative to help students with their success in self-regulating.

The instructor's ability to adapt and obtain skills to teach online can also be detrimental to the success of their students (Almusharraf & Khahro, 2020). From a student's perspective, when lessons are customized and personalized, they are valuable and educational. Video lectures and guides can assist in the student's learning development. Including different technologies and tools can be significant in an online education environment that encourages critical thinking and collaborative interactions between students and instructors. Support is paramount for instructors creating interactive online learning materials (El Said, 2021). This will lead to a richer, more prosperous, and quality learning environment for all students regardless of how they learn best.

Theoretical Context

In the past, education has been pushed by access to information and knowledge (Blaschke et al., 2021). Education has always played a significant role in the progress and development of societies and individuals. These connections have helped in the creation of theoretical frameworks in the past and currently when examining online learning. However, just as there is no single learning theory for general instruction, there is no single learning theory for online education (Picciano, 2017). Online education has added to higher education learning options.

However, it still lacks research-based principles in specific learning theories (Mayer, 2018). The advancement of technology and online options have outpaced the theories for learning.

Arghode et al. (2017) believed that behaviorism has been one of the more significant learning theories. Behaviorism is based on the idea that students' behaviors are developed from their environment and conditioning. Cognitivism purported that learning is an internal process that involves memory, thinking, reflection, abstraction, and motivation (Brieger et al., 2020). Cognitivists attempt to streamline learning. Connectivism asserts that knowledge is dispersed across an information network of connections and can be stored in different formats (Brieger et al., 2020). Online connections can provide direct contact for students to access and share information promptly.

Heutagogy is a more recent approach and suggests that students are active participants in the learning process and not just passive recipients (Brieger et al., 2020). As it is with some online courses, the instructor is the course designer, a resource for students, and a monitor as students direct their learning to fit their needs, the pace of study, and skill set. This follows along with the concepts of constructivism proposed by Arghode et al. (2017). They state that if there are effective instructional methods that are paired with good student motivation, learning will be further promoted.

Vygotsky's zone of proximal development (ZPD) highlighted the gap between students' potential and their actual learning (Brieger et al., 2020). In this theory, it is not just the students learning on their own, but they are learning with the guidance of an instructor. The instructor plays an integral role in the student's learning. Constructive learning involves students assimilating new ideas into their existing knowledge (Karppinen, 2005). This combination of

previous knowledge and new learning through education is a necessary process and affects the way students are able to become active learners.

In this new technology-based age of education, achievements in online learning self-efficacy from previous experiences (Aguiler-Hermida, 2020). With technology infiltrating education and the integration of technology and other digital tools, the transformation of traditional learning has allowed students to turn into motivated learners who are active and able to express, think, and communicate through technology (Velentzas & Doukakis, 2020). Instructors have several current theories to consider or from which to take applicable frameworks. Cognitivism is another theory to investigate that would work in both online and traditional classrooms. This theory has the most learner characteristics and learning styles incorporated.

Harasim (2012) proposed the online collaborative learning (OCL) theory that focuses on the capabilities of the internet to deliver learning environments that can cultivate collaboration and knowledge building in online courses. The OCL theory is derived from social constructivism, with the instructor acting as the facilitator. This theory best suits this study. It is also believed that the research could add more strength and development that supports the OCL theory. Rannastu-Avalos and Siiman (2020) determined that collaboration and collaborative learning is a valuable approach that helps to motivate learning.

Along with the benefits that can result from OCL, there are also some challenges. Rannastu-Avalos and Siiman (2020) completed a study that found that not all students contribute equally in online collaboration. It is challenging for students to find times that work for everyone to meet for collaboration and that students prefer to work and collaborate with friends or people

they are familiar with. Lastly, they found that instructors tend to be more focused on the content of the course than facilitating collaboration.

Problem Statement

The problem was the COVID-19 pandemic and the mandated move to online courses has led to learning gaps for students in higher education, compounded by the scarcity of utilization of online collaborative learning. Aguilera-Hermida (2020) emphasized that future directions to explore regarding students' use and acceptance of online learning during COVID-19 is to determine what repercussions the emergency online learning has impacted the future of adoption of online learning. As Garcia-Morales et al. (2021) discussed at the end of their research on the transformation of higher education after COVID-19, it is unknown how higher education will be affected by online education. However, they also point out that research into students' expectations should be completed to create a comprehensive digital environment.

Symbiotic relationships occur in education, technology, pedagogy and socioeconomical issues (Bozkurt, 2019). A change in any one of these relationships can affect the others, it could be detrimental to online learning programs if these relationships get to far out of sync. There are typically many external and internal challenges for those taking online courses. Many internal challenges are connected to external challenges, typically coming from students' jobs or domestic circumstances (Kara et al., 2019). Add these into the changes in the normal of everyday life caused by the COVID-19 pandemic and it is important to find out what the effects of online learning in higher education is post-COVID-19,

Purpose Statement

The purpose of this multiple-case study was to understand and discover the learning gaps created by emergency online learning due to the COVID-19 pandemic, and the impact it has had

on instructors and students in institutes of higher education. A look at how online collaborative learning theory and the effect it has had on online learning was also be examined. At this stage in the research, online education in higher education will generally be defined as the flexible course offerings of institutes of higher education post-COVID-19.

Significance of the Study

This section will discuss the need for the proposed study. It will show that there are gaps in knowledge for the proposed problem. The theoretical, empirical, and practical significance will be discussed.

Theoretical Significance

Research was completed using a multiple-case study to show whether college students want online course options, which will add to the ever-evolving theoretical perspectives of adult education. While there is continuing progress in developing theories specifically for online education, the COVID-19 pandemic has slowed and redirected the research (Garcia-Morales et al., 2021). With the entire world being forced to learn online, more problems and solutions were found that need to be considered going forward. The study will help to narrow some of the gaps that still exist in these perspectives by viewing data through an OCL theory lens.

It is thought that OCL in combination with well-constructed and pedagogically sound online courses could make online options the norm for higher educational institutions in the future (Sim et al., 2021). Using OCL to create online active learning and an online learning climate that will foster communication and collaboration between students and instructors are essential. One barrier to the forward movement in online course offerings is the lack of timely feedback from instructors and students regarding their experiences. The study aimed to garner this feedback in a timelier manner than has been done previously.

Empirical Significance

Similar studies to this study have been conducted. However, the majority of these studies were conducted either during the COVID-19 pandemic or immediately after. The study examined the effects that online learning has had on college students and instructors to find out what they would like to see as options for college courses going forward post-COVID-19. This study will help answer what effect online learning will have on institutes of higher education that are progressively switching to offering more online course options for many reasons.

Specifically, prior studies conducted have looked at the short-term effects COVID-19 has had on students and instructors in higher education (Bartolic et al., 2021; Benito et al., 2021; & Paudel, 2021). The methodologies used by these studies include surveys, interviews, questionnaires, and focus groups. However, none of the studies used the methodologies in conjunction with each other. The study combined data analysis from observations, individual interviews, and culminated with a focus group.

Additionally, post-COVID-19 studies have been conducted to determine student perception of online courses after the pandemic (Cole et al., 2021; Peimani & Kamalipour, 2021; Sim et al., 2021). Similar to the studies done for the short-term effects online survey's, questionnaires, and single case studies were conducted. Again, none used a combination of methodologies, which was used to find the long-term effects that COVID-19 has had on higher education.

Practical Significance

Institutes of higher education will benefit from the results of this proposed study. More specifically, the results will allow them to evaluate the number of online courses they are offering their students and determine if they should offer more or fewer. It will also benefit the

students attending higher education institutions, as their college may use the results to provide more online course offerings, giving them more flexibility in completing their degrees.

Considering the challenges and preferences of students, higher education institutions can develop strategies that will assist students should another pandemic or global emergency arise (Aguilera-Hermida, 2020). Research conducted by Aguilera-Hermida was performed to gauge student experience specifically tied to activities, attitudes, emotions, and educational experience after being forced to online learning. Results led to the suggestion that more research is required to understand the short and long-term effects that the pandemic has had on higher education. Additionally, research during COVID-19 gave short-term, immediate effects, but long-term research is still needed (Bartolic et al., 2021).

Research Questions

Institutes of higher education were affected by the COVID-19 pandemic, as it was mandated for them to move all of their courses online. Some students have requested that the online course options continue post-COVID-19. This study looked to find answers as to what is happening when the study was conducted, what is needed or wanted, and how higher education may be affected by offering more online courses.

Central Research Question

How has COVID-19 impacted institutes of higher education, gaps in student learning, and their online programs?

Sub-Question One

What are students feeling regarding more online courses post-COVID-19?

Sub-Question Two

What type of online structure were schools using during the COVID-19 pandemic, and

were schools using the online collaborative learning theory more successfully in transitioning classes online?

Sub-Question Three

How are institutes of higher education creating well-developed online course options in response to continuing COVID-19 variants or student requests?

Definitions

1. *Distance Education (Learning)* – students and teachers are physically distant while studying; the students are typically at home (Sadeghi, 2019).
2. *Hybrid Education (Learning)* – is a combination of in-person and online instruction that can come in various forms, including in-person courses with online components or a mix of in-person or online students via Zoom or Microsoft Teams (Wood, 2021).
3. *Online Education (Learning)* – instructions are delivered on a digital device to support learning (Mayer, 2018).
4. *Technophobia* –the unwillingness to use technology, may include negative attitudes towards technology, fear of technology, and lack of confidence in using technology (Magen-Nagar & Shonfeld, 2018).

Summary

The study was used to determine what impacts the COVID-19 pandemic emergency online learning has had, and how this will affect the future of adoption of online learning amongst institutes of higher education and their students. This multiple-case study was completed at Snow Community College or online via Microsoft Teams. The problem the study focused on is how online learning will affect higher education post-COVID-19. Prior research suggested this proposed study was needed (Zhou 2020).

Distance learning has been a part of the educational culture for a long time. It has morphed into what online education is becoming today. More and more adult learners are turning to these online courses to further their career goals or to finish an education they started before life changed their plans. Online courses are advantageous to these students as they offer the flexibility they need to continue their jobs and care for their families. This push for higher education institutions to provide online programs and courses has been part of the educational culture, slowly growing in popularity for many years. However, the COVID-19 pandemic forced these institutions to re-examine their offerings due to the demand of their students.

CHAPTER TWO: LITERATURE REVIEW

Overview

There is no one theory for online education specifically. However, several theories do lend themselves to online education. Picciano (2017, 2021) pointed out that there is no single learning theory for instruction in general, and the same is true for online education. Several researchers are trying to associate current traditional educational theories to encompass online education (Aguilera-Hermida, 2020: Martin & Bolliger, 2018; Peimani & Kamalipour, 2021; & Sim at el., 2021). In this literature review, a look at the theoretical framework that is connected to online education was completed. Related literature to the research was also analyzed and critiqued to show the importance of this study.

Theoretical Framework

Harasim (2012) proposed the online collaborative learning (OCL) theory that focuses on the capabilities of the internet to deliver learning environments that can cultivate collaboration and knowledge building in online courses. The OCL theory provides higher education instructors a strong foundation to create their online classes so that they are successful for all students, regardless of how they learn best. OCL can help instructors with the challenges that arise in online courses. Instructors build in multiple ways that students can read, hear, and see their lessons, as well as ways that they interact with their classmates and instructors building on collaborative learning. This theory is derived and includes processes from social constructivism, with the instructor acting as the facilitator. Due to the COVID-19 pandemic, institutes of higher education were mandated to move all of their courses online; the framework for this study is based on the continued push for online courses and the impact they will have on higher

education. It is essential to remember that online learning environments face the same challenges as traditional classrooms (Ochukut & Oboko, 2019).

Furthermore, Harasim (2012) understood the benefits of moving to teaching and learning online (Picciano, 2021). Instructors that use OCL help to support students to collaboratively work out problems through conversation and as a learning community member. This collaborative work is the central premise of OCL. The instructor and the students work as a learning community in knowledge building.

The instructor in OCL is considered a facilitator and is vital to the learning community (Picciano, 2021). This makes OCL best positioned for smaller instructional environments to not lose the collaborative and community base and feeling. This is important for administrations in higher education to keep in mind if they want students to have a sense of belonging to a learning community that is typical in higher education institutions.

Notably, OCL is becoming one of the more accepted approaches in online education (Magen-Nagar& Shoenfeld, 2018; Lei & Medwell, 2021). Collaborative learning is valuable because students work together to exchange opinions and develop ideas on the topics they are studying. This type of learning also helps to combat the loneliness that online students can feel. Findings from various studies stress that more training is needed for instructors (Martin & Bolliger, 2018; Balta-Salvador et al., 2021; Lin & Gao, 2020; and Sim et al., 2021;). Success in using OCL is encouraging and should be further implemented when possible.

Additionally, it was found that this type of asynchronous collaboration online is as effective in learning as in-person collaboration (Magen-Nagar & Shonfeld, 2018). One hurdle many students face in taking online courses is technophobia. Technophobia is defined as the unwillingness to use technology, this may include negative attitudes towards technology, fears of

technology, and little confidence in using technology (Magen-Nagar & Shonfeld, 2018). OCL has shown that it can help alleviate some of this anxiety.

Current research is still limited about OCL (Chatterjee & Correia, 2020; Magen-Nagar & Shonfeld, 2018). It is advised that a more comprehensive analysis is performed that includes different types of courses using interviews with students, which could result in a broader impression of the learning that occurs. Magen-Nager and Shonfeld's (2018) study also emphasized that OCL is valuable because it can counteract a student's loneliness since online communications are conducted using written texts, pictures, and videos which can lack a personal touch.

Similarly, Chatterjee & Correia (2020) quantified that students' sense of community can be an indicator of success. The relationship between student communications and interactions makes a difference in the sense of community an online course can have. More communication built into the online courses results in more substantial levels of a community atmosphere. However, in these social interactions, students must engage in assigned activities to acquire advantages (Slof et al., 2018).

Moreover, OCL stems from social constructivism (Picciano, 2021). Students are urged to collaboratively solve problems through discussion, and the teacher is the facilitator and part of the learning community. This is achieved in an online course in discussions and activities that garner participation by students. Online students benefit from OCL because they have the potential to learn from each other by discussing what is happening in their professional lives and connecting it to their courses and learning.

Specifically, Hrastinski (2008) firmly believed that a learning theory that views online learning as online participation is needed for online learning to be beneficial to students.

Traditionally online students have studied on their own with little social interaction. Courses that encourage mental and psychological participation should be developed, ensuring that activities and assignments engage students. The internet and online courses allow students and instructors to now communicate more frequently, bringing in the social perspectives that drive more participation and learning in online environments.

One could also look at IT-innovation adoption models when researching current theoretical ideologies in online education (Casanovas, 2010). These models delve into the organizational issues that administrations must address in online education. The number of online courses is only going to keep increasing. More adult learners are looking to participate in online education due to its flexibility, which allows them to maintain their jobs and families (Yarbrough, 2018). Online educators must ensure that their online courses encompass technology and adult learning theories.

Consequently, institutes of higher education, along with the course designers for online courses, need to make sure they consider the students' possible prior knowledge when designing social spaces (Slof et al., 2018). Prior knowledge at individual and group levels must be considered when developing collaborative tasks. Intended goals also need to be incorporated into any online courses. Brieger et al. (2020) stressed that comparing learning theories and what theories work best for online courses requires more research to find which learning theory best suits online learning. The challenge is finding which theory is best for online learning and the different learning styles of online students. Building on the already existing learning theories is the best option for those working with students in an online learning environment.

Related Literature

Distance learning is not a new concept but has been around since the mid-19th century (Visual Academy, 2021; Harasim, 2012). What began as correspondence colleges have morphed into online education today. The invention of technologies in speech, writing, printing, and the internet have added to the learning and knowledge building around the world. In recent years there has been a heightened and steady growth in online learning that is changing the landscape of higher education (Wasik et al., 2019). Institutes of higher education are increasing the online options for their students.

A qualitative study was conducted by Pakdaman et al. (2019) evaluating the cost-effectiveness of virtual and traditional education models in higher education. The hybrid approach to education was shown to provide the most acceptable economic condition in the future. Transitioning from traditional to the hybrid system requires training to help students and instructors with the change.

Subsequently, several articles were reviewed that covered the topic of online courses judged against traditional courses. Massive Open Online Courses (MOOCs) were initially seen as a connective learning theory approach (Brieger et al., 2020; Harasim, 2012). Studies were also carried out in online learning (Arghode & Brieger, 2017; Pei & Wu, 2019; Montiel et al., 2020). Online academic performance by students was examined in studies by Peters & Romero (2019) and Shachar & Neumann (2010).

COVID-19 has affected and changed the landscape of higher education, mandating most colleges and universities to move to online courses, using courses that were not developed and designed to be online courses (Benito et al., 2021). This created frustration for many students and

instructors. Online learning is now a constant in education, and higher education institutions must examine what options are available to them to create a successful online learning program.

History of Distance Learning

As previously discussed, distance learning has been around since the mid-19th century (Visual Academy, 2021; Harasim, 2012). Beginning as correspondence colleges transforming into today's online education. The invention of technologies and the internet have added to the learning and knowledge building everywhere. In recent years there has been an increased growth in online learning that is changing the landscape of higher education (Wasik et al., 2019).

Computers were used in education starting in the late 1970s (Harting & Erthal, 2005). However, due to the dull software and cost, they were not widely used until the 1990s. The increase in communication technologies also improved the ability for distance learning courses to be held online. Most distance learning programs have now transitioned to this format, called *online learning programs*. The number of students registering for these online courses has continued to increase significantly over the past thirty years as the courses and methods of instruction have improved (Abuhassan & Yahaya, 2018; Capra, 2011).

Online education has evolved from distance education and, with it, so have social, political, economic, and ethical implications in the design and instruction of courses (Larreamendy-Joerns & LeinHardt, 2006). This changing growth of distance learning at higher education institutions relates directly to the expanding use of online technology. This allows those populations that would otherwise be excluded to obtain a college education.

Online education provides opportunities to learn for those who have busy everyday lives and provides them a way to be successful in both work and school (Larreamendy-Joerns & LeinHardt, 2006). History undoubtedly shows that online education is here to stay, strengthened

by the fact that it has grown rapidly with the development of the internet and advanced technologies (Sun & Chen, 2016). The flexibility and accessibility of online education make it more attainable for students globally to attend institutes of higher education no matter where they live.

Massive Open Online Courses (MOOCs)

MOOCs are free online courses that are available to anyone with a computer and internet connection (Lambert, 2019). These courses have no limit on the number of students that can enroll. The first MOOC was taught in 2008 at the University of Manitoba (Harasim, 2012). The course was created using the connectivism theory. However, this course was not successful. The creators developed this first MOOC intending to utilize the interactions of an assortment of participants. Utilizing online tools to provide a deeper learning environment than traditional tools offered made this possible. Due to the first development of a MOOC the future of online learning would not focus on accessibility but on utilizing what works offline and integrating it with what can be done online to create an engaging experience.

Likewise, Bralic and Divjak (2018) took a qualitative approach in analyzing the data they collected regarding integrating traditionally taught courses with blended learning (hybrid) and a MOOC option. Blended learning is defined as the use of technology with face-to-face teaching and a thoughtful integration of classroom learning experiences with online learning experiences (Bralic & Divjak, 2018). A three-year study of a discrete mathematics course with graph theory (DMGT) was completed. Part-time and full-time students were enrolled in the course for all three years. Part-time students were encouraged to join the MOOC, resulting in an increase in enrollment in the MOOC. Results show that 44% of the overall number of students who

completed a MOOC were part-time students. This helped show that the part-time students needed the flexibility of the online format of courses.

Ultimately, Bralic and Divjak (2018) found that part-time students welcomed the opportunity to control their learning. This runs parallel to findings in other studies of online courses and the need and desire for flexibility available in online courses. MOOCs support the experience of learning in virtual environments, which is a new learning experience for many students. This research gave an outcome that resulted in evidence showing a base on which researchers should develop further research on the success of different learning modes and the final grade averages for students in each mode.

Finally, MOOCs experienced a rapid development with user participation still lacking (Shao, 2017). A small number of students persisted with the MOOC courses to completion; many others stopped taking courses after the first couple of classes. Adding to the poor completion rates, some MOOCs have started to charge for the courses, shifting from a free education offering (Lamber, 2020). With the new costs implemented, MOOCs are more likely to exclude further learners that cannot afford them. Qi et al. (2020) pointed out that interaction from students in MOOCs comes from the instructors who contributed resources to the courses as a group. This use of interaction weighs significantly on the social value to learners.

Online Learning Movement

Using the collaborative theory or online collaborative learning (OCL) theory can help to focus on learning networks that have emerged with computer networking (Harasim, 2012). Online learning has reformulated and reinvented computer networking abilities that enable learners to work together regardless of where they are in the world. This has opened up

opportunities for students and institutes of higher education to develop an inclusive approach to online learning (Harasim, 2012).

Notably, the engagement of students and instructors is crucial to a student's learning and their satisfaction in their online courses (Martin & Bolliger, 2018). OCL is a transformative learning theory. Students' understanding of their learning experience can transform their behavior, attitude, and views (Almusharraf & Khahro, 2020). The increase in new technology in education and the increase in demand for collaborative learning and critical thinking must now be included in any instructional approach (Zhang et al., 2019).

A meta-analysis was completed to provide additional evidence from a different perspective in a comparison of online learning versus offline learning in medical education (Pei and Wu, 2019). The medical field has experienced an online healthcare information boom that continually challenges medical students to stay updated on their knowledge. Pei and Wu (2019) found that there is supporting evidence that online learning in undergraduate medical education is effective. This shows that students can acquire knowledge and skills through online learning.

Particularly in OCL, students are given specific ways to interact independently and collaboratively with their fellow students and the instructor (Almusharraf & Khahro, 2020). Students collaborate in building projects and completing assignments. OCLs use technological tools, such as learning management systems, virtual classrooms, and chatrooms, that have support from the hosting institute of higher education. OCLs also have positive learning experiences that include active learning opportunities, collaborative group work, student-facilitated presentations and discussions, resource sharing, and integrated case studies and reflections (Martin & Bolliger, 2018). OCLs help students become autonomous learners who

know how to seek information, assess information, transform data, and adopt new skills they will need to succeed in today's working world.

Notably, collaborative learning can foster settings where small groups exchange knowledge (Hernandez-Selles et al., 2019). These small group settings are usually used to solve proposed problems or complete group projects. The collaborative learning theory helps build the cooperation and negotiation skills needed to solve the proposed problem. It also helps prepare students for problem-solving and teamwork when they are in the working world.

Specifically, promoting socialized learning that involves cognitive and social frameworks can be sustained in group settings facilitated by instructors (Hernandez-Selles et al., 2019). Students share their knowledge which helps to build up a common concept. Collaboration means that there is shared meaning and knowledge among the students. This collaboration does not happen spontaneously but must be nurtured and directed by the instructor. Instructors can influence online active learning and positive online learning climates that help to foster communication and collaboration between students (Cole et al., 2021).

Additionally, assessments help promote collaboration and social learning (Hernandez-Selles et al., 2019). If assessments are designed to address the distinctive characteristics of online learning, they can help to incorporate collaboration and what students learn. Students will then begin to use the tools they have developed in collaborative learning to problem solve during assessments. A strong relationship exists between student assessments and online student engagement (Cole et al., 2021)

Consequently, numerous institutes of higher education have been seeking more effective ways to educate their students (Montiel et al., 2020). Social media and apps are now being used by institutes of higher education to reach out to younger students. Adapting outreach, resources,

and teaching methods are necessary to stay relevant and competitive. OCL developed assessments are typically open book exams, oral exams, case studies, writing assignments, and project presentations (Almusharraf & Khahro, 2020). Assessments are vital in teaching and learning. OCLs factor in the need for alternative assessment plans that lead to learner satisfaction and positive course outcomes.

Therefore, a study of engagement strategies for online learning was completed to determine if the engagement between students and each other, including students and their instructors, are valuable in the online learning environment (Martin and Bolliger, 2018). This type of engagement can help to prevent online students from boredom and feelings of isolation, assisting them in feeling connected to a community. Instructors of online courses must ensure that the content they are developing interests their students and offers them opportunities for collaborative engagement. Feelings of isolation by students can be prevented by the instructor's presence (Hernandez – Selles et al., 2019). Instructors guide and promote group interaction and participation. Interaction between students and instructors can facilitate interconnections of complex concepts and assignments.

Furthermore, OCL is one of the accepted teaching methods for distance learning. There are five entwined pieces: personal accountability, positive shared reliance, interaction, social skills, and group activity (Magen-Nagar and Shonfeld, 2018). Implementing OCL in higher education requires the instructors to participate in continuous and meaningful professional development to maintain technological understanding. This professional development should include practical interventions designed to change some faculty's negative attitudes toward online instruction. Higher education institutes with a high level of OCLs tend to promote positive attitudes toward technology among students and faculty.

Likewise, it has also been concluded that OCLs involve students working together and exchanging ideas and opinions (Lei and Medwell, 2021). OCL's result in a shared understanding of the topic that is being studied, which results in collaborative learning. OCLs create a sense of social community, which counteracts the loneliness in online courses. This contributes to the improvement of student learning, adaptability, and understanding as they take courses. A learning environment that encourages effective and open communication, group collaboration, critical thinking, substantial discussions, and the ability to learn from mistakes is exceedingly valuable to the learning experience (Shearer et al., 2020).

Nevertheless, institutes of higher education have been slow to accept the changes in student learning styles and requests for more flexible ways to learn (Arghode & Brieger, 2017). Online degree programs and online instruction have become more commonplace in the last ten years. Some studies have reported drawbacks in regard to online courses (Sim et al., 2021). These studies cite problems with time management, self-regulation and ineffective technology. Higher education institutions must push past the reluctance to offer online options to students and develop quality online course options for those who need the flexibility.

Ultimately, the student experience is no longer limited to in-person classes (Lally et al., 2018). The internet has made it possible for students worldwide to study online with limited restrictions. Digital technology has developed rapidly and will continue to grow (van Deursen & Mossberger, 2018). Support and training for both students and faculty will be necessary to create the skill sets needed to succeed.

Accordingly, it is necessary to find out if there was any satisfaction in online learning experiences during the COVID-19 pandemic (Cole et al., 2021; Almusharraf & Khahro, 2020). Some students and staff were satisfied with the use of OCL and the grading systems, assessment

options, and online technical support. Institutes of higher education should offer online, blended, and face-to-face classrooms to meet all students' preferences, increasing the school's enrollment rates both locally and internationally. Future research should be encouraged to validate the findings of this research. The research needs to also incorporate instructors to find out what platform they prefer to teach and if they will change their traditional in-person teaching methods to include practices they developed when mandated to teach online due to COVID-19.

Accordingly, a goal for institutes of higher education that offer online courses needs to be in the designing and providing student learning experiences that take socio-emotional aspects into account (Weidlich & Bastiaens, 2019). This will help the overall student learning experience, resulting in more student satisfaction and course retention. In-person classes typically offer rich social context and opportunities for student interaction that many online courses do not. If students have a feeling of social connections in an online course, it can evoke the sense they get from face-to-face conversations.

Academic Performance in Online Education

A meta-analysis was completed by Shachar and Neumann (2010) that estimated and evaluated the difference between the academic performance of students enrolled in online courses to those enrolled in traditional courses. The study looked at final course grades over a twenty-year period (1990-2009) with negative results. While this is an older article, it helps to show how much the perception of online courses has changed in the last twenty years.

Additionally, distance education platforms that consist of correspondence, online, and audio/video have led to more students choosing distance learning over face-to-face learning (Shachar & Neumann, 2010). Technology and distance learning, or online learning, has not been widely accepted by the academic community in the past few decades. Even today, some faculty

still refuse to use any type of online or distance learning technology. Research has indicated that distance education is not only comparable to traditional education, but it can also outperform traditional education. In the last decade, online learning has become more widely accepted. With the increase in acceptance of online learning has come more legitimacy to online programs.

Regardless, legitimacy has been brought to the forefront even more in the past several years due to the COVID-19 pandemic (Peimani & Kamalipour, 2021). The improvements in technology, internet access, and overall acceptance of online programs by institutes of higher education and employers have driven the explosion in the offerings of online courses. With this legitimacy and instructor acceptance, more of a focus has moved to student performance. It has begun to come to the point that if colleges and universities do not have some sort of online program or create an online program, they could be left behind by those that do offer online programs.

Accordingly, it has been suggested a couple of foundational theories that support online learning (Firat et al., 2018). The first is intrinsic motivation. Intrinsic motivation activates and maintains the learning process. Self-determination theory highlights the motivations that students need in online learning environments. Online learning environments require intrinsic motivation to keep learners motivated in their courses (Firat et al., 2017). Intrinsic motivation is one of the main foundations that can trigger and help maintain student learning processes. This motivation can help students develop a natural inclination to become more interested and a will to explore new knowledge, creating lifetime learners.

Significantly, research completed recently has shown a growing trend began happening in higher education for institutions to offer online courses (Balta-Salvador et al., 2021). Some of these programs are facing challenges due to the fact that they were based on practical

applications of scientific and technological principles. COVID-19 has shown that there were issues that are linked to the implementation and quality of online classes. These challenges can become barriers for students in their engagement and their learning. Due to the pandemic, many students felt isolated and disconnected from their courses due to the lack of face-to-face engagement with other students and the instructors that they were most familiar with.

Pre-pandemic research into online courses has stressed the need for students to have interaction with other students and their instructors in order for them to be successful and satisfied in their learning experiences (Balta-Salvator et al., 2021). Social contact and socialization are part of the higher education experience (UNESCO, 2020). If students lack socialization and contact, it can affect their academic development. Connecting with other students and instructors has always received significant attention in online education research. The pandemic, and the increase of isolation that resulted, added to the importance of the need for connections in online education.

Consequently, there is a lack of research regarding the emotional state of students in higher education. This also includes data showing if there were changes to these emotional states attached to the pandemic. Using instant messaging apps and other means of communication when developing online courses reduces the students' feeling of isolation, helping them to feel like a part of a community. Group videos and supportive instructors that pay attention to and address student needs improve student feelings of inclusivity.

Student Success in Online Programs

Rapid technology advances tend to create challenges and risks for online education. Online education is still not well understood by the general public and the educational community (Harasim, 2012). One of the primary issues is the misnomer that online education

lacks any pedagogy. Educating students and higher education institutions alike on the benefits of online education and its more than 30 years of history of the practice, scholarship, and research and development will go a long way in creating successful online programs and student results.

Specifically, online programs offer more opportunities for lifelong learning using digital learning platforms (Peters & Romero, 2019). Institutes of higher education have started to transition into becoming institutions of lifelong learning by implementing campus-based and online course options. This allows students globally to obtain a college education, breaking down what have always been traditional geographic barriers. This is a positive and timely change when much higher education institutions are struggling with low enrollments. This change will continue to grow, allowing many non-traditional students to combine full-time jobs or commitments and obtain a college degree.

However, students must play a role in their education to be successful. They must engage in online group discussions, seminars, or other projects in their online courses (Harasim, 2012). Online students are encouraged to learn, problem solve and be innovative in the application of their personal knowledge and how it connects to the subject they are studying. Using the collaborative online theory helps these students to build knowledge and learn how to collaborate with others to solve problems. Motivation can also significantly sway students' learning processes (Firat et al., 2017). Motivated students can accomplish more complex tasks, take a more active role in these tasks, and end up adopting an engaged approach towards learning through continuity and creativity.

Similarly, Hart (2012) examined the factors that are associated with the ability of students to complete an online course. Suggestions as to what can help to make students more successful in completing their online courses is something that institutes of higher education should be

implementing. Issues remain with students not completing courses they have enrolled in. This is wide-widespread in many institutes of higher education. Many times, the reasons for dropping out of a course are not due to the lack of knowledge but due to external stresses and lack of persistence of the student.

Additionally, Hart (2012) found several phenomena exist on how to help keep students from dropping out of courses. These phenomena include communication with the instructor, motivation, and peer and family support. Many students like online courses. However, many challenges can arise during a course that are unexpected and ultimately contribute to a student not completing a course—ultimately leading to students not completing a degree program. This shows that support for online students is necessary to ensure they are successful and complete their courses and programs. Colleges and universities need to develop student support for all students, but most especially for online students.

Notably, with the development of better learning management systems (LMS) and other technology, better-developed online courses should be invested in by higher education institutions to help develop the growth of online courses (Lin and Gao, 2020). The nature of the COVID-19 pandemic showed how imperative it is that higher education institutions need to have some form of online delivery for their courses (Bartolic et al., 2021). Institutes of higher education have been slowly working on adding to student services. The same student services offered to in-person students should be provided to online students.

Additionally, the rapid pace of technology change will often exceed the rate of research on technology-associated topics (Dumford & Miller, 2018). Social media has had an explosion in the last decade. This has resulted in impacts on higher education, with students wanting to be able to use social media in their college coursework. Evidence in research has shown that higher

education institutions need to adapt their online platforms to be able to be utilized on mobile devices. The LMS Brightspace has made it possible to download an app on a smartphone or tablet and fully complete a course online with a mobile device, opening up more diverse opportunities resulting in students not being required to have a computer to complete a course. This also allows more connectedness for students in online communities.

Best Practices of Online Learning and Teaching

Keengwe and Kidd (2010) completed a literature review that looked at the barriers to online teaching. The roles faculty need to have in online learning environments and implications for online learning and teaching. For many instructors, online education allows them to expand their knowledge and pass along knowledge to a more diverse student population than they could in a traditional classroom. Many colleges and universities across the United States are transitioning to some sort of online or hybrid type courses.

Particularly online learning encompasses several different technologies (Keengwe & Kidd, 2010). These technologies include computer-based learning, web-based learning, virtual classrooms, and digital collaborations. These technologies can also affect instructor implementation and online course progress (Dumford & Miller, 2018). Colleges and universities can take several steps that include professional development trainings to assist their instructors in successful online programs.

Significantly, online education has the capability to reach a wider audience (Dumford & Miller, 2018). It can level the playing field for students who are typically disadvantaged. Institutions of higher education need to ensure that they are not worsening existing gaps because of the unique needs and circumstances disadvantaged students can have. Online students often have a different background than traditional in-person students. Their age, prior education,

gender, and academic discipline can sway their preferences for online courses. These characteristics can also affect their performance in courses, as they typically have outside obligations that can interfere with their studying.

In their literature review, Keengwe and Kidd (2010) found that, for a successful transition from traditional pedagogy to active online learning pedagogies, faculty members will most likely have to alter their teaching styles and learning new skills to reach their distance learning students. Changing in-person classes to online classes is not a simple process. Online course creation can require an instructor to use more time, skills, and knowledge to develop a successful course and course delivery for online students.

Equally, several faculty responsibilities are associated with designing and teaching an online course (Keengwe & Kidd, 2010). These responsibilities start with the development of the online course and continue until the course is delivered. Best practices dictate that faculty not only strive to learn the current technologies being used in online learning but also understand the need to fundamentally change and transform their pedagogical approaches to the teaching and learning process to be better able to meet the needs of their online students.

Similarly, Arce-Trigatti and Silber-Furman (2022) ascertain that, even though online learning can be convenient, the actual process of teaching online requires the instructor to shift their thinking and manner of instruction. This requires continued growth and learning, often not readily available in most educational environments. Online instructors spend many hours preparing, teaching, altering, grading, supporting, planning, readjusting, and anticipating student needs in online courses.

Specifically, suggested best practices can include being systematic and organized, never sacrificing active learning, having open communication and availability, having empathy and

flexibility, and always looking to improve the course (Arce-Trigatti & Silber-Furman, 2022). Online courses are typically systematically created from the beginning. It starts with the syllabus and assignments and ends with the course scheduling and pace of the course. A systematically designed, organized, and the well-designed course helps create a successful online learning experience. Instructors must ensure that their course content is student-centered, has active learning assignments, and strategies are included, which adds to the interest and social interaction, and encourages student problem-based learning skills.

Accordingly, online education has even more responsibility for open communication than the traditional in-person course. Continuous open communication support systems help students when they need support, have questions, or need to check in with their instructor (Arce-Trigatti & Silber-Furman, 2022). Online instructors must also maintain empathy and flexibility regarding their online students. Instructors must remember that technology is imperfect, and students are not technology experts. Instructors must also remember that their students may be in different parts of the state, country, or world where their weather could be extremely different, causing possible power outages and other uncontrollable barriers.

Therefore, online education can provide students with the advantage of life-long learning due to its flexibility (Kara et al., 2019). The global adoption of the internet and the growing capacity of online have empowered online education and opened flexible opportunities for more students. With the increase in new students, more diverse and encompassing teaching methods need to be incorporated into online education. Focusing on online learners and their needs is paramount for successful students instead of a one-size-fits-all approach to online learning and course design.

Ultimately, instructors for online courses are usually the designer and the facilitator of their courses (Martin et al., 2018). The instructor creates the course and then applies the learning for the course with their students. As a facilitator, an instructor should guide the learning process and provide opportunities for students to build on their knowledge and skills. The instructor should also monitor assigned activities to provide support when students need it. Instructors have a crucial facilitating job when they interact with their students, encouraging them to be active participants in the course. By acting as a facilitator and quickly responding to their students, the instructor helps bridge the distance and isolation students can feel in online courses.

Coincidentally, Martin et al. (2018) found that students who take online classes feel that the instructor's timely responses and feedback are very helpful in determining the instructor's presence in the course. It also inspires the students to become more engaged in their studies, adding to their learning. They also found that using a video-based introduction helped improve the students' community feelings toward the instructor, leading to better educational success. Instructor support and guidance are crucial for students to gain the most from their online learning experiences.

Online Learning at the Beginning of COVID-19

The pandemic fundamentally changed how institutes of higher education delivered their courses across the globe. Due to the restrictions put in place around the world, higher education institutions had to rapidly transition to online learning with overwhelming consequences for students and staff alike (Turnbull et al., 2021). The transition was facilitated by the use of online virtual meeting spaces, such as Zoom or Microsoft Teams.

Considering this, Adnan and Anwar (2020) conducted qualitative research using an online survey. The phenomenon for this study found that the majority of the higher education

students in Pakistan that were surveyed had reservations about online/digital learning. The lack of access to the internet, proper interaction with instructors and other students, and ineffective technology were some of the biggest challenges. These same challenges can be found in any country.

Consequently, the mandate by governments worldwide instituted to prevent the spread of COVID-19 created several problems. One of the significant problems came from lack of internet access. Adnan and Anwar (2020) discovered that many students in traditional courses had issues due to no access to the internet, no understanding of how to interact with other students and their instructors when taking online courses. This problem was not just a problem in Pakistan but across the world in all levels and aspects of education.

Ultimately, traditional classes are not set up to be taught online. Instructional and educational modalities are different for online courses. Quality teaching is more difficult online than it is in a traditional classroom; more upfront planning and preparation are required, as are individual feedback and assistance for students (Mintz, 2020; Quevillon, 2021). A point also made clear by Adnan and Anwar (2020), due to the limited resources of most educational institutions, only those institutions that already offered online programs or hybrid courses were able to introduce effective online classes during the initial months of COVID-19.

While the study by Adnan and Anwar (2020) was completed in Pakistan, there are many locations across the United States that have similar internet issues. It is also imperative to note that this study found that traditional courses cannot automatically be moved or offered online without proper changes that are necessary for online courses to be successful. The switch to online from traditional courses also generated stress in both students and instructors (Aguilera-Hermida, 2020). Institutes of higher education need to ensure they are more prepared and have

prepared their students in case of another emergency or disaster that could force them to return online fully.

Similarly, Thangajesu Sathish et al. (2020) conducted a quantitative research study. The study used an analytical and descriptive research design and found similar results as the study completed by Adnan and Anwar (2020). Education was moved entirely online, resulting in students having to make significant adjustments because their learning had always been in classrooms. Many of these students were not well equipped with the technological tools that were needed. Changes need to be made going forward so that the use of technology in teaching and learning online will be available worldwide to students. In the future, the caliber of education will be evaluated not only by the quality of the instructor but also by the caliber of the technology and interface needed for online courses.

Accordingly, data found that most students and instructors used the Zoom application for their teaching (Thangajesu Sathish et al., 2020). There was a significant difference between the perception of online teaching and using applications during the lockdown. There was also a significant relationship between the online tools used before COVID-19 and those used during the lockdown period, with a better transition for institutes of higher education that already had effective online course technologies. The age of the students also affected the results, as there was a significant difference between age and the problems faced by the respondents who were taking online courses. In the last ten years, technology has developed exponentially. Instructors and institutions of higher education need to step into the technology era by embracing new technology and the new way of offering courses to students.

Conversely, the forced move to online-only education confirmed that online learning requires more fortitude and computer skills from all involved. It also substantiates that there is an

alternative option for learning (Velichova et al., 2020). Before COVID-19, online learning was rare. It has now become an essential part of education at all levels.

Significantly, Aldahdouh et al. (2020) determined that there is no longer any question of whether or not technology can assist with the educational process; it has been proven that it can. Being past the survival phase of the pandemic, it is time for higher education institutions to evaluate and provide training for their students and instructors on remote learning, teaching, and communication (Hartshorne et al., 2020). The future of education will now be the choice between in-person, hybrid, or online courses.

Benefits, Challenges, and Strategies During and After COVID-19

Understanding the challenges and preferences of students in higher education (Aguilera-Hermida, 2020) is essential. Institutes of higher education can develop strategies to assist students in being successful if another emergency, such as the pandemic, happens again. Paudel (2021) also pointed out that online education helps to provide the world knowledge no matter where they are, as long as they have internet access.

Moreover, the emergency push by educational institutions to move from in-person courses to online learning caught many students and instructors unprepared (Hofer et al., 2021). Many studies are being performed with varying results; some report that online courses have many problems, while others are reporting successes. Much of the results come from how prepared higher education institutions were for online courses. The results also vary on the participants and their success and failures with online learning.

Consequently, adapting and changing accordingly is necessary for all higher education institutions in this new and ever-evolving normal (Neuwirth et al., 2021). Instructors and administrators should be re-imagining and re-envisioning the design and delivery of all of their

current programs. For students, the only connection that they had to any sort of normalcy during the height of the pandemic was their college courses and their interaction with other students, including their instructors. Students need as much security and normalcy as possible going forward.

Ultimately, the pandemic challenged even those technologically savvy students with the challenges thrown at them (Neuwirth et al., 2021). Many students had to move home with their parents; many were teaching their own children who were also home because of the pandemic and were trying to complete their own studies. The sudden changes to work schedules, unexpected unemployment, and illness all added to the challenges that both students and instructors faced.

Equally, as Chiu et al. (2021) pointed out, the pandemic revealed that institutes of higher education immediately need to increase their technological infrastructure, along with expanding their instructors' expertise and training. The pandemic created a unique and ever-evolving combination of issues, including a public health crisis, social isolation, and an economic recession. Higher education as a whole may need to be reimagined in this new world that is increasing in uncertainty, booming technology, and unease.

Expressly, in today's higher education landscape, colleges and universities have limited budgets made even more stringent due to the COVID-19 pandemic. Organizational changes are needed, so adaptation to the new demands of students are met, and enrollments are being achieved. Higher education is also changing rapidly, accelerated by the mandatory COVID-19 move to all online courses. The need to meet diverse stakeholders' needs after the pandemic is pushing this rapid change (Yawson & Yamoah, 2020).

Notably, Pakdaman et al. (2019) found that online and hybrid courses are not just a fad. It is paramount that institutes of higher education increase the effectiveness of training for students and staff. All higher education institutions are evaluating the importance of teaching and learning online, especially after the COVID-19 pandemic. An increase in demand for online education, and the need for effective online education, are challenges for all institutions.

Similarly, a study conducted by Paudel (2021) investigated teachers' and learners' perspectives on online education in relation to its benefits, challenges, and strategies during and after COVID-19 in higher education. Online-based teaching has become the most commonly used alternative to keep educational activities functional in many parts of the world during this pandemic period. Students feel that online courses are more advantageous for them because they are more convenient, offer individual attention towards learning, and help to promote lifelong learning. One concern that must be considered is privacy issues. When working in a collaborative environment, trust and respect must be upheld, along with an environment that protects the privacy of all involved (Chang, 2021). If students do not feel secure in an online environment, they will not succeed.

Coincidentally, the research performed by Paudel (2021) determined that students and instructors alike found that online education was beneficial in promoting online research, connecting to a global community, and making them more self-disciplined. Online courses offer students and instructors flexibility in their schedule of when things are due, as opposed to traditional courses where a student and instructor must be in the classroom at a designated time. A range of substantive information was reviewed to determine what makes online classes successful, including what instructors of an online class need to do. Online education is an ethical practice, especially for those students who find it impossible to attend on-campus classes

(Ubell, 2019). Online learning is a growing method of learning that shows no slowing in the future (Lederman, 2018). COVID-19 and the continuing variant have added to the necessity of online courses for all colleges and universities.

Therefore, institutes of higher education will need to push fully online programs if it wants to compete in the national higher education market (Lederman, 2018). Online classes are here to stay; colleges and universities just need to ensure they are creating the best online programs they can, including retraining their instructors on how to teach online. Higher education institutions that offer more online course options can battle declining enrollments.

Overall, higher education institutions need to realize that there is a wealth of web-based resources that global learning experts have designed that educators can use to create global learning communities and aid in building community activities (Pittman et al., 2020). Regardless of the platform in which a course is located, educational activities will no longer just be in-person but a combination of technology in the classroom and online (Dans, 2020). New standards will become the norm for teachers and students as methodologies are changed to create a blended learning environment after the push to online due to the COVID-19 pandemic. Online teaching is becoming more than just a student learning on their own. Instructors are now required to be more engaged in forums and other tools.

Accordingly, Ahemed et al. (2020) indicated that there is no doubt that online education is tremendously essential and is as important as in-person learning, which was proven during the pandemic. Online learning provides flexible learning opportunities that fit into the interests of students who can learn in asynchronous or synchronous online learning environments. Changing technologies and global student needs regarding online education will always be a challenge for all involved in higher education.

Hence, extra effort is needed by institutes of higher education and their instructors to keep students from dropping out and losing touch with their classmates and instructor (Balta-Salvador et al., 2021). The COVID-19 pandemic changed life as previously known around the world. It is vital that institutes of higher education plan for the future, which includes making adjustments to the ways that they offer courses. The extraordinary nature of the COVID-19 pandemic has changed the higher education landscape. The impact of online courses as a result of the pandemic on students is irreversible. Research that provides empirical data is critical to understanding the scope of its impact and what needs to be done to support students going forward.

Subsequently, several studies have been conducted to help to identify the consequences of the rapid online transition that was forced on education and the effect it had on students (Balta-Salvador et al., 2021). At this point, the data from these studies have not been standardized and show significant differences in their results. More research in these areas is needed to standardize the research and fill gaps in the literature. There are a few similar themes that have come from this research. Connection with other students and instructors was an item that was reoccurring and had the most stress and concern placed on it. Social isolation during the pandemic was also seen as an increased concern. Online learning environments need to include quality internet connections, proper learning environments, and proper equipment, which were also indicated as significant issues in recent research.

Benefits and Challenges of Online Learning

There are varying opinions on whether or not online education is beneficial for students and institutes of higher education. The position taken in research is different if the research was conducted before the COVID-19 pandemic when online or hybrid courses were still newer and

not widely accepted. After all educational institutions were forced to go to online learning, many opinions have changed. The COVID-19 pandemic forced all educators to start using newer teaching technology and interactive communications to continue instructing their students (Camilleri, 2020).

Particularly in studies conducted before the pandemic, some researchers found positive results when looking at MOOCs (Bralic & Divjak, 2018) and other research (Pei & Wu, 2019). On the other hand, when comparing traditional education to online education, some found negative results with faculty against online education (Scachar & Neumann, 2010). Others, such as Hart (2012), found positive results but also the need for online programs to have more support for students. Kenngwe and Kidd (2010) and Ubell (2019) found that online education expanded education to diverse populations or those that cannot get to campuses.

Conversely, online learning environments are distinct from in-person classroom learning environments (Lemay et al., 2021). The pandemic created enforced social distancing that resulted in a lack of social connections for everyone. Kara (2019) determined that online learning environments can offer appropriate opportunities for adult learners due to its flexibility and for learners who are willing to own their learning responsibilities and processes. There is a benefit to the value of anyone and everyone having the opportunity to gather information, education, and knowledge (Rice et al., 2020). Online learning environments create opportunities for both students and instructors to share in the experience of formal and informal learning that crosses physical, social, political, and intellectual barriers. Both online and in-person courses involve active learning, which is essential in student learning (Cole et al., 2021).

Additionally, online learning environments create inclusive learning that reaches new levels of social justice, criticality, and open and reflective dialog (Rice et al., 2020). This

openness can create collective communities instead of the typical isolation of online programs. A learning environment that inspires effective communication, group interconnection, open communication, critical thinking, metacognitive processes, thoughtful and purposeful discussions, and useful failure can be extremely valuable for student learning (Shearer et al., 2020). Online learning environments have opened the possibility of higher education in flexible environments for many prospective students that would otherwise not be able to obtain this education.

Overall, many studies that were conducted have found isolation is a very real issue for online courses (Kaufmann & Vallade, 2020; Shearer et al., 2020, & Cole et al., 2021). If the structure of an online course is built for connectivity between students and instructors, this can lessen the feelings of isolation. Students in online courses value their interactions with other students and their instructors. Online active learning assignments and an online active learning community can help to foster peer communication and collaboration that benefits the learning of students.

Additionally, it is crucial to keep in mind that the current younger generation of students is heavily biased by digital media (Peimani & Kamalipour, 2021). This means that they have advanced skills and abilities for digital technology and quickly pick up new learning styles and skills when dealing with anything technology based. This demographic of students has opinions, approaches, preferences, and expectations of their college education that are highly grounded in technology use.

However, with the popularity of online courses rising, many institutes of higher education are interested in how best to serve their online students, including course materials and support (Dumford & Miller, 2018). Post- COVID-19, higher education institutions that address the

challenges of developing online courses and collaborative technological adaptive learning environments will be more competent and strategically placed to redesign their curricula and course offerings in the new technology-based educational landscape.

Specifically, the development of online collaborative tools is beneficial for students. They are essential in helping the interaction between students and aid with the feeling of isolation that can be prevalent in online courses (Hernandez-Selles et al., 2019). However, this cannot happen without collaborative learning. These tools are essential for instructors and students in facilitating pedagogical guidance, communication, technical support, and, most importantly, social interaction.

Finally, higher education institutions must do their due diligence and inform the members of their administration of the history of distance/online education and the newer platforms of online, hybrid, or blended learning that can open up the massive potential for an inclusive wide range of opportunities for future students (Norgard, 2021). Due to the pandemic, there is an opportunity to build off the need for online courses and create purposeful courses rich in knowledge, conceptual frameworks, well-established methods, and practices. Now is the time, post-pandemic, in online learning environments to create opportunities for higher education institutions to expand their student bases to anywhere that has internet access, creating global education communities.

Summary

Continuing technological development and the COVID-19 pandemic has resulted in the demand for online education and has led to changes in teaching and learning models. Online education has made it possible for non-traditional students with limited flexibility to obtain an education (Paul & Jefferson, 2019). The make-up of a typical undergraduate student body is

changing significantly (Sun et al., 2020). Web-based instruction has made it possible to offer classes anywhere in the world with an internet connection. Following the outbreak of COVID-19, schools worldwide were closed to prevent the spread of the virus. This led to distance learning being tested at a level never seen before. Instructors had to adapt to the pace of online teaching, some successfully and some not so successfully.

Furthermore, online and hybrid courses are becoming more popular (Rosenbusch, 2020). If these platforms are appropriately implemented and developed, technology and online courses can enrich and enhance the learning experience for both students and educators. Many institutes of higher education are turning more towards these platforms for offering courses to help compensate for decreases in enrollment and funding. There is also an increase in the number of students who are enrolling in these platforms, suggesting that online learning is becoming a part of the course offerings at many institutes of higher education (Kim & Ekachai, 2020). There is a gap in research regarding what students prefer as course options post-pandemic.

Accordingly, research has been completed comparing online learning to face-to-face learning, resulting in many articles written on the subject. Some advantages of online learning include the ability to study anywhere at any time, monetary savings, no commuting, flexible choices, time savings, and the ability to work while studying (Sadeghi, 2019). More research is necessary to see if the drive for more online or hybrid options is beneficial or detrimental to institutes of higher education. With the change in the age and make-up of students in higher education, more flexible options are necessary to meet all students' needs.

Notably, the COVID-19 pandemic brought to light the need for higher education to have systems in place for future emergencies. Digital technology integrated into courses have the potential to create engaging learning opportunities regardless of whether or not the classes are in-

person or online (Hofer et al., 2021). The pandemic was a wake-up call for all educational institutions. It showed that higher education institutions are not yet prepared to integrate the existing technology without proper training for both students and instructors.

Specifically, technology connects people to people around the world. However, while people can be connected, people can also feel a sense of loneliness (Kaufmann & Vallade, 2020). This perception of loneliness tends to run higher in online courses. Online instructors can assist with these feelings of loneliness by being aware, calculated, and intentional in their communications with their students.

Accordingly, there are many institutes of higher education that are immersed in the process of shaping their educational programs for the future, including adding current technology (Benito et al., 2021). It can be argued that education is not only a human right but also a public good that should be accessible to everyone equally (Xiao, 2021). The contributions of technology are slowly equalizing the inequalities that still exist. Education and technology are interwoven and, if developed correctly, will bring about desirable educational outcomes. Existing literature regarding online courses post-COVID-19 is limited as to the input from students and instructors. This study will provide more recent data that will add to existing literature.

CHAPTER THREE: METHODS

Overview

The purpose of this multiple-case study was to understand and discover the learning gaps created by emergency online learning due to the COVID-19 pandemic, and the impact it has had on instructors and students in institutes of higher education. A look at how online collaborative learning theory and the effect it has had on online learning was also examined. This multiple-case study helped answer whether students are requesting to continue to have online options instead of going back fully in person or whether the continuing COVID-19 variants are causing institutes of higher education to create online opportunities. It should also be used to help the administration of higher education institutions determine the value of online courses in the future. This chapter will describe the research design, research questions, settings, and participants, along with the researcher's role given. In addition to those areas, a description of the procedures, data collection plan, and data synthesis for the study will be given.

Research Design

COVID-19 had an impact on in-person and online courses. Literature supports this in research by Wong (2020) and Chandra (2020). The topic of online education and the impact it has on higher education is important to study because more institutes of higher education are looking to continue with online courses going forward; it is unknown how these online offerings will affect higher education. Research completed by Zhou (2020) supports this. Finally, the transition from in-person classes to online classes was not as successful as it should have been during the COVID-19 pandemic, as studied by Ahmed et al. (2020) and Lashley et al. (2020). This study is qualitative, researcher gathered and analyzed information from natural settings, attempting to make sense of the proposed phenomenon. According to Creswell and Guetterman

(2019), qualitative research explores a problem and develops an understanding of a central phenomenon, the research includes questions in an open-ended way to capture participant experiences, and data was analyzed for themes that can be interpreted for the meanings of the findings.

A case study looks to obtain concrete, contextual and in-depth knowledge about a real-world subject or problem (Stake, 2010). This study examined how higher education was affected by online courses. A case study helped the researcher stay focused on the problem while also managing resources and data. Additionally, a case study should not be limited to the case but should also investigate probable interactions between the case and its framework (Yin, 2018). Internal validity can be challenging when conducting case studies, especially when conducting a single case study, conducting a multiple-case study strengthens the validity of the case being studied.

A multiple-case study was the most appropriate to use because the information was collected from different individual studies (Creswell & Poth, 2018). The multiple-case study also fostered the discovery of links between multiple factors during the research. Yin (2018) stresses the use of multiple sources of data. These include the use of prior documentation or archival records, interviews, observations, or physical artifacts as a small example. Having multiple sources of evidence helped with data triangulation to form a database for results.

Research Questions

The following research questions guided the multiple-case study:

Central Research Question

How has COVID-19 impacted institutes of higher education, gaps in student learning, and their online programs?

Sub-Question One

What are students feeling regarding more online courses post-COVID-19?

Sub-Question Two

What type of online structure were schools using during the COVID-19 pandemic, and were schools using the online collaborative learning theory more successfully in transitioning classes online?

Sub-Question Three

How are institutes of higher education creating well-developed online course options in response to continuing COVID-19 variants or student requests?

Setting and Participants

Setting

The setting of this study took place at a local community college that offers associates degrees and certificates. The local community college is in Northern New York and was mandated to move its instruction online during the COVID-19 pandemic. This location was chosen to examine a wide range of students, instructors, and the feelings they all have regarding online education after COVID-19, and how these feelings and opinions will affect online education in institutes of higher education.

Snow Community College (pseudonym used for the college) typically has enrollment averages of 2,984 students in associate or certificate level programs. This is a school in New York. Snow Community College comprises a majority of traditional college students, with some non-traditional students. The college consists of a president and vice presidents in the areas of academic affairs, administration and finance, engagement and retention, STEM and health professionals, human resources, strategic initiatives, and liberal arts (SCC, 2021).

Participants

Participants in the study were students and instructors at Snow Community College. Snow Community College's student population is made up of 74.9% white students, 7.84% black or African American students, 7.44% Hispanic students, 2.85% of two or more races, and 1.51% Asian students (College Factual, 2022). The participants were selected from a pool of undergraduate students at the college. The college offers both in-seat and online course options. Participants were a variety of ages from 18-65 and mixed gender. A goal of 15-20 participants was the aim for the student interviews. A goal of 4-5 participants was the aim for the instructor interviews. A mix of instructor and student participants were selected for the focus group, with a goal of 5 participants. The sampling of participants was a purposeful sampling, as I intentionally selected individuals and sites to learn and understand the central phenomenon. (Creswell & Guetterman, 2019).

Researcher Positionality

This research was conducted to gather more information that was seen in my daily job working in higher education. I saw daily the challenges and accomplishments of students that have transitioned from in-person learning to online learning. As technology continues to grow, it is believed that higher education must also grow and offer more opportunities for students to learn online in a flexible supportive environment.

This area of the research supported the choice of using OCL theory as the theoretical framework for the study. In this area, interpretive framework and philosophical assumptions was discussed. The philosophical assumptions consisted of ontological assumptions, epistemological assumptions, and axiological assumptions. Finally, the researcher's role will be defined.

Interpretive Framework

The study was a multiple-case study design, specifically, an instrumental case. An instrumental case can be used to understand a specific issue, problem, or concern with a case or cases selected that best understand the problem (Creswell & Poth, 2018). Online education affects many different educational institutions, from elementary school to higher education institutions. Various student groups are also affected by online education. Focusing on cases with online education and its repercussions was a good starting point to begin research and collect information from multiple sources.

I took a social constructivist approach in my interpretive framework for this study. The researcher looked to evaluate and understand what affect online learning had on higher education post-COVID-19. I have personally worked through the COVID-19 pandemic in higher education and have witnessed the changes that developed due to the forced move to online learning across the world.

Focusing on the research question(s) helped the concentration to be on an issue or concern to help gain insight into the study and the answer(s) to the question(s) (Creswell & Poth, 2018). Research exists to a point for the questions that are being considered. One such study was completed by Adnan and Anwar (2020). This study gives students' perspectives on the transition to online learning. Knowing how the students felt during the rapid transition to online learning during the COVID-19 pandemic is essential to fixing problems in the future. This study also discusses the issue of the lack of technology and the need of some students that cannot afford the technology or have no access to it.

Another study that was found that supports the need for further research is by Montelongo (2019). This case discusses the changes to the perceptions and use of online education pre-COVID-19. It is essential to look at the research conducted before COVID-19 to

see where institutes of higher education were regarding online courses and what they should have been doing before COVID-19 to create a better transition for their students. Almusharraf and Khahro (2020) similarly stated that it would be useful to have a comparative case study completed to measure students' perceptions and applications of online learning. They also suggested that this could be accomplished using interviews and observations to help gather data. The need for training for educators in technology is highly encouraged in this study. Using a multiple-case study for this research allowed me to look at more than one study if that is where the literature leads.

Philosophical Assumptions

Philosophical assumptions will be discussed in this section. The researcher's beliefs, knowledge, and values will be addressed for each assumption. These philosophical assumptions include ontological, epistemological, and axiological.

Ontological Assumption

The ontological philosophical assumption led to the researcher's choice of research. Ontological research issues are associated with the nature of reality and its attributes (Creswell & Poth, 2018). The reality of COVID-19 and the mandate of all learning happening online and the new post-COVID-19 world are driving my research. Online collaborative learning (OCL) theory was used based on the social learning theory. COVID-19 has affected education worldwide (Creswell & Poth, 2018). Underlying assumptions and significant aspects of social constructivism were studied by Rannikmai et al. (2020). Readaptation after COVID-19 was researched by Careaga-Butter et al. (2020).

I am a social constructivist that lived and worked through the reality of the COVID-19 pandemic in higher education. Other research has been found that has looked at similar problems

(Benito et al., 2021; Peimani & Kamalipour, 2021; Shearer et al., 2020). However, this research was done pre-COVID-19 or during COVID-19. It is imperative that research is also completed post-COVID-19.

Epistemological Assumption

The epistemological assumption related to this study means that the researcher interacted with the participants that were being studied via virtual meetings and observations (Creswell & Poth, 2018). Knowledge is obtained by the subjective experience of people. By conducting a qualitative multiple-case study, the researcher got as close as possible to the participants. This multiple-case study research led to an in-depth and relative understanding of the case that will relied on multiple data sources (Creswell et al., 2007). The evidence collected was subjective and based on the individual views. Some research was conducted virtually when completing individual interviews and a focus group, while other research data was collected online for document analysis. This study also allowed the ability to see what the future of online education is in higher education.

I conducted interviews and the focus group using Microsoft Teams due to the continued high instances and variants of COVID-19 in the research area. In the new normal of post-COVID-19, I am more cognizant of the participants' and my own health and safety needs. This also allowed participants to complete the interview in a comfortable, safe space.

Axiological Assumption

The axiological assumption for this study came from the values the researcher brought to the study and how they made those values known (Creswell & Poth, 2018). I worked for a college that offers degrees that can be completed using a fully online format. I believe that students were asking for more flexible learning options, such as the online or hybrid courses. It

was understood that is more true, especially after the COVID-19 pandemic and continuing variants of the virus causing continuing high infection numbers in the research area.

Researcher's Role

I was a human instrument in the study. As such, I attempted to access the study participants' thoughts and feelings by using individual interview questions and following up in the focus group (Austin & Sutton, 2015). This was performed by placing myself in participants' places and ensuring that they listened and heard the participants' answers.

I have worked in education for the past seventeen years. Thirteen of those years have been in higher education. I have taught classes in-person, online, and in hybrid formats. The participants were selected from a pool of undergraduate students and instructors at a community college that offers online and in-person courses. I did not knowingly have a relationship with any participants in the interviews and the focus group.

Having worked in higher education before, during, and after the COVID-19 pandemic, I have seen first-hand the changes that are rapidly occurring regarding online courses in higher education. I believe that institutes of higher education needed to know and understand how offering more online courses post-COVID-19 would affect their institutes and their future enrollments. I was focused on keeping my own thoughts and opinions regarding this subject out of the study and primarily focus on the data from the study to find results.

Procedures

This section will provide information regarding the procedures of the study. It will include the permissions that were required and where to find them and the recruitment of participants plan. Also included is the data collection plan that includes interview questions and the observation plan, along with the focus group plan.

Permissions

Permission from the IRB of Liberty University and from the community college was obtained. These forms can be found in appendix B and appendix D. The researcher did not work at the college where the research was conducted. Participant consent forms were also completed by each participant regardless of their status of student or instructor. This can be found in appendix C. Consent forms were completed for both the individual interviews and the focus group participants. These consent forms are kept in a secure locked file or an encoded electronic file.

Recruitment Plan

The participants were selected from a pool of undergraduate students and instructors at the community college. The college offers both in-seat and online course options. Participants were a variety of ages 18-65 and mixed gender. One instructor was chosen from each area of instruction that includes in-person instructing only, hybrid instructing, online instructing, or a combination of instructing.

The researcher worked through the research department at the community college to send out a request for participants. These requests were in the form of an email. The participants were chosen on a first come first serve basis. The participants were provided with a link to schedule their individual interview. Once the interview date and time were set, the participant was sent the consent form and an individual Microsoft Teams meeting invitation. For the focus group, a set date and time was sent to possible participants. Once the maximum number of participants was reached, those participants were sent the consent form and a link to a Microsoft Teams meeting. It was expected that the interviews will last 15-20 minutes, the focus group approximately 40-50 minutes.

To obtain the qualitative information needed for the individual interviews and the focus group, an email was sent to approximately 30 students and 30 instructors asking them if they would like to participate in the individual interview process. Additionally, when the first data analysis was complete, the focus group a similar email that was sent out to another approximately 30 students and 30 instructors asking if they would like to participate in the focus group.

Data Collection Plan

The research was a multiple-case study of the need for online courses in higher education. The purpose of the study was to examine the demand for online classes as opposed to in-person courses and how the COVID-19 pandemic had forced higher education institutions to reconsider the number of online courses that they offer. Qualitative research includes several essential features that a researcher needs to keep in mind. These features include using an exploratory activity, data collected in a real-life natural setting, participants, allowing the design of the study to evolve, and using recommended methods to collect the data (Tight, 2017). The recommended methods are typically observation, focus groups, interviews, documents, recordings, and data management. In this study, the methods used will be individual interviews, observations, and a focus group.

A list of open-ended questions was used in this study to gain insight into the instructors' and students' feelings on teaching or taking college classes online and if their feelings regarding online courses have changed post-COVID-19. It was hoped to get a return of 10-30 total interviews. Observations were done using a changing observational role. After the initial data synthesis was done from the results of the observations and interviews, a focus group was selected to examine any reoccurring themes further.

Individual Interviews

Individual interviews were conducted with instructors that teach in one of the following areas: in-person, online, or hybrid. Individual interviews were also performed with students. These interviews were conducted via Microsoft Teams meetings. Interviews were appropriate for this study because the researcher was looking to obtain unique information from the interviewees. Several instructors will be interviewed, as well as 10-20 students, and information will be gathered that the researcher cannot obtain on their own (Stake, 2010). The researcher also took a purposeful sample in choosing those interviewed. Purposive sampling allows researchers to select the specific instances that will generate the most relevant and plentiful data (Yin, 2016).

Individual Interview Questions - Instructors

These questions helped to answer the central research question and sub-questions two and three.

1. Describe your current position? – this will help with the central research question and sub-question two and three
2. Who do you work for, and what type of organization is it? – this will help with the central research question and sub-question two and three
3. Describe how you typically instruct courses, for example, face-to-face, online, or hybrid. – this will help with sub-question two and three
4. How did you fully move a course or courses online during the COVID-19 pandemic? - this will help with the central research question and sub-question two and three
5. How did you feel about your work situation during the COVID-19 pandemic? - this will help with the central research question and sub-question two and three

6. Describe what problems you had with the transition to fully online. - this will help with the central research question and sub-question two and three
7. What were the problems that your students had transitioning to online courses? - this will help with the central research question and sub-question two and three
8. Describe the attitudes and approaches of your fellow instructors during this time? - this will help with the central research question and sub-question two and three
9. What did your college do during this time to assist you and your students? - this will help with the central research question and sub-question two and three
10. In your opinion, what were the most valuable skills you had that helped you during the transition to online courses? this will help with the central research question and sub-question two and three
11. What are you still teaching that is online or hybrid if you did not before the pandemic? – this will help with sub-question three
12. What is the college/university you work for considering adding online or hybrid courses? – this will help with sub-question three
13. Approximately what percentage of your college courses are online versus in-person? – this will help with sub-question three
14. In detail, which way and why do you prefer to teach, face-to-face, hybrid, online, or a mixture. - this will help with the central research question and sub-question two and three
15. What do you see the future of higher education looking like? – this will help with sub-question three
16. What are the noticeable gaps and struggles you see in students post-COVID-19? – this will help with the central research question and sub-question three.

17. What have you had to do to bring students to the knowledge level they should be at? Is this different than before COVID-19? – this will help with the central research question and sub-question three.

Individual Interview Questions - Students

These questions helped to answer the central research question and sub-questions one, two and three.

1. What are your feelings about the use of technology during COVID-19? – this will help with the central research question and sub-question two
2. How does technology affect you? – this will help with sub-question two
3. Were you forced to take courses online due to the COVID-19 pandemic? How many courses were you taking? Did you complete them all? - this will help with the central research question and sub-question two
4. What was your learning experience with remote or online learning during the COVID-19 pandemic? - this will help with the central research question and sub-question two
5. How did your learning experiences during the COVID-19 pandemic affect your grades? - this will help with the central research question and sub-question two
6. Think of a typical day during COVID-19 and taking online courses. What did your day look like? How did you feel? - this will help with the central research question and sub-question two
7. What could have improved your experience with remote or online learning? - this will help with the central research question and sub-question two
8. What could your instructor have done differently to improve your online experience? - this will help with the central research question and sub-question two

9. What services does your college provide to help with your online or hybrid courses? - this will help with the central research question and sub-question two and three
10. What are the major obstacles for you to take any format of college course? - this will help with the central research question and sub-question two and three
11. How do you feel about online or hybrid courses? - this will help with the central research question and sub-question two
12. Describe how your fellow students feel about online or hybrid courses? - this will help with the central research question and sub-question two
13. How do online or hybrid courses equate to face-to-face courses? - this will help with the central research question and sub-question two
14. How likely are you to take online or hybrid courses? Why or why not? - this will help with the central research question and sub-question two and three
15. What do you see as your strengths that were developed during the COVID-19 pandemic and taking online courses? - this will help with the central research question and sub-question two
16. Have you felt like you did not learn enough during COVID-19 to prepare you for your college classes? – this will help with the central research question and sub-questions one and three.
17. If you feel like you are missing knowledge you should have, do you think it was because of online learning or another reason? Explain what you feel like you are missing. – this will help with the central research question and sub-question three.

18. Do you see fellow students struggling with courses because they don't have the prior knowledge they should have and what do you think the reason they don't have the preparation is? – this will help with the central research question and sub-question three.

Individual Interview Data Analysis Plan

Interviews were planned to gather data from instructors and students forced online during the COVID-19 pandemic to obtain their thoughts and preferences for online or hybrid classes. The interview consisted of a set of open-ended questions geared toward the population being interviewed. The data was compiled and analyzed to discover common themes. A combination of deductive and inductive coding was utilized to categorize the data.

The interviews were conducted via Microsoft Teams and were recorded and transcribed to catch all of the questions and answers from the different interviews. These transcripts were analyzed using deductive coding.

I was open to using inductive coding based on what was found within the transcriptions and data during the first or second review of data. This allowed me to identify the fundamental nature of the data and code it appropriately. The data was then interpreted to determine what was learned from the study and what topics should be discussed in the focus group. This review also allowed for open ended questions that were based on deductive coding, still allowing for inductive coding when the transcript of the focus group was analyzed.

Observation Analysis

An observational analysis was conducted as one of the primary sources of data collection for this multiple-case study. This analysis was used to retrieve similar information on the proposed topic to evaluate the themes that could emerge from the individual interviews. The observations were conducted with the researcher taking a changing observational role. Observing

students in their natural study environment, the researcher hoped to observe how they were completing their course work digitally, how they were interacting with staff for help, and how they were working collaboratively with their fellow students. I also planned to observe several courses in online, hybrid and in-person formats to document the different teaching styles and student interactions.

Several observations were done to collect data first-hand in a natural setting for students. This allowed me to record information as it occurred, and to study the actual behavior of the students (Creswell & Guetterman, 2019). To record the data collected the researcher used an observational form adapted from Creswell and Poth (2018). This form can be found in appendix E. This data was all post-COVID-19 data. Using the changing observational role, it was possible to observe any struggles students and instructors had with online learning. These observational results ran parallel to the individual interview results.

Observation Data Analysis Plan

Observations were conducted and recorded manually or via phone application. Deductive coding is the same as the coding used for the interviews and was utilized to analyze the results. This data was compiled and analyzed for any reoccurring themes using the same deductive coding. It was then combined with the individual interviews' reoccurring themes to look for similar themes and develop any new questions for the focus group.

Focus Group Data Collection Approach

Creswell and Poth (2018) expressed the idea that focus groups can be advantageous because they will most likely garner the best information. The focus group met via the Microsoft Teams platform due to continuing high COVID-19 variant infection numbers in the area the study will be conducted. The focus group goal was to consist of four to five students and an

instructor. Questions for this focus group were developed from the analysis of the results of the interview questions and the document analysis.

Focus Group Questions

Final focus group questions were determined after preliminary analysis of document analysis and individual interview analysis. Some possible questions could relate to participants feelings regarding technology, having options to choose from in regard to how they take their courses, what the future of higher education looks like to them. Preliminary questions were developed before any research was completed.

Focus Group Questions – Preliminary

1. When you think of effective online courses what comes to mind? Is this the same now as it was before COVID-19?
2. How do you feel when you are taking online courses? Did that change with COVID-19?
3. What challenges did you have taking courses online during the COVID-19 pandemic?
    a. What did you do to solve them?
    b. What worked?
4. What could your instructors or school done better to support you when you were online during COVID-19 or if you are taking online courses now?
5. Did you have some online courses that were better than others during the COVID-19 pandemic? How were they different or better?
6. Is there anything else you want me to know, or any questions you thought I might ask that I didn’t?

Focus Group Questions – Final

1. When you think of effective online courses what comes to mind?

2. How do you feel when you are taking online courses?
3. Are online classes better and different now than they were pre-COVID-19?
4. What do you like about taking online courses or teaching online courses?
5. What could your instructors or school done better to support you when you were online or if you are taking online courses now?
6. Do you have some online courses that were better than others? How were they different or better?
7. Should all students and instructors have training in how to use virtual technology and online learning platforms?
8. What do you see for the future of higher education?
9. Do you see anything new happening currently at your school in regard to online or hybrid learning?
10. Is there anything else you want me to know, or any questions you thought I might ask that I didn't?

Focus Group Data Analysis Plan

The focus group met in a designated Microsoft Teams virtual room that offered privacy and autonomy to the participants. Microsoft Teams allowed recording and transcription of the meeting, this was utilized to record the focus group. The discussion opened with the questions and themes from the analysis of individual interviews and document analysis. Each participant was allowed to answer the question or add to a previous comment on the question. Follow-up questions were created if the discussions lead to more in-depth research. Transcripts of the discussions were taken. The transcripts were then analyzed using the deductive and inductive coding that was established in the document analysis and interviews. Once the discussion was

open, there was free-flowing discussion that provided added information for the researcher to compile and do a holistic analysis of all data.

Data Synthesis

The data from individual interviews and observations was collected and examined to find any emerging themes. Deductive coding was used for both the individual interviews and the observations, with unrestricted possibilities of using inductive coding as necessary. After the themes were identified, questions were developed to bring to the focus group for further research. The data was then collected and examined as a whole. This data was evaluated using the developed deductive coding. A holistic analysis was conducted that includes the entire case (Creswell & Poth, 2018). Assertions and interpretations were made regarding the multiple-case study. The holistic analysis allowed the researcher to present descriptions and themes and interpret those results.

The data from the individual interviews and the document analysis were analyzed using deductive and inductive coding to look for reoccurring themes and to develop follow-up questions for the focus group. Once the focus group met and the discussions had, the researcher then also analyzed the transcript answers from the focus group to determine what results were found and how they applied to the research problem utilizing the deductive/inductive coding that was used for the other data.

The data was collected and examined collectively using a within-case analysis. This allowed the researcher to analyze the study for any recurring themes that were found throughout the study utilizing coding both deductive and inductive. It also enabled the researcher to assess within-case themes with each of the different data collection processes.

Trustworthiness

The research plan established the trustworthiness of the study by using credibility, transferability, dependability, and confirmability. These areas were supported by the use of purposeful sampling, audit trail, and reflexivity. Ethical considerations were also stated and closely maintained.

Credibility

According to Yin (2018), a good case study will consist of high standards that are set by the researcher. This includes a strong professional competence that ensures accuracy, methodological qualifiers, striving for credibility, and knowing the limitations of the researcher's work. This was accomplished by implementing several safeguards and procedures during the study. An audit trail was also used. An audit trail allowed the researcher to retrace the process of how they received their findings (Creswell & Poth, 2018). This was also a validation of the documentation as well as a clarification of the data and what was garnered from it.

Transferability

Transferability is proving that the findings may have applicability in other contexts (Lincoln & Guba, 1985), which is largely achieved through the use of thick descriptions when describing research findings (Geertz, 2008). Transferability refers to the ability for findings from the context of any study to be applied to another context or within the same context at another time (Lincoln & Guba, 1985). It is important to acknowledge that the researcher can only create the conditions for transferability but cannot assure transferability. This judgment can only be made by the reader of the research. This research will help institutes of higher education to analyze and improve their online course offerings. It will also help instructors to adapt their teaching online to include OCL to assist in their students learning.

Dependability

Dependability was established in different ways. First, using an audit trail allowed the researcher to detail how they achieved their findings. This also assisted the dissertation committee when the study was reviewed with written results and discussion. In addition, the researcher was able to clearly define all procedures and data collection processes so that the study can be duplicated. Using purposeful sampling allowed the researcher to specify the type of sampling strategy the researcher used (Creswell & Poth, 2018). The researcher completed intentional sampling of a specific group that helped the researcher gather the needed information about the research problem.

Confirmability

Confirmability is the extent to which the findings of the proposed study can be confirmed by other researchers, showing that the data is resulting from the research (Creswell & Poth, 2018). The study had high standards in its reporting of all procedures, collection of data, and data analysis. The combination of purposeful sampling, audit trails, and reflexivity assisted in establishing the confirmability of the study. As stated previously, the researcher made sure to be conscious of any biases, values, and experiences. These biases, values, and experiences also helped to full disclosure so that any readers can understand what the researcher was thinking.

Ethical Considerations

During any research study, ethical issues must be planned for. These issues can happen during any stage of research (Creswell & Poth, 2018). Prior to the study, all necessary college approvals were obtained from Liberty University and the other higher education institution's research or review board that was used for data collection. Approval was also obtained from the dissertation committee and IRB to proceed with the study.

A potential ethical issue was the collection site and disruptions when completing the observations or interviews, data storage, respecting the privacy of participants, and unclear communications. Some potential solutions were having the researcher set times and locations that were conducive for the interview data collection; data was stored in a safe lockable place; any participants or college that have a name in the published report are under an alias; and the researcher made sure any language is at the level of the participants. Data collected was stored in a lockable file system. Any computer data was password protected, and all research material will be destroyed after five years per 2010 APA guidelines. All permissions was obtained from the dissertation review board and the IRB before research began. Each participant required to complete a consent form before they participated in the research. Any business, college, or participant name was replaced with a pseudonym to protect those involved.

Summary

A qualitative study was chosen because the researcher was looking for more empirical research as opposed to raw data. Qualitative researchers are involved in observations, asking questions, listening, recording, interpreting data, and formulating a meaning from it all (Tight, 2017). Data collection is conducted in real-life natural settings, which this study plans to do. This study evolved as the study progressed.

The data collection planned for the study included individual interviews with both students and instructors, observations, and a focus group. The individual interviews and focus group were conducted via Microsoft Teams meetings. These data collection methods are customary for a multiple-case study. The methods are also supported by Tight (2017), Stake (2010), and Yin (2016, 2017). Stake (2010) stressed that designing data-gathering instruments can be an immense amount of work that is usually poorly executed. Making sure that scores

represent what they are supposed to represent is one of the most significant challenges. As long as the researcher correctly and carefully creates the interview questions for the study, it is believed that the data collection planned for the study will be successful.

The data analysis for the study incorporated three different analyses. A final holistic analysis at the end was where the gathered research was examined for the entire case study (Creswell & Poth, 2018). The data was collected, and then interpretated and assertations were made regarding the case study. This analysis allowed the researcher to show descriptions, themes, and then an interpretation of the results. A within-case analysis was also used, allowing the researcher to analyze the case for pieces (Creswell & Poth, 2018). A within-case analysis can help find the theme between cases.

CHAPTER FOUR: FINDINGS

Overview

The purpose of this multiple-case study was to understand and discover the learning gaps that were created by emergency online learning due to the COVID-19 pandemic, and the impact it has had on instructors and students in institutes of higher education. The intention of this chapter was to disclose the results of the data collection and analysis results. This chapter will describe the participants from the study, data and outlier data that was discovered during the study, responses to the research questions, and a conclusion.

Participants

Participants were recruited as volunteers from Snow Community College. A series of different volunteers were needed for the varied research methods of individual interviews with instructors, individual interviews with students, a focus group, and observations. All students that were participants in the research are working to obtain associates degrees. It is important to note that observations were conducted by me without interacting directly with any subjects of the observations. This lead to me not knowing the age of the students being observed, however, they ranged from 18 to 60 by estimation. Table 1 includes demographic information for the individual interviews and the focus group. Table 2 includes information from the observations.

Table 1

Research Participants

Name	Estimated Age	Male(M)/Female(F)	College attending or years teaching	Research Type	Mandated Online
John	28	M	Attending community college	Interview – Students	No

Mary	22	F	Attending community college	Interview – Students	Yes
Chris	48	M	Attending community college	Interview – Students	No
Pat	21	F	Attending community college	Interview – Students	Yes
Stephanie	19	F	Attending community college	Interview – Students	Yes
Jack	23	M	Attending community college	Interview – Students	Yes
Paul	32	M	Attending community college	Interview – Students	Yes
Christine	30	F	Attending community college	Interview – Students	Yes
Alegra	44	F	Attending community college	Interview – Students	Yes
Kyle	22	M	Attending community college	Interview – Students	Yes
Tina	20	F	Attending community college	Interview – Students	Yes
Robert	20	M	Attending community college	Interview – Students	Yes
Sara	21	F	Attending community college	Interview – Students	Yes
George	63	M	20+ years teaching social science	Interview – Instructors	Yes
Darlene	55	F	20+ years teaching educational studies	Interview – Instructors	Yes
Irene	55	F	12+ years teaching business	Interview – Instructors	Yes

Ken	48	M	20+ years teaching history	Interview – Instructors	Yes
Victoria	21	F	Attending community college	Focus Group-Student	Yes
Carol	25	F	Attending community college	Focus Group-Student	Yes
Grace	53	F	Attending community college	Focus Group-Student	Yes
Tracy	35	F	10+ years teaching business	Focus Group-Instructor	Yes

Table 2

Observations

Observations

Descriptive Notes	**Reflective Notes**
Researcher did not come in direct contact with any observation subjects – All students are students at the local community college. The computer lab had a young professional for the school working. The quad was all students at the local community college.	
Computer Lab – observed for about two hours, approximately 20 students came and went. Mixture of ages and male and female.	
Quad – observed for about two hours. Approximately 50-60 students circulated through. Mixture of ages and male and female.	

Overall, the variety of demographics for the study participants was a good cross section of the local area and Snow Community College. There was an unexpected difficulty in recruiting volunteers for the individual student interviews. It was hoped that at least two more students would have participated. However, solid information was gathered from the interviews that were conducted. I was successful in getting the desired sample size for the individual instructor interviews. While the focus group fell one subject short, it is believed that the one missing participant did not affect the focus group. It was robust and developed focus group with four participants that were made up of one instructor and three students.

Results

This study was conducted as an instrumental case attempting to understand or uncover a specific issue or problem in higher education created by emergency online learning due to COVID-19. Deductive coding was used in the interviews to look for thematic phenomena throughout the interview answers. The codes that were used were technology, mandated, online, like, and dislike. As the individual interview research results were being reviewed three themes became apparent. These were training, accessibility, and return to the classroom.

Observations were coded using inductive coding from my personal observations of activities. In reviewing the observational data, the codes used were help, group, and asked. These codes fit well with the individual interview coding results. In the end the observational codes reinforced what was found in the inductive coding and themes for the individual interviews.

This led to the use of similar coding for the focus group. Coding that was used included help, technology, online, accessibility and like. The themes that were most prevalent were again, technology training, accessibility, and return to classroom courses.

Table 3

Themes, Codes, Salient Quotes from Holistic Analysis, Frequency

Theme	Codes	Salient Quotes	Frequency, n(%)
Technology Training	Technology Help Mandated Online	"Many teachers did not understand how to use the technology. Training in these areas need to be improved." "I felt some teachers needed training to understand how to use the technology." "Many instructors struggled with keeping up with the transition and it made it tougher to get through the lessons." " Instructors didn't have the right training, they were starting and learning just as we were, which made it more difficult." "Some instructors are still having a hard time and want to go back to paper and only in person with no flexibility to adjust to being back in the classroom." "It is obvious what instructors have taught online and have been compared to those that are mandated to."	21(76.1)
Accessibility	Technology Help Mandated Online	"Some instructors were great at using all kinds of videos and technology…"	21(57.1)

	Like Accessibility	"My grades improved significantly because instructors gave us more of an opportunity to use other resources than just our text." "Instructors have developed classes that keep you engaged and participating." "Instructors post videos so students can go back and relisten to the lesson or lecture." "Accessibility for all has been added to the updated technology making the courses more inclusive for those who need support."	
Return to Classroom Courses	Technology Mandated Online Like Dislike	"I am a non-traditional student and prefer in-seat courses. "There are not as many students in the classroom, they have the option to watch from home and most do." "If it was the only option to take a class, I would be ok with it, but I would prefer to be in person." "Some instructors are still having a hard time and want to go back to paper and only in person with no flexibility to adjust to being back in the classroom."	21(48)

		"In the classroom you now have to know everything again, a lot of the resources are not being used, or are allowed by the instructor to use."	

Technology Training

The most prominent theme that arose was the need for technology training. Students and instructors alike stressed that there was a need for technology training before, during, and after the COVID-19 pandemic. While some use of technology improved with use, there is still a great need for instructors to understand the technology they are using online before they start teaching their courses online. Instructor Ken stated in his individual interview, "I have gotten use to technology and navigating programs, but it changes so often that it can be hard to keep up." Sara, a student, commented, "There was a learning gap because everyone had to learn how to use the technology instead of learning our course work. Instructors should have known how to use the technology ahead of time."

When speaking individually to students, John and Mary, both similarly stated, "Online class time was wasted as students tried to help instructors with the technology being used." In the individual interview with instructor George, he stated, "I had never taught online; I needed to rely on others to understand the technology so that I could purposefully instruct online." Instructors George and Ken both made similar statements about moving exams online and the technology issues that kept occurring and that having more training would have been helpful for them.

Return to Classroom Classes

In both the individual interviews and focus group, students stressed that they appreciated and enjoyed the extra resources that were available in their online courses. Many instructors used videos, closed captioning, interactive discussions, online links, and websites to accompany the textbooks for the courses. However, many instructors that had returned to in-person classes had eliminated these resources, which was making students struggle. In the focus group, student Victoria stated, “Test anxiety is coming back because you don’t have the resources to use as we did in online classes, you have to memorize everything which hurts the retention of information. Even at work I don’t have to have everything memorized, I use resources there when I need to. In-person classes need to reflect real-life experiences more.”

At the end of the focus group session when asked if there was anything else the participants would like to discuss a very robust discussion happened in reference to the accessibility that was available online that has stopped in many classroom classes. Grace stated, “I have had an instructor that was back in the classroom and not using any technology as soon as we were allowed to.” Victoria chimed in that she also had an instructor that dropped any technology as fast as they could. They all agreed that instructors are still using PowerPoint presentations, but as Carol stated, “That’s old school technology.” Grace also discussed that her one instructor would not even provide them with the PowerPoint lectures ahead of time for them to review and prepare for the class and discussions. All of the students in the focus group agreed that even this small amount of technology ahead of time would help with their comprehension of what they are trying to learn.

Accessibility for All Students

In the focus group, it was pointed out by both the instructor and students that online courses offer more accessibility for those students that study in different ways or need additional

assistance when they attend in-person classes. It was noted that there was more time to complete assignments online and that the extra videos and other resource tools aided all students making the learning inclusive. Student Carol stated, “Having more resources for those that need help and for those that are scared to go to college because they think they won’t get the help they need was automatically there in online courses.”

In the individual student interviews Robert stated, “My grades actually went up. My instructors made the exams harder but allowed us extra time and resources to complete the exams.” Tina commented, “I learn better online. I could take my time to think and process. Plus, I could go back and listen to the recorded lectures and pick up more information that I missed the first time.” This accessibility is key for many students who struggle with learning disabilities and for those who don’t but want to revisit what they heard and learned.

Student Victoria in the focus group started the conversation about accessibility and online classes. She stated that she knows people that never thought they would go to college because of the limited supports and accessibility start college when everything was online. She says that those students are worried they will have to go to in-seat classes and are going to lose that accessibility. While technology training was most talked about, accessibility for all students is the most important theme that came from the study.

Outlier Data and Findings

There was one unexpected finding in the data. All other data fell within the expected parameters of the research questions and themes.

Strictly In-Person Instructing

One instructor had transitioned back to in-person-only instructing. This is vastly different from the other interviewed instructors who were all doing a combination of instruction and using

many of the resources developed during the emergency online learning, such as using learning management systems for turning in papers and other work. George stated, “I am not comfortable with technology and don’t want to use it if I don’t have to.”

Similarly, during the individual instructor interview, Darlene stated, “The biggest thing that I see in my colleague regarding online learning is fear. Many have only ever taught in classrooms and had never used the learning management system (LMS).” A question during the focus group asked participants how they felt about taking classes online. Responses supported the fact that there are instructors that are not comfortable teaching online. “It is obvious what instructors have taught online and are comfortable teaching online compared to those that were mandated to.” stated student participant Chris. When conducting the individual student interviews, Pat stated, “Some instructors were great at using all kinds of technology, while others did not use it at all.” It was obvious to the students which instructors were comfortable and knowledgeable in the use of technology during the mandated online learning and those instructors that were not.

Research Question Responses

In this section, research questions are restated and the themes that developed during research that applied to these questions is discussed. The research questions were answered after the holistic analysis after the focus group was completed and themes were compared to the individual interviews and observation analysis.

Central Research Question

How has COVID-19 impacted institutes of higher education, gaps in student learning, and their online programs? The participant’s perspective was that the initial mandated move to online courses during the COVID-19 pandemic was not well thought out and, in many cases, was

not done very successfully. However, once the technology in place was utilized correctly, completing courses online was not as stressful. Institutions of higher education have kept a variety of online course offerings in addition to their in-seat courses when the mandate ended. Stephanie stated, “Online and hybrid courses are now a permanent part of the mix of courses being offered.”

Additionally, mandatory online learning exposed a shortfall in the vetting of the online LMS. Instructor Diane stated, “We hadn’t vetted all of the online virtual platforms and ended up dropping one for another after the first semester was done. The university system in the state has now made it so that all colleges and universities under their umbrella are using the same fully vetted LMS.” This has helped to develop more online collaborative learning, according to three of the instructors that are taking full advantage of the new LMS.

The lack of technological training became a glaring issue. George stated “The move online was very abrupt. I had to rely on my colleagues to help me get set up and running. Thankfully IT already had course shells created for all classes that are run.” In his individual interview Robert commented that, “Most instructors adapted well, but some were not up to date with the technology we had to use and they struggled with teaching online, which made it harder for us to learn.”

Regarding learning gaps, instructors all acknowledged that when they returned to teach courses in the classroom students were struggling with basic study skills, how to use textbooks as resources, and having to complete work outside of class time. George stated,” Students were used to reading a whole chapter that may have been assigned as busy work while they were in high school. I had to teach them how to use it as a tool in answering homework questions and not read the whole thing necessarily.” Diane found that her students initially did not do any work

outside of class time. She states, “We were all impressed with the attendance in class until we realized that students were not completing homework. Most were recently graduated high school students that only had to show up to class to get credit.” All instructors stated that most of their students were struggling with basic study skills.

Sub-Question One

What are students feeling regarding more online courses post-COVID-19? The student participant’s feelings varied from hating online courses, dealing with courses online if they had to, and loving online courses. Jack stated, “If it was the only option to take a class, I would be ok with it, but I would prefer to be in person.” Many of the students I spoke with loved the pace and flexibility of online courses, but not for every course. Mary stated, “I am a nursing student. There are some classes that we just need to be in the classroom or lab to be hands-on. But I would absolutely take an online course for a general education course or the course portion that goes with an in-person lab.”

Similarly, Chris stated, “Online courses are great because you get more time to process what you are learning, and you get more resources to help you with your assignments.” All the students agreed that they had to be diligent in doing their assignments because it was easy to just not show up for a live online class or to procrastinate and wait until the last minute to do their work. Several of the students missed the social contact that they get when in the classroom. Christine stated, “I am a social person. I don’t get the same social contact in online courses. I miss that part.” This social perspective was supported in my observations of students gathering in the quad to do their work and be with others.

Another theme that students had in common was the savings that online learning afforded them. Paul stated, “Online classes help me save money on commuting costs, and if there is bad

weather, I don't miss a class." Jack likes the flexibility it allowed him. He works full-time and would not be able to complete his education if he wasn't able to do online courses. All but a couple of students stated flexibility and more time to learn as what they like the most about online courses. Alegra also stated, "I am a single parent, work full-time, and needed to get my education to improve my work situation. I couldn't do that if I couldn't take online courses."

Sub-Question Two

What type of online structure were schools using during the COVID-19 pandemic, and were schools using the online collaborative learning theory more successful in transitioning classes online? While no specific structure emerged during the research, it was very clear that those instructors that were already teaching online courses and using collaborative learning resources were the most successful in their transition in all classes being online. Tracy, an instructor, stated, "We had no troubles switching online, myself and my students were familiar with the learning management system and virtual meetings. Even my in-seat courses had a portion that utilized the online learning platform as part of the class."

As a result of her previous instructional design position, Diane stated, "I had a good design already for all of my courses. Those that were in-seat smoothly went online, and we just met online instead of in the classroom. I also helped many other instructors get their online courses set up because they did not know what to do." Tracy and Diane both made similar statements that they had an increase in student engagement in class discussion posts. Both pointed out that students responded faster and expected answers in return just as fast.

Compared with instructors that were not teaching any courses online or using any online tools through the provided LMS, instructors that were teaching online, hybrid, and using the LMS for online tools for their in-seat courses were far more successful with the mandatory

online learning. Darlene, Diane, Ken, and Tracy all confirmed that the mandatory move of their in-seat classes was smooth, and the students were successful in transitioning because they were all used to the platform and LMS that was being used. George admitted, “Once my colleagues helped me get up and running online, it was ok, but there was a bit of struggle for my students and myself initially. I couldn’t wait to be back in the classroom.”

Sub-Question Three

How are institutes of higher education creating well-developed online course options in response to continuing COVID-19 variants or student requests? Instructors that are continuing to teach online are creating courses that involve videos of lessons, engaging with students in robust discussions, and utilizing new technologies. Institutes of higher education are investing in newer technologies than they have previously and offering students opportunities to learn how to use the technology. Tracy, an instructor that participated in the focus group stated, “Our school now mandates a first-year experience-type course that instructs students how to use online learning management systems and other online tools for success.”

Accordingly, instructor Diane reiterated that the state has all colleges and universities under their umbrella now using one LMS that has been fully vetted. Tracy, in the focus group, spoke about the LMS stating, “The new LMS makes accessibility a priority so all students are learning equally, and all courses can have videos with closed captioning, in addition to numerous other tools for online learning and collaboration.” Snow Community College started offering what they call “high flex” courses where the students choose how and where they learn, be it in-seat or online. This type of course is taught by the same instructor for both platforms, they record their lecture and upload it to the LMS. Those instructors that are still teaching a combination of modes of courses were very excited about it.

Summary

The data revealed that mandatory emergency online learning in higher education has affected institutes of higher education in several ways. It is apparent that training is needed for instructors to properly utilize learning management systems and other online technologies. A positive to come out of the forced online learning was the accessibility and resources that allowed more inclusion for students with different learning challenges that needed to be brought back to in-seat courses. In the researcher's observations, it was apparent that instructors have left some of these accessibility tools online and not included them in their in-person classes. Even allowing access to lecture PowerPoints a few days ahead of time so students can read the material before coming to class could assist in their learning.

CHAPTER FIVE: CONCLUSION

Overview

The purpose of this multiple-case study was to understand and discover the learning gaps created by emergency online learning due to the COVID-19 pandemic, and the impact it has had on instructors and students in institutes of higher education. In this chapter, I will discuss my findings. This will include an interpretation of findings, implications for policy or practice, theoretical and methodological implications, any limitations and delimitations, and recommendations for future research.

Discussion

This study produced three recurring phenomena from both instructors and students. Overall, the most important theme that was brought up in all individual interviews and the focus group was technology and the lack of training that instructors and students alike were lacking. Another theme that emerged was the increase in accessibility and resources that arose in online courses. Now that schools have returned to in-seat courses, a recurring theme revealed that this accessibility and access to resources needs to be brought into the classroom. We will look at these themes more in-depth in the interpretation of findings, implications for policy or practice, theoretical and empirical implications, limitations and delimitations of the study, and recommendations for future research.

Interpretation of Findings

A discussion of finding will show that the study confirms findings from previous similar studies. It also offers a different and possibly newer look at what is needed in higher education and online courses going forward. The findings will be discussed as objectively as possible.

Summary of Thematic Findings

As noted above, there are three themes that presented themselves in reviewing the collected data. Specifically, these themes included training in technology, accessibility and access to additional resources, and the return to classroom classes that include limitations of resources available to in-seat students. Accordingly, we will examine these themes to determine what they may contribute to further studies and current policies and practices.

Technology Training. The main theme that emerged was the lack of training in technology that many instructors and students experienced with the mandatory move to online learning during the COVID-19 pandemic. Several of the study participants discussed the problem of students having to teach the instructors how to use the technology, which impacted the time that was available for the instructor to teach. In similar research conducted, results also found that a majority of faculty members believed that they need more training to successfully teach online (Benito et al., 2021). At the community college where the study took place, the administration has implemented a first-year experience course for students that instructs them on how to use the learning management system (LMS) and other online technologies. This same type of training needs to also be offered to instructors so that they are prepared to teach online if necessary.

Return to Classroom Classes. As a result of the return to in-seat classes and having instructors that are back to teaching fully in-person, many of the resources that students came to rely on in online courses have not made it back to the in-seat courses. This has resulted in students having anxiety and struggling with having to memorize everything instead of utilizing online resources for assistance. There are some instructors that only want to teach in-seat and have stopped using the LMS and the resources that come with that use. Students only have their textbooks and PowerPoints that they only see in the classroom, for resources, which can limit

their learning potential. Many students struggle with different learning difficulties, online courses offered these students several different ways to learn and time to process what they are learning. When classes were online many instructors had the lessons in writing, in video format with closed captioning, and many had robust discussions. Students have stated that they are now back to "death by PowerPoint" with little time to ask questions at the end of class time. The discussions that were online allowed students to process what was being taught and then add to the discussion. Students recounted that being back in the classroom, most of the class time is taken up by the lecture, with very little time to digest the information and ask questions or discuss what was just learned. They miss the online discussions.

Furthermore, students found that being able to go back and listen to a video of a lesson helped them to understand concepts that had eluded them originally. There are many instructors that are not comfortable with technology. One instructor that was interviewed divulged that they had several faculty members retire during COVID-19, and many retire after the return to the classroom due to the online requirement and students wanting to have access to some of these resources regardless of what method they take the course. Similar research found that it is not about the mode of learning, but which different delivery mode can complement the teaching and learning experiences of the students and instructors (Guppy et. al., 2022).

Accessibility for all Students. Equally important was the realization by instructors that in developing their online courses, they had added more resources for their students with accessibility issues. By creating videos with closed captions and using an LMS that detects if a color being used in the course is hard for those with sight issues to see, they have made learning more accessible and equitable for all students. Students having more time to process what they are learning and having the ability to go back to relisten to a video gave many students more

confidence in their learning and taught them research skills in the search for more information through provided links. Similar research also found that these online resources should be held onto and enhanced to assist with learning and interacting (Benito et, al., 2021).

Implications for Policy or Practice

The results of the study have led to implications for both policy and practice. While there is a single implication for policy, there are several for practice. The implications for practice will also add to the online collaborative learning framework that the study was built upon.

Implications for Policy

Implications for policy are centered around the accessibility that was recognized in online learning and the development of resources that encompasses the inclusion of all learners. The Individuals with Disabilities Education Act (IDEA) supports accessibility in creating accessible websites, documents, and digital content (IDEA, 2023). With the return to in-seat courses, institutes of higher education should take the created accessibility from online classes and make them available to all students regardless of the mode in which they are taking their courses. Additionally, states should also review their accessibility requirements and add to the IDEA regulations, the resources that have been created through online courses.

Implications for Practice

Equally important are the implications for practice that were revealed during the study. The first implication for practice comes from the need for more training for instructors on the technology that is available at institutes of higher education. In addition, they need to learn how to properly use it to assist in the teaching of their courses and aid in resources for their students regardless of the mode of study. As technology continues to change, instructors at institutions of

higher education should also be trained on the new technology to keep apprised of what they can do if there is another reason to mandate everyone learn online again.

Likewise, instructors should be utilizing all resources, not just textbooks, to educate their students. We live in a world that functions a great deal with technology, educational technology is included in this new normal (Guppy, 2022). It is part of our everyday lives. Students need to understand how to research and find information online as well as in a book. College courses are meant to prepare students to be successful in the working world. Knowing how to use technology is no longer an option in today's world.

Institutes of higher education need to realize that the mandated online learning has opened education to those that may have previously not been able to attend classes to get their degrees. Students are demanding to still have the flexibility they found in online courses. In similar research, it was found that the mode of instruction, when given the option to choose, is based on the student's preferences and life circumstances (Guppy et al., 2022). The fastest growth in educational technology is occurring in hybrid courses, allowing the best of both in-seat and online courses to students, with some of the flexibility that online courses provide.

Theoretical and Empirical Implications

This study used the online collaborative learning (OCL) theory first proposed by Harasim (2012). This theory focuses on the capabilities of online learning environments to cultivate collaboration and knowledge building. Data from this study has supported this theory for those online classes that had instructors that had the proper training and experience in teaching online courses. The data has shown that students enjoyed and learned more in online courses that had interactive instructors who used a variety of resources online including links, videos with closed captioning, and robust discussions.

Concurrently, it was also found during the study that online courses that were created with online resources improved accessibility for those students who were challenged when learning. So much so, that students are requesting to have access to these resources even when they are back taking classes in-person. This request is to the chagrin of some instructors who are not comfortable with using technology. In this study, during the focus group and the individual student interviews, several students stated that they have anxiety now taking in-seat courses from instructors that do not like to use technology. The students felt that they were losing access to important online resources that they became familiar with during the mandatory online learning. Two students went so far as to say their instructor outright refused them when they asked to be able to use other online resources.

Therefore, I believe that this study has added to the OCL theory in that courses that were mandated to be online and were created by experienced instructors who were already using collaborative learning, were well received by the students. Utilizing the available technology to supplement textbooks and offer options for students to choose the way they learn the best is integral in going forward for all institutes of higher education. Not all students can learn online, and not all students like online courses, but for those that do, that option should be there for them. These new online resources should also become part of in-seat-only courses.

Limitations and Delimitations

In hindsight, it was a bit challenging to get participants for the individual interviews, which is a limitation. These interviews lasted between ten and fifteen minutes but getting busy students to volunteer to participate proved to be a challenge that I had not anticipated. This caused some added stress in the collection of data. Additionally, there were a couple of

participants that had not taken classes at all during COVID-19, so some of the individual interview questions could not be properly answered, which was another limitation.

Furthermore, due to the Family Educational Rights and Privacy Act (FERPA), restrictions to my observations were mandated by Snow Community College. I was not allowed to directly interact with those students and instructors that I observed to ask questions. I was also limited by the restriction of sending out requests to students and instructor's emails. Those emails were facilitated by the college.

The decision to purposely not include anyone under the age of 18 would not be changed, this was one delimitation of the study. A further delimitation was the determination to only use instructors at higher education institutions. Those students under 18 would most likely be in high school, and high school teachers are not as likely to teach classes online unless mandated to, so that comparison of online courses during COVID-19 and after COVID-19 would not be valid. Most of the high school students are required to attend classes in person.

Another delimitation was the decision to only use one institute of higher education. This narrowed the pool of instructors and students available to participate. It also reduced the demographics of students and instructors to the local area. This could have been solved by using more than one institution of higher education, especially since the interviews were all conducted via Microsoft Teams, making participation possible regardless of the participant's location.

Recommendations for Future Research

The study used a small sample size for data collection in the individual interviews and focus group. It was also conducted at a rural community college. It is recommended to increase the sample size for both the individual interviews and to conduct several small focus groups for better and more complete data. It is also advised to expand the research site to more than one

institute of higher education. Another suggestion is to use a community college and a four-year college or university to gather a more diverse compilation of information.

The participants for future studies should remain as college students and instructors that were mandated to take or teach online classes during COVID-19. Further research into the options for accessibility in online classes should be looked at as well as how to transfer them back to classes that are back in the classroom. A course in the future that is in-person may have an online component. It would also be worth researching institutes of higher education that train their instructors in technology that is available to use as resources for their students to see if they have higher enrollment in their online and hybrid courses and better success rates in completion of these courses.

Conclusion

Distance education has been utilized in the United States since the 1800s (Sun & Chen, 2016). Online education has evolved from distance education and, with it, so have social, political, economic, and ethical implications in the design and instruction of courses (Larreamendy-Joerns & LeinHardt, 2006). This evolution of distance learning at higher education institutions correlates directly to the growing use of online technology. This allows those populations that would otherwise be excluded to obtain a college education. This evolution will only continue to grow with the growth of technology. This multiple-case study set out to understand and discover the learning gaps created by emergency online learning due to the COVID-19 pandemic, and the impact it has had on instructors and students in institutes of higher education. A look at how online collaborative learning theory and the effect it has had on online learning was also examined.

In particular, this study found that there is a great need for institutes of higher education

to implement technology training for their instructors. The community college that was used for this study has already implemented it for its students but has not yet offered enough to get all instructors effectively trained on the current technology. This training needs to progress with the changes and updates in technology. Likewise, this study found that those experienced online instructors created online courses that increased the accessibility for all students regardless of what accommodations they may need. By utilizing online resources, such as videos with closed captioning and links to information in addition to the textbook, as well as being an active part of their course discussions, they have created a collaborative learning environment that some students prefer to being in a classroom.

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Appendix A

Interview Questions

Individual Interview Questions - Instructors

These questions will help to answer the central research question and sub-questions two and three.

1. Describe your current position? – this will help with the central research question and sub-question two and three
2. Who do you work for, and what type of organization is it? – this will help with the central research question and sub-question two and three
3. Describe how you typically instruct courses, for example, face-to-face, online, or hybrid. – this will help with sub-question two and three
4. How did you fully move a course or courses online during the COVID-19 pandemic? - this will help with the central research question and sub-question two and three
5. How did you feel about your work situation during the COVID-19 pandemic? - this will help with the central research question and sub-question two and three
6. Describe what problems you had with the transition to fully online. - this will help with the central research question and sub-question two and three
7. What were the problems that your students had transitioning to online courses? - this will help with the central research question and sub-question two and three
8. Describe the attitudes and approaches of your fellow instructors during this time? - this will help with the central research question and sub-question two and three
9. What did your college do during this time to assist you and your students? - this will help with the central research question and sub-question two and three

10. In your opinion, what were the most valuable skills you had that helped you during the transition to online courses? this will help with the central research question and sub-question two and three
11. What are you still teaching that is online or hybrid if you did not before the pandemic? – this will help with sub-question three
12. What is the college/university you work for considering adding online or hybrid courses? – this will help with sub-question three
13. Approximately what percentage of your college courses are online versus in-person? – this will help with sub-question three
14. In detail, which way and why do you prefer to teach, face-to-face, hybrid, online, or a mixture. - this will help with the central research question and sub-question two and three
15. What do you see the future of higher education looking like? – this will help with sub-question three
16. What are the noticeable gaps and struggles you see in students post-COVID-19? – this will help with the central research question and sub-question three.
17. What have you had to do to bring students to the knowledge level they should be at? Is this different than before COVID-19? – this will help with the central research question and sub-question three.

Individual Interview Questions – Students

These questions will help to answer the central research question and sub-questions one, two and three.

1. What are your feelings about the use of technology during COVID-19? – this will help with the central research question and sub-question two
2. How does technology affect you? – this will help with sub-question two
3. Were you forced to take courses online due to the COVID-19 pandemic? How many courses were you taking? Did you complete them all? - this will help with the central research question and sub-question two
4. What was your learning experience with remote or online learning during the COVID-19 pandemic? - this will help with the central research question and sub-question two
5. How did your learning experiences during the COVID-19 pandemic affect your grades? - this will help with the central research question and sub-question two
6. Think of a typical day during COVID-19 and taking online courses. What did your day look like? How did you feel? - this will help with the central research question and sub-question two
7. What could have improved your experience with remote or online learning? - this will help with the central research question and sub-question two
8. What could your instructor have done differently to improve your online experience? - this will help with the central research question and sub-question two
9. What services does your college provide to help with your online or hybrid courses? - this will help with the central research question and sub-question two and three
10. What are the major obstacles for you to take any format of college course? - this will help with the central research question and sub-question two and three
11. How do you feel about online or hybrid courses? - this will help with the central research question and sub-question two

12. Describe how your fellow students feel about online or hybrid courses? - this will help with the central research question and sub-question two
13. How do online or hybrid courses equate to face-to-face courses? - this will help with the central research question and sub-question two
14. How likely are you to take online or hybrid courses? Why or why not? - this will help with the central research question and sub-question two and three
15. What do you see as your strengths that were developed during the COVID-19 pandemic and taking online courses? - this will help with the central research question and sub-question two
16. Have you felt like you did not learn enough during COVID-19 to prepare you for your college classes? – this will help with the central research question and sub-questions one and three.
17. If you feel like you are missing knowledge you should have, do you think it was because of online learning or another reason? Explain what you feel like you are missing. – this will help with the central research question and sub-question three.
18. Do you see fellow students struggling with courses because they don't have the prior knowledge they should have and what do you think the reason they don't have the preparation is? – this will help with the central research question and sub-question three.

Appendix B

IRB Link for Liberty University

https://liberty.cayuse424.com/rs/irb/#dashboard

Appendix C

Participant Consent Form

CONSENT FORM

USING ONLINE COLLABORATIVE LEARNING TO IMPROVE LEARNING GAPS AFTER COVID-19 IMPACTS ON HIGHER EDUCATION: A QUALITATIVE MULTIPLE-CASE STUDY

Teresa Mary Henning
Liberty University
Doctor of Philosophy, School of Education

You are invited to be in a research study of online education. The purpose of this multiple-case study is to understand and discover how COVID-19 has affected higher education staff and students, and how other institutes of higher education are affected with more online courses being offered post-COVID-19. You were selected as a possible participant because You have taken both online and in person classes. Please read this form and ask any questions you may have before agreeing to be in the study.

Teresa Henning, a doctoral candidate in the School of Education at Liberty University, is conducting this study.

Background Information: The purpose of this study is to answer the following questions:

How has COVID-19 impacted institutes of higher education and their online programs?
Are students requesting more online courses post-COVID-19?
Are schools using the online collaborative learning theory more successfully in transitioning classes online?
How are institutes of higher education creating well-developed online course options in response to continuing COVID-19 variants or student requests?

Procedures: If you agree to be in this study, I would ask you to do the following things:

1. Click on the link provide in the email to choose a Microsoft Teams time and day.
2. Log into the Microsoft Teams meeting. This meeting should take approximately 15-20 minutes.

Risks: The risks involved in this study- The risks involved in this study are minimal, which means they are equal to the risks you would encounter in everyday life.

Benefits:
Participants should not expect to receive a direct benefit from taking part in this study.

Compensation: Participants will not be compensated for participating in this study

Confidentiality: The records of this study will be kept private. Research records will be stored securely, and only the researcher will have access to the records.

- Participants will be assigned a pseudonym. I will conduct the interviews in a location where others will not easily overhear the conversation.
- Data will be stored on a password locked computer and may be used in future presentations. After three years, all electronic records will be deleted.
- Interviews will be recorded and transcribed. Recordings will be stored on a password locked computer for three years and then erased. Only the researcher will have access to these recordings.
- I cannot assure participants that other members of the focus group will not share what was discussed with persons outside of the group.

Voluntary Nature of the Study: Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with Liberty University or Jefferson Community College. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

How to Withdraw from the Study:
If you choose to withdraw from the study, please contact the researcher at the email address/phone number included in the next paragraph. Should you choose to withdraw, data collected from you, apart from focus group data, will be destroyed immediately and will not be included in this study. Focus group data will not be destroyed, but your contributions to the focus group will not be included in the study if you choose to withdraw.

Contacts and Questions: The researcher conducting this study is Teresa Henning. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact her at tmhenning@liberty.edu You may also contact the researcher's faculty chair, Dr. Ferrin at paferrin@liberty.edu.

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the Institutional Review Board, 1971 University Blvd., Green Hall Ste. 2845, Lynchburg, VA 24515 or email at irb@liberty.edu.

Please notify the researcher if you would like a copy of this information for your records.

Statement of Consent: I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study.

☐ The researcher has my permission to audio-record me as part of my participation in this study.

Signature of Participant Date

Signature of Investigator Date

Appendix D

IRB Forms

IRB APPLICATION for Research Location College

If you are planning to conduct research as a representative of SCC or to SCC students, this form must be filled out in its entirety and approved by the SCC IRB Committee prior to the beginning of the survey or experiment.

1. Name of individual conducting research (faculty, staff, student): Teresa M. Henning

2. If student, name of supervising faculty or staff person: Liberty University student-dissertation mentor: Dr. Pat Farrin

3. Starting date of project: estimated February 2023 Completion date: March 31, 2023

4. Provide a brief, clearly stated description of the proposed research project. Begin with a statement of purpose. Attach a copy of any materials to be given to subjects.

   The purpose of this multiple-case study is to understand and discover what consequences the COVID-19 pandemic has had on local community college staff and students, and how other institutes of higher education will be impacted with their online courses being offered post-COVID-19. At this stage in the research, online education in higher education will generally be defined as the flexible course offerings of institutes of higher education post-COVID-19. The individual interviews and focus group will be conducted via Microsoft Teams. The observations will be sporadic and take place in the library and Commons.

5. How will the results of the research be used?

   The results of this research will not be used for a specific purpose, or to address a specific problem. They will be used much as other dissertation research is used, to broaden the knowledge base of the field, offer new insight into a phenomenon, and provide impetus for further research.

6. Who will the results be disseminated to and how will they be disseminated?

   The results will be published in the form of a doctoral dissertation. In addition, the results will be disseminated to all those institutions who grant research site permission in aggregate form only. No institution or individual identifying information will be shared.

7. Identify the research method. (Check all that apply)

   ☐ **Questionnaire**
   ☒ **X Interview**

- Treatment
- X Observation
- **Analysis of Existing Sources**
- Test
- Task
- **X Other: Focus Group**

8. Characteristics of subject population (i.e. age, sex, memberships, etc.)

   The participant population consists of community college students who are 18 years old or older and enrolled in a college course. A small number of instructors will also be included in individual interviews, specifically those that have taught only in person, or hybrid or online courses.

9. Specify the steps to be taken to guard the anonymity of subjects and/or the confidentiality of their responses. Indicate what personal identifying indicators will be kept on subjects if any. Specify procedures for storage and ultimate disposal of personal information.

The researcher will be the only person to have contact with the data. Participants will be given pseudonyms, and only the pseudonyms will be kept with the data to ensure confidentiality. The college will also be known as by a pseudonym. Data will be stored on a password-protected flash drive and laptop computer, and paper-based data will be kept in a locked filing cabinet. All paper-based study-related data and materials will be shredded at the 3-year mark. All study-related data and material maintained on the dedicated flash drive will be deleted permanently at the 3-year mark, as per Liberty University policy.

10. Specify how subjects will be informed of the following
    a) the nature of their participation in the project,
    b) That their participation is voluntary, and
    c) That their responses are confidential.

    (If consent form is being used, a copy should be attached. If presented orally, a written copy of the oral presentation must be submitted.)

    Please see the attached informed consent form, which includes all of the above information.

    The students will be informed of the nature of their participation, that it is voluntary and confidential through the Participant Consent Form.

11. Describe any possible physical, psychological, social, legal, economic, or other potential risks to subjects, either immediate or long range.

    There are no anticipated risks of this research to the participants that they would not otherwise expose themselves to through the course of typical daily living.

12. What procedures will be used to minimize the risk?

    While no risks are anticipated, care has been taken with the design of the questionnaire and initial interview protocol so that questions of a sensitive nature are not asked.

I certify that this project is under my direct supervision and that I am responsible for insuring that all provisions of approval are complied within this research project.

Signature of Faculty Supervisor	Date

Reviewed and approved:

Chair, IRB	Date

Member, IRB

Member, IRB

Member, IRB

☐ **Conditional approval**

The committee approves the request only if the following conditions are met:

_____

_____

_____

_____

Appendix E

Observation Form

Length of Observation

Descriptive Notes	Reflective Notes

Appendix F

Focus Group Questions

Focus Group Questions – Final

1. When you think of effective online courses what comes to mind?
2. How do you feel when you are taking online courses?
3. Are online classes better and different now than they were pre-COVID-19?
4. What do you like about taking online courses or teaching online courses?
5. What could your instructors or school done better to support you when you were online or if you are taking online courses now?
6. Do you have some online courses that were better than others? How were they different or better?
7. Should all students and instructors have training in how to use virtual technology and online learning platforms?
8. What do you see for the future of higher education?
9. Do you see anything new happening currently at your school in regard to online or hybrid learning?
10. Is there anything else you want me to know, or any questions you thought I might ask that I didn't?

Appendix G

Data Collection Forms

Interview Questions Summary– Instructors

Question #	Central Research Question	Sub-Question 1	Sub-Question 2	Sub-Question 3
When you think of effective online courses what comes to mind?				
How do you feel when you are taking online courses?				
Are online classes better and different now than they were pre-COVID-19?				
What do you like about taking online courses or teaching online courses?				
What could your instructors or school do better to support you when you were online or if you are taking online courses now?				
Do you have some online courses that were better than others? How were they different or better?				
Should all students and				

instructors have training in how to use virtual technology and online learning platforms?				
What do you see for the future of higher education?				
Do you see anything new happening currently at your school in regard to online or hybrid learning?				
Is there anything else you want me to know, or any questions you thought I might ask that I didn't?				

Interview Data Collection – Students

Question	Central Research Question	Sub-Question 1	Sub-Question 2	Sub-Question 3
What are your feelings about the use of technology during COVID-19? – CR/2				
How does technology affect you? – 2				
Were you forced to take courses online due to the COVID-19 pandemic? How many courses were you taking?				

Did you complete them all? – CR/2				
What was your experience with remote or online learning during the COVID-19 pandemic? – CR/2				
How did your learning experiences during the COVID-19 pandemic affect your grades? – CR/2				
Think of a typical day during COVID-19 and taking online courses. What did your day look like? How did you feel? – CR/2				
What could have improved your experience with remote or online learning? – CR/2				
What could your instructor have done differently to improve your online experience? – CR/2				
What services does your college provide to help with your online or hybrid courses? – CR/2/3				
What are the major obstacles for you to take				

any format of college courses? – CR/2/3				
How do you feel about online or hybrid courses? – CR/2				
Describe how your fellow students feel about online or hybrid courses? – CR/2				
How do online or hybrid courses equate to face-to-face courses? – CR/2				
How likely are you to take online or hybrid courses? Why or why not? – CR/2/3/				
What do you see as your strengths that were developed during the COVID-19 pandemic and taking courses? – CR/2				
Have your felt like you did not learn enough during COVID-19 to prepare you for your college classes? – CR/1/3				
If you feel like you are missing knowledge you should have, do you think it was because of online learning or another reason?				

Explain what you feel like you are missing. – CR/3				
Do you see fellow students struggling with courses because they don't have the prior knowledge they should have and what do you think the reason they don't have the preparations is? – CR/3				

Focus Group Questions

Question #	Central Research Question	Sub-Question 1	Sub-Question 2	Sub-Question 3
When you think of effective online courses what comes to mind?				
How do you feel when you are taking online courses?				
Are online classes better and different now than they were pre-COVID-19?				
What do you like about taking online courses or teaching online courses?				
What could your instructors or school do better to support you				

when you were online or if you are taking online courses now?				
Do you have some online courses that were better than others? How were they different or better?				
Should all students and instructors have training in how to use virtual technology and online learning platforms?				
What do you see for the future of higher education?				
Do you see anything new happening currently at your school in regard to online or hybrid learning?				
Is there anything else you want me to know, or any questions you thought I might ask that I didn't?				