Doctorate of Education Students' Perceptions of Zoom Video Conferencing Technology as an Instructional Tool

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Abstract

In 2020, colleges and universities were forced to abruptly shift their in-person learning courses to a remote, virtual, or online format due to the COVID 19 pandemic. There is limited research on students' perceptions of using video conferencing software in the delivery of coursework. The purpose of this study was to examine doctoral students' perceptions of using a specific video conferencing platform (Zoom) as an instructional tool after coursework was initially delivered in an in-person format. Ten students from a small Midwestern university were interviewed. Data obtained from the interviews were analyzed to identify themes and subthemes. Three themes and seven subthemes were identified as a result of the data analysis. Theme one was challenges related to course instruction delivered via Zoom. Technology issues and distractions were two subthemes identified within theme one. Technology issues included connectivity, frozen screens, being dropped from the internet, cutting out, and not being able to hear all class participants. Distractions included noise being made by children and pets. The second theme was positive aspects related to course instruction delivered via Zoom. Flexibility and access to faculty were two subthemes within this theme. Respondents provided examples of an increased balance between work, home, and class, and reduced driving time associated with Zoom classes as examples of flexibility. All participants described examples of increased access to faculty and the ease of sharing documents or having questions answered without having to drive to meet with faculty. The third theme was recommendations for improving instruction for courses using Zoom as a delivery tool. Three subthemes were identified for this theme. The first subtheme was the need for faculty training. Respondents described faculty members who were not

familiar with the operational features of Zoom, including struggling with sharing documents and responding to the chat function. A second subtheme was the need for student training in the operational features of Zoom. Respondents described challenges associated with initiating Zoom with others, screen sharing, and lack of knowledge about other functions of Zoom. The third subtheme was the allocation of time for social interaction with peers. All study respondents indicated that they experienced greater isolation associated with Zoom instruction than face-to-face instruction. One option recommended for improving social interaction was to allow class members to have dedicated time to interact in a breakout room for several minutes each class session with no agenda other than developing relationships with peers. The findings of this study may be useful to personnel at the institution where the study was conducted and other institutions using video conferencing as a platform for instruction. Future study should focus on faculty and student perceptions about the use of video conferencing as an instructional tool, especially at the graduate level.

Dedication

I want to dedicate the completion of my doctorate to my family. To my daughter Kendra, you have given me the desire to do better and continually try to be a better example for you today than yesterday. To my wife, Angela, without you I would not have completed any of my degrees. Thank you for the late nights of bouncing ideas back and forth, the coaching, the endless number of papers you have reviewed (even when I did not want you to), and for showing no mercy in your feedback. Angela, you have pushed me to become a writer and a better student. You have made me a better man. To my sister Alicia, you have always been an inspiration and role model for me. You have regularly defied the odds and not let anyone stand in the way of your goals. You have taught me so many life lessons and have always been there for me. You also showed me the value of getting a college degree. While a few sentences cannot adequately articulate how grateful I am for the three of you, I would not be who I am today if it were not for you. I love you all.

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Chapter 1

Introduction

As a result of the advances in technology, higher education has slowly evolved from its origins of only being delivered in a face-to-face format to various formats that allow students to receive their education even if they are physically distant from the higher education campus. In 2020, higher education institutions were forced to reformat their instruction to remote and online learning due to the COVID-19 public health crisis. Institutions used a variety of instructional formats and tools such as online, asynchronous technology, message boards, emails, online posts, synchronous video, and teleconferencing to provide students with more interactive learning experiences. These varied instructional formats allowed instructors to utilize the traditional lecture model using video conferencing or a flipped classroom in which students not only learned from instructors, but also from the experiences and knowledge of other students. The ability to utilize a flipped classroom has the potential to be a significant advantage in a classroom where students are more seasoned adults and professionals who have more life and industry experience than younger students who entered college immediately after high school. The participants in the current study attended an institution that adopted Zoom video conference technology (Zoom) as a platform to deliver instruction at the beginning of the COVID-19 pandemic that impacted institutions in the spring of 2020.

Online education is defined as a form of distance education that uses computers and the Internet as the delivery mechanism, with at least 80% of the course content delivered online (Allen & Seaman, 2003). Several challenges associated with online education have been described in the literature. Online courses typically require more

self-discipline, have little or no face-to-face interaction, can be detrimental to the full schedule of many non-traditional students, and can require more work than traditional face-to-face classes (Petersons, 2017). For graduate students who may have preferred the interaction and engagement of in-person classes but the flexibility of completing courses from home and possibly in the evening, video conferencing technology has become a viable option to facilitate synchronous remote learning. At the time of the current study, limited research had been conducted on graduate students' perceptions of utilizing video conferencing technology as the educational platform for instruction for graduate level courses in which they were enrolled. Most of the studies that have been published have focused on undergraduate students as opposed to graduate students. Graduate student courses typically involve more out of classroom work than undergraduate classes, which increases the difficulty in completing these programs for adult students (Franklin University, 2020).

Background

With the shift to remote learning during the pandemic of 2020, video conferencing software is now being considered a legitimate resource to connect with students who are located all over the world (Lieberman, 2020). Researchers have indicated that video conferencing improves learning by facilitating electronic communication with people who were previously inaccessible due to several challenges such as time, geography, and financial constraints (Doggett, 2008). The positive benefits or negative impact of utilizing video conferencing as an education platform is dependent on several factors, including hardware issues that impact the technologies' performance, instructor and student comfort and computer literacy levels with video conferencing

technology, and instructor and student attitudes toward video conference technology as an educational platform for learning (Lieberman, 2020).

Studies have investigated use of video conferencing as an instructional platform with undergraduate students. In a study completed by Doggett (2008), a small university faced an issue with physical classroom space and could not provide undergraduate students full-time, dedicated, brick and mortar classrooms. To overcome this obstacle, the university created a video conferenced class. Overall, student responses to the use of video conferencing were positive. However, Doggett reported that students raised concerns regarding technical problems during video conferencing.

Candarli and Yuksel (2012) examined the experience of undergraduate students who participated in a video conferenced or a web-based course delivery. The study included 36 participants consisting of 24 female and 12 male undergraduate students in their second and third year who participated in a video conferenced course. The findings indicated a predominately positive experience utilizing video conferencing, and 64% of student participants agreed or strongly agreed that the video conference based lecture was a worthwhile educational experience for them. However, as for taking more courses using this instructional platform, only 58% of the students indicated an interest in having video conferenced sessions in their classes in the future (Candarli & Yuksel, 2012).

Altiner (2015) investigated the perceptions of 80 third year students at two state universities in Turkey about the use of video conferencing technology in English language courses. Respondents did not support the use of videoconferencing instruction. In addition, participants did not think instruction using this learning platform helped them learn English.

Fantana (2020) studied student satisfaction with video conferencing technology in undergraduate pediatrics courses at King Abdulaziz University in Saudi Arabia after COVID-19 prevented face-to-face instruction. Of the 622 students who participated in the study, 82% reported being highly satisfied with web-based video conferenced instruction. The highest mean scores were reported for 'students were encouraged to participate' (mean score 4.23) and 'faculty members' explanations were clear' (mean score 4.20). However, technical challenges were reported by 72% of the respondents. The lowest survey scores focused on audio or visual technology issues and lack of faculty member use of the whiteboard, chat room, and videos.

Roth, Pierce, and Brewer (2020) examined the performance and satisfaction of resident and distance students in video conferenced courses. The researchers compared student performance and course instruction satisfaction between undergraduate students who received instruction face-to-face with those who received instruction using video conferencing. Students whose instruction was provided using video conferencing had lower final grades and were less satisfied with the course and instruction than students who received instruction face-to-face.

Limited studies had been conducted on the use of video conferencing platforms to deliver graduate coursework at the time of the current study. Justinia and Shalaby (2014) investigated the impact of attending a post-graduate health informatics course at three different sites. Instruction was face-to-face at one site while video conferencing was used to simultaneously deliver instruction at two additional sites. Although technical issues were reported by the majority of students (95%), respondents reported video conferencing was generally successful. Forty-four percent of students reported

interactions with faculty were ‘good’. However, 52.6% of the respondents indicated a preference for face-to-face course delivery. The authors indicated that the use of video conferencing promoted access to courses from remote locations that would not have been possible without video conferencing.

Brainard (2020) reported on a graduate physiology course that was modified to provide instruction two days a week using face-to-face instruction and a third day using Zoom video conferencing. Fifty-five percent of the respondents preferred face-to-face instruction. Students (55%) reported challenges paying attention in Zoom delivered classes. Eighty-two percent of the respondents indicated that sharing presentations was easy in the Zoom delivered classes and 94% indicated it was easy to work in groups or collaborate with peers in Zoom delivered classes.

Roy, Ray, Kuntala, and Saha (2020) investigated student perceptions after a face-to-face graduate anatomy class at the Calcutta Medical College in India was converted to a Zoom video conferenced instructional delivery format as a result of the COVID-19 pandemic. The majority of students (93.5%) found the Zoom delivered classes to be satisfactory. However, 77% wanted to return to face-to-face instruction after COVID-19 restrictions were lifted.

Two studies related to doctoral education were found as a result of the literature search for this dissertation. Maul, Berman, and Ames (2018) explored the psychological benefits of dissertation chairs using video conferencing to coach doctoral students to improve retention and dissertation completion. The authors reported that video conferenced coaching improved self-efficacy, scholarly writing, and student retention. According to the authors, “Use of video conferencing technology led to the decision to

remain in the doctoral program" (p.49). Agarwal and Kaushik (2020) conducted a study in which 99% of students found that delivery of instruction using Zoom was adequate to their level of learning. Agarwal and Kaushik's participants were medical students who had face-to-face classes replaced with delivery of 40-minute lectures using Zoom due to the COVID-19 pandemic. Based on the findings from the study, the researchers concluded that a remotely delivered teaching component should be part of postgraduate training in future classes. In the review of literature for the current study, only one research study was found that focused on the use of video conferencing as a delivery platform for instruction in a doctoral program of study. Bollinger and Halupa (2012) investigated student satisfaction in an online doctoral program. The majority of students (93.5%) were satisfied with the online flexibility, learning about proposal writing, and the ther research process.

Statement of the Problem

Universities are looking for new and creative ways to expand the boundaries of instruction. Digital technologies offer promising tools to assist learning in general. They can change the ways we learn (when, where, and how) and can make learning more democratic and accessible (Candarli &Yuksel, 2012). Distance education is becoming a more frequently used methodology for teaching students who are not geographically located near institutions' physical campuses (Candarli & Yuksel, 2012). The use of information and communication technologies (ICT) is increasing access to higher education for adult learners in particular (Dinevski & Radovan, 2013).

Distance education enables students to enroll in courses they might not physically be able to attend. Given the advances in instructional technology and the changing

student population, education scholars have an opportunity to explore non-traditional student perceptions and experiences regarding educational technologies such as video conferencing. Limited studies have examined the use of video conferencing technologies as instructional tools with undergraduate and graduate students. Even more limited are studies that have focused on adult students pursuing doctoral degrees. According to Cercone (2008), "Most adults conceptualize learning as an instructor-designed and instructor-led endeavor that occurs in classrooms where students sit to learn from the "sage on the stage" (p. 138). Finding tools to give adult students the experience of instant communication or asynchronous learning could marry the desire to have instructor-led learning with technology through video conferencing (Cercone, 2008).

Malinovski, Vasileva-Stojanovska, Jovevski, Vasileva, and Trajkovik (2015), explained that the definition of a traditional classroom is changing, and the pedagogy behind instruction in these virtual classrooms warrants examination to better understand the student's 'Quality of Experience' (QoE). QoE "refer(s) to the overall acceptability of an application or service, as perceived subjectively by the end user" (Kuipers, Kooij, De Vleeschauwer, & Brunnström, 2010, p. 216). Adult learners have different needs and responsibilities than traditional students (Cercone, 2008). Typically, adult learners, including graduate students, have increased responsibilities such as work, family, and additional financial obligations that require their attention (Hubackova, 2014). Additionally, most adult learners are highly motivated and task oriented (Cercone, 2008). Video conferencing enables adult students the ability to interact with classmates, the instructor, and materials while also being able to fulfill home obligations. Since video conferencing is a cloud-based platform, adult learners can log in from any computer,

tablet, or cell phone so that they can have access to instruction without having a dedicated physical meeting space.

Research investigating use of video conferencing technology for instruction has been conducted with undergraduate students. Limited research has focused on providing video conferenced instruction to graduate students. At the time of the current study, only one study was found that examined use of a video conferencing platform to deliver instruction in a doctoral program of study. The perceptions of adults pursuing doctoral degrees regarding their experiences with video conferencing as a platform for delivery of instruction warrants further exploration.

Purpose of the Study

This study was designed to investigate doctoral students' perceptions about the use of a specific video conferencing technology, Zoom, as a platform for delivering instruction after participating in face-to-face instruction immediately prior to the COVID-19 pandemic. The current study examined the experiences of doctoral students at a small, 4-year, private, liberal arts institution in the Midwest (University X) who were initially enrolled in face-to-face classroom instruction in a doctoral program and then were switched to instruction delivered using Zoom video conferencing due to the COVID-19 pandemic. The first purpose of the current study was to understand the perceptions of doctoral students about challenges related to use of Zoom as the platform used to deliver instruction. The second purpose was to investigate the perceptions of doctoral students about positive aspects related to use of Zoom as the platform used to deliver instruction. The third purpose was to ascertain the recommendations doctoral students had for improving instruction using Zoom as the platform for delivering instruction.

Significance of the Study

This study provided findings related to the use of Zoom as a platform used for delivering instruction that will be useful for the leadership team at the university in which the study was conducted. Institutions that are deciding how to serve more doctoral students but do not have the physical classroom resources available to facilitate increased enrollment may also be interested in the findings of the current study. Personnel at colleges and universities that are considering using video conferencing to deliver a course or program of instruction for students and faculty may also be interested in this study. Finally, the current study contributed to the current research on the use of video technology, and specifically Zoom, for delivery of instruction.

Delimitations

"Delimitations are self-imposed boundaries set by the researcher on the purpose and scope of the study" (Lunenburg & Irby, 2008, p. 134). This study was conducted with the following delimitations.

- Participants included individuals who had completed at least two courses face-to-face and then completed at least two courses using Zoom in their doctoral program.
- Study participants were enrolled in doctoral courses between Fall 2019 – Fall 2020.

Assumptions

"Assumptions are so basic that, without them, the research problem itself could not exist" (Leedy & Ormrod, 2016, p. 59). This study was conducted with the following assumptions:

- Participants understood the questions provided.
- Participants answered the questions honestly.
- Participants were able to articulate the challenges, positive aspects, and recommendations related to instruction using Zoom.
- Participants had completed a minimum of two doctoral courses using Zoom and had a working familiarity with its instructional features.

Research Questions

RQ1: What are the perceptions of doctoral students about challenges related to use of Zoom to deliver instruction?

RQ2: What are the perceptions of doctoral students about positive aspects of Zoom to deliver instruction?

RQ3: What are doctoral students' recommendations for improving instruction using Zoom for delivery of instruction?

Definition of Terms

Non-traditional student. Most often, age (especially being over the age of 24) has been the defining characteristic for this population (National Center for Education Statistics, 2020a). For the purposes of this study, non-traditional students were also defined as students who were working professionals attending evening classes.

Doctoral student. For the purpose of this study, the term doctoral student was used to describe an individual actively taking courses in a program that culminates in the granting of a doctoral degree upon completing the program requirements (University X, 2020).

Synchronous. Malik, Fatima, Ch, and Sarwar (2017) described synchronous as e-learning related to structure and time bounded activities, which are offered through web conferencing and chatting options. When the COVID-19 pandemic prevented face-to-face instruction in the spring of 2020, University X selected the Zoom video conferencing platform to deliver synchronous instruction in the Ed.D. PK-12 doctoral program. Four hour class sessions were conducted one night each week initially face-to face (pre-COVID-19) and then using Zoom after COVID-19 prohibited in-person gatherings.

Asynchronous. According to Malik et al. (2017), asynchronous means that there is no set time for the learning to be occurring. Learners can learn anywhere and can consume their time to gain knowledge of what they want to know and when they need to know.

Video Conferencing. Video conferencing is a collaboration solution that allows users to place calls via an internet browser, desktop, mobile, or video device. Users can transmit live video during a video conference allowing visual interactions (Cisco, 2021).

Zoom. Zoom is a video conferencing provider that incorporates a video telephone and online chat service through a cloud based peer-to-peer software platform. Zoom is used for meetings, chat, video webinars, virtual conference rooms, phone systems, distance education, and social interactions. Zoom software facilitates engaging in a meeting or class from an offsite location (Zoom, 2021).

Organization of the Study

This study includes five chapters. Chapter 1 provided the background, statement of the problem, purpose of the study, significance of the study, delimitations, assumptions, research questions, definitions of terms, and organization of the study.

Chapter 2 provides the historical evolution of distance learning**,** distance learning in undergraduate education, distance learning in graduate education, faculty perspectives on distance learning, a description of the shift to remote learning in higher education due to COVID-19, challenges of non-traditional students, and Zoom. Chapter 3 describes the methods used in this study including the research design, setting, sampling procedures, instrument, data collection procedures, data analysis and synthesis, reliability and trustworthiness, researchers' role, study limitations, and summary. The results of the study are stated in Chapter 4. Finally, Chapter 5 provides an interpretation of the research and recommendations including a study summary, findings related to the literature, and conclusions.

Chapter 2

Review of the Literature

Limited research has been conducted to fully understand the experiences of adult doctoral students who, due to the COVID-19 pandemic, had to switch from face-to-face classes to an online video-conferencing platform for instruction. Limited research was found in the review of literature for the current study related to doctoral students' perceptions about instruction delivered using video conferencing. Doggett (2008) reported there are few studies that analyze the effectiveness of video conferencing as an instructional delivery format from the student's experience. The current study examined the experiences of doctoral students at University X, a small, 4-year, private, liberal arts institution in the Midwest, who completed courses that involved the use of Zoom video conferencing technology as an educational platform for delivery of instruction in their program of study. The first purpose was to understand doctoral students' perceptions about challenges related to the use of Zoom to deliver instruction. The second purpose was to investigate doctoral students' perceptions about positive aspects related to the use of Zoom to deliver instruction. The third purpose was to ascertain the recommendations doctoral students had for improving instruction using Zoom as the platform for delivery of instruction. Many variables affect student satisfaction and learning in a higher education setting. Several of these factors are described below. Chapter 2 summarizes literature that describes the historical evolution of distance learning, distance learning in undergraduate education, distance learning in graduate education, faculty perspectives on distance learning, the shift to remote learning in higher education due to COVID-19, challenges of non-traditional students, and Zoom.

The Historical Evolution of Distance Learning

Remote and distance education provides an opportunity for both instructors and students to offer and attend classes that previously could not be completed due to geographic location. Historically, the evolution of courses that were not face-to-face began with mail-in correspondence courses, followed by courses taught by broadcast television, then online asynchronous courses, and now synchronous courses delivered by video teleconferencing technologies. The earliest reference to correspondence education was recorded in 1728 when Caleb Philipps advertised shorthand lessons by mail in the Boston Gazette (Verduin & Clark, 1991). In the early 19th Century, Pennsylvania State University capitalized on new opportunities to reach people in rural areas by offering non-credit agriculture courses through the mail (Dawson, 2017).

As the 20th century progressed, the idea of education by mail evolved, and educators began using other mediums such as radio and television. The federal government issued the first educational radio license to the Latter Day Saints' University of Salt Lake City in 1921 (Saettler, 2004). The University of Wisconsin and the University of Minnesota received licenses to establish educational radio stations in 1922 (Saettler, 2004). These broadcast technologies enhanced and added to distance education considerably. However, the interaction between the teacher and the learner, or between learners, remained limited. Learning was generally regarded as an individual rather than a social process (Anderson & Simpson, 2012). Broadcast technologies were early forms of what is now known as distance education. Simonson, Smaldino, Albright, and Zvacek (2003) described distance education as technology-based instruction during the course of study.

With the rapid advances in technology and the creation of the internet, online educational programs emerged in 1989 when the University of Phoenix began using CompuServe, one of the first consumer online services (Kentor, 2015). Shortly thereafter, in 1991, the World Wide Web (web) was unveiled, and the University of Phoenix became one of the first to offer online education programs through the Internet (Kentor, 2015). Online and remote learning are descendants of distance education, which spawned from several educational institutions devoted solely to online degree programs in the United States. The convenience of online learning has made it possible to reach a student population that was previously unserved, to reach more students at peak times of the day, and to maximize resources and flexibility for the university (Lei & Gupta, 2010). In the early stages of online learning offered by higher education institutions, courses were offered asynchronously, which allowed students to complete their coursework at a time that was most convenient for them rather than logging in online at a set time.

Distance Learning in Undergraduate Education

According to the National Center for Education Statistics (NCES, 2020b), in the fall of 2018, there were almost seven million students enrolled in a distance education course at degree-granting postsecondary institutions. The NCES reported that 35.3% enrolled in some type of distance education, 18.7% of students took at least one but not all of their courses via distance education, and 16.6% of students exclusively took their classes via distance education. Numerous studies have been conducted regarding undergraduate students' educational experiences when video conferencing technology is implemented to deliver the curriculum (Altiner, 2015; Calandari & Yuksel, 2012; Doggett, 2008; Fantana, 2020; Mohammed, Waddington, & Donnan, 2007; Roth, Pierce,

& Brewer, 2020; Wang, Mattick, & Dunne, 2010). Researchers have indicated there are several variables that impact the experience of students.

Mohammed, Waddington, and Donnan (2007) reported that physiotherapy clinical education students felt video-linked lectures increased accessibility and convenience, which helped reduce barriers to access. In addition, participants in this study also expressed a decreased interactivity with faculty and students while learning remotely compared to face-to-face learning. Mohammed et al. pointed to research that indicated students who are less likely to ask clarifying questions in large lecture halls have reluctance exacerbated by video conferencing due to the limitations of interpersonal communication in synchronous audio-visual delivery. Mohammed et al's. (2007) study concluded that there was no significant difference in the educational value derived from face-to-face versus remote learning courses.

Doggett (2008) conducted a study where he taught an undergraduate, general education woodworking class, in which 40% of the students were in the classroom with him, and the other 60% of the class were in another classroom having the instructor synchronously video conferenced to the room. The goal of the study was to try to emulate a face-to-face classroom virtually. Doggett found that students were happy overall with their video conference experience. When asked how their experience compared with live in-person teaching, 80% of students agreed they would have been more comfortable in a traditional class setting, and 57% agreed that video conferencing technology was a barrier to their interaction with the instructor (Doggett, 2008). An interesting phenomenon in Doggett's (2008) research was that students were not notified

in advance that the course would be video conference, which may have impacted students' perceptions as they were not afforded a choice in the delivery method.

Wang, Mattick, and Dunne (2010) found that undergraduate medical students indicated that video conferencing is an acceptable alternative to face-to-face delivery. Students' primary concern tended to be teaching-related factors such as lecture content, speaker, and delivery style rather than the technology employed. Wang et al., (2010) implied that the medium, while important, is not as important as adapting the curriculum and content to the new medium. The researchers indicated that there might be a qualitatively less satisfying experience with the online curriculum due to the decreased engagement with the lecturer and other students.

Calendarli and Yuksel (2012) reported that 64% of subjects rated their experience in a course delivered using video conferencing was worthwhile. The respondents in Altiner's (2015) study did not concur with the findings in the Calendarli and Yuksel (2012) study. Turkish students at two state universities in Altiner's study did not support delivery of instruction focused on teaching students to speak English using video conferencing. Fantana (2020) reported similar results to those published by Calendarli and Yuksel (2012). The majority (82%) of 622 undergraduate pediatrics students whose instruction was delivered using video conferencing after COVID-19 prevented face-to-face instruction supported video conferenced delivery of courses. However, seventy-two percent of the repondents in the Fantana study reported audio and/or visual technical issues with course delivery. Roth et al.(2020) found that students whose courses were delivered using video conferencing received lower course grades than those whose instruction was face-to-face. The subjects whose instruction was delivered using video

conferencing were also less satisfied than students whose instruction was delivered face-to face.

Distance Learning in Graduate Education

Limited research has been conducted with doctoral students who work full-time about their satisfaction with instruction provided using video conferencing (Bolliger & Halupa, 2012). However, according to Seligman (2012), learning expectations differ between undergraduate and graduate students. Undergraduate students are learning foundational content in a general curriculum within a broad academic field, while graduate students study a more focused curriculum that develops knowledge and skills for a particular field of study (Holzweiss, Joyner, Fuller, Henderson, & Young, 2014; Seligman, 2012; Weidman, Twale, & Stein, 2001).

Bolliger and Halupa (2012) administered a survey to determine non-traditional, working professional students' satisfaction in an online doctoral program. The researchers reported that 93.5% of the program students were satisfied with their distance education program. Bolliger and Halupa's study further supported the concept that distance education learners need a curriculum that they can use to support their goals and motivations for investing in the program. Today, many jobs require employees to analyze information, link ideas, think critically, articulate problems, and apply theory to practical applications (Ramli, Nawawi, & Chun, 2010). Bolliger and Halupa (2012) indicated that the program's most satisfying aspects of the distance education program were flexibility, learning about proposal writing, and learning about the research process. Proposal writing and research both have applications that can transfer to the workplace. Bolliger and Halupa suggested the high satisfaction rating in the study implied that the

program met students' needs concerning program delivery and helped students reach the goals they believed the program would help them attain.

According to Sahin and Shelly (2008), some of the top factors associated with student satisfaction concerning distance education are the usefulness of what is learned, flexibility, and computer expertise. According to Wickersham and McGee (2008), student satisfaction is an essential concept because it may lead to higher levels of success, engagement, and learning. Wickersham and McGee's (2008) study also reinforced that non-traditional and working professional students need educational flexibility due to their other responsibilities such as work and family.

Justinia and Shalaby (2015) reported that 52.6% of the respondents enrolled in a health informatics class preferred face-to face course delivery. Forty-four percent of respondents reported positive interactions with faculty in the video conference delivered courses. However, 95% of the respondents reported technical issues with the video conference delivered courses.

Brainerd (2020) studied perceptions of graduate students who received instruction in a physiology course two days a week using face-to face delivery and a third day a week using video conferencing. Ninety-four percent of the respondents reported that it was easy to collaborate and work in groups, and 82% indicated it was easy to share presentations. However, fifty-five percent of the respondents preferred face-to-face delivery of instruction.

Roy et al. (2020) investigated perceptions about delivery of instruction in a graduate anatomy class. Initial sessions in the course were initially delivered face-to-face but then were switched to a video conferenced delivery using Zoom due to the COVID-

19 pandemic restrictions on group meetings. While 93.5% of the respondents rated the Zoom delivered class sessions as satisfactory, 77.7% indicated a preference for face-to face delivery of instruction.

Challenges of Nontraditional Students

In higher education, there has been a societal shift from traditional students who are 18-25 years old to non-traditional adult students who are older and typically also work either full- or part-time (Center for Postsecondary and Economic Success, 2015). According to the Center for Postsecondary and Economic Success (2015), 40% of the student population was 25 years of age or older in 2015. Students who fall in the demographic of 25 years or older typically have more responsibilities, demands on their schedules or resources, and may have families that lead them to require flexible learning formats. Many nontraditional students are also adult students. According to Shaw (2015) adult learners engage in additional education achievement to reach a desired goal. Adult learners tend to be self-directed, enjoy working independently, are highly self-sufficient, and bring a wide range of life experiences that they can connect to lesson content (Shaw, 2015).

Many adult students cannot attend classes during the day due to other obligations such as work and family, which creates a barrier for adult students to complete their studies. Adult students are more likely to leave school due to conflicting responsibilities (work, parenting, caring for an elderly parent) or a lack of support from their home educational institution (Eppler & Harju, 1997). Providing students with flexible course options may increase retention rates, full-time enrollment, and shorter degree completion durations (Grabowski, Rush, Ragen, Fayard, & Watkins-Lewis, 2016). Online, weekend,

evening, accelerated, and hybrid (split between in-person and online) courses allow students to fit their academic careers into their already packed schedules (Taylor, Dunn, & Winn, 2015).

A potential challenge for adult learners is their learning motivations and learning styles are likely to differ from those of younger learners (Rocco, Smith, Mizzi, Merriweather, & Hawley, 2020). Most curricula at any level are based on theories of pedagogy. Knowles, Holton, and Swanson (2005) indicated the origins of pedagogy were derived from the Greek words ped (meaning child) and agogous (meaning leading). Rocco et al. (2020) reiterated these definitions when they indicated that pedagogy was created with the sole purpose of teaching (leading) children.

When secular schools were organized, the pedagogical model was the only accepted teaching model (Knowles et al. 2005). Therefore the entire U.S. school education system, including higher education was committed to this model (Knowles et al., 2005). As a result of pedagogy being the foundation of higher education, nontraditional and adult students have essentially been taught as if they were children (Gehring, 2000). Current practices in both child and adult learner education are traditionally based on, and referenced to, pedagogy theories (Gehring, 2000).

The structures of traditional pedagogy emphasize the teacher's instructional role as a content expert who transmits knowledge, skills, and dispositions to students in a didactic style (Rocco et al., 2020). Pedagogy and andragogy are different models with theoretical differences and approaches for education and learning. The term andragogy descends from the Greek word *andragogos*, which means teaching adults (Ekoto & Gaikwad, 2015). Merriam-Webster (2020) defined andragogy as the art or science of

teaching adults. The andragogical model shifted away from the pedagogical model because of the realization that adult learning is connected to multiple social and personal circumstances such as work, employment, and dealing with uncertainty in their daily lives (Rocco et al., 2020; Savicevic, 2008). Pedagogy and andragogy may impact the perceptions of doctoral students' learning experiences. Students who are in a doctoral program learning about pedagogical theories in PK-12 teaching may have biased perceptions when evaluating their andragogical experience while using video-conferencing software during their coursework (Rocco et al., 2020).

The traditional teaching methodology for undergraduate students usually involves a lecture-style instructor directed curriculum that students are expected to accept with minimal critical thinking as they do not have extensive life experience to use as a reference point (Moore, 2012). Traditional pedagogy has been described as a transmissive teaching model characterized by objectivism, reductionism, bounded knowledge, and privileged cognitive knowing (Moore, 2012). In contrast, adult learners have lived experiences that can impact how they learn and their motivations to learn. Taylor and Hamdy (2013) focused on adult learning and proposed that learning is a lifelong continuum that stretches throughout a person's lifetime. Different stages of life have different emphases, problems, and strategies at various times along the continuum. Learners move across the continuum at their own speed, and adults fall further on the continuum. Taylor and Hamdy stated that a person's movement on the continuum is based on andragogy's six principles.

The six principles of andragogy were defined by Knowles et al., in their 2005 book, *The Adult Learner.* Adult students learn based on their need to know, self-concept,

experiences, readiness to learn, orientation to learning, and motivation. The first principle is that adult learners need to know they need to learn what they are learning before undertaking it. The motivation for many non-traditional adult students to return to college relates to their goals. It is important for the building of a curriculum to assist these students in applying knowledge and skills in the workplace, and reaching their goals can help with the degree of effort students put forth (Knowles et al., 2005). In contrast, when looking at educating K-12 or traditional undergraduate students, learners only need to know what they need to learn to pass or get promoted rather than need to know how what they learn will apply to their lives (Knowles et al., 2005).

The second principle for the androgogical model is the self-concept of the learner. Adults have a self-concept of being responsible for their own decisions and lives (Knowles et al., 2005). Adults resent and resist situations where they feel other people are imposing their wills on them (Knowles et al., 2005). According to Dabbagh (2007), the online learner's self-concept is a key predictor for success, and students who have an internal locus of control tend to be more successful in the online learning environment. Taylor and Kroth (2009b) recommend that faculty consider incorporating an adult's life experiences into class activities since adult experiences are a valuable resource.

The third principle of the andragogical model is the role of learner experiences (Knowles et al., 2005). Adults collectively bring a more considerable amount of life experience and a wider variety of experience to the classroom than younger students. By virtue of having lived longer, adults have accumulated more experience than they had as youths (Knowles et al., 2005). Experience must be lived and cannot be taught, which would imply that adult learners come to the classroom with different levels of thinking

than younger learners. To reference Bloom's taxonomy, elementary students are taught to remember and understand, whereas adult students have a higher level of thinking (Knowles et al., 2005). Adults are more equipped to apply, analyze, evaluate, and create when interacting with the material presented to them in the classroom (Armstrong, 2020), which implies that the founding principles of pedagogy may not be the best fit for adults in the classroom. In applying the third principle, the course content "must be structured in a way that fosters sharing of experiences among learners such as through the use of group projects and interactive discussions" (Blondy, 2007, p. 121).

The fourth principle is the readiness to learn (Knowles et al., 2005). As a person matures, his/her readiness to learn becomes oriented to the development task of his/her social roles. A person's readiness to learn depends on an appreciation of the relevance of the topic to the student (Taylor & Kroth, 2009a). As previously mentioned, adult students further their education with the expectation that additional education will help them reach their goals.

The fifth principle is the orientation to learning (Knowles et al., 2005). In contrast to children's and youths' subject-centered orientation to learn (at least in school), adults are life-centered (or task-centered or problem-centered) in their orientation to learning (Knowles et al., 2005). Adults are motivated to learn to the extent to which they perceive that the knowledge they are acquiring will help them perform a task or solve a problem that they may be facing in real life (Taylor & Kroth, 2009b).

The final principle of andragogy is motivation (Knowles et al., 2005). Adults' life experiences impact their motivations to learn, which is a critical difference between adult and child learners. Child learners are motivated to get correct answers in class to advance

to the next grade or school level. In contrast, adults may be motivated by extrinsic factors such as job, salary, or promotion (Abela, 2009; Knowles et al., 2005).

Faculty Perspectives on Distance Learning

Higher education is facing significant institutional challenges created by new and emerging technologies (Jaffee, 1998). Advances in technologies have disrupted several industries in recent years, and higher education is no exception. With the shift to distance and remote learning, the definition of what constitutes a classroom has evolved. The classroom may be regarded as a sacred institution with symbolic meaning for faculty and administrators, who may only be accustomed to learning in the traditional (face-to-face) format (Blin & Munro, 2008; Jaffee, 1998). Even before the COVID-19 pandemic, it appeared that higher education institutions were slow or resistant to potential nontraditional instruction models with a focus on the ability to learn remotely using technology (Blin & Munro, 2008). One of the areas of greatest interest to universities is the potential of distance learning to meet the needs of changing student demographics and the potential for expanding enrollments (Magiuka, Shi, & Bonk, 2005)

Blin and Munro (2008) explored why technology has not disrupted higher education faculty members' teaching practices. Blin and Munro (2008) stated that higher education might be especially prone to resistance since approximately 95% of the academic staff believed or perceived that the traditional face-to-face lecture model is the most effective means to produce student learning outcomes. The conventional face-to face lecture format may be geared more toward faculty members' desires rather than the changing needs and demographics of students (Blin & Munro, 2008). According to Blin and Munro, higher education faculty members articulated they were not familiar with the

technology and therefore only utilized the basic features required to teach their courses. Educators indicated a lack of time or opportunities to learn how and for what purposes the advanced functionalities served, which often entail a more complex design process, as the main reason for not attempting to use advanced features of the technology (Blin & Munro, 2008). There were formal training sessions available to faculty to learn how to use technology in innovative teaching, but 43.2% of respondents indicated they attended one session. Blin and Munro concluded that the lack of transformative teaching practices could be partially attributed to the lecturers' lack of appropriate competencies, which were not adequately addressed by their university's training program.

Blin and Munro (2008) recommended that instructors should focus more on activities that demand collaboration or reflection, such as journals and glossaries, instead of trying to replicate face-to-face teaching. The researchers suggested that training alone would not help the issues related to transitioning instruction from face-to-face to distance learning. Instead, there must be a more radical transformation of the university teaching practices' overall social context (Blin & Munro, 2008). These researchers indicated that faculty had expressed a willingness to implement the usage of new technology in the classroom if they were able to receive proper training and support. Elliott, Rhoades, Jackson, and Mandernach (2015) suggested that institutions should consider providing professional development programs to improve the use of technological resources for course instruction that extend beyond a single day or one hour training. According to Elliott et al., a collective institutional effort would be required to help the student and faculty experience during courses that utilize video conferencing as an educational tool in the classroom.

Mills, Yanes, and Casebeer (2009) conducted a study of the perceptions of College of Education faculty to ascertain their perceptions about distance education's value and viability. Several emerging themes from this study were significant to the faculty members' perspectives surrounding distance education. One theme was that faculty members responded that distance education needed to be a substantial focus if their university wanted to remain relevant and compete with other peer institutions. The second theme was that faculty and students needed to be technologically competent. Faculty in the Mills et al. (2009) study raised concerns related to the viability of video conferenced instruction. The university studied provided full departmental support for pursuing distance education. However, faculty still had doubts that support could come to fruition due to the scarcity of resources to support technology and the university's lack of communication regarding distance education efforts. Another interesting finding by Mills et al. (2009) was that one of the most common fears expressed by faculty was that they would not be able to effectively teach their course because students were not physically in front of them. Faculty raised concerns that face-to-face interaction with students was a required necessity to teach and interact with students effectively. The faculty stated that technology would not be able to replace that crucial component.

Calandarli and Yuksel (2012) reported that faculty members expressed that distance education would help remove barriers for students in the region who fit a non-traditional student profile. Respondents in Candarli and Yuksel's study indicated lack of student and faculty engagement were prime issues impacting their experience in the virtual classroom. Notably, the context of this study was a Hispanic serving institution, and the majority of students the university served had outside employment and shared

responsibilities for both nuclear and extended family, which resulted in substantial obligations on students for participation in child-rearing and support for aging parents.

A study conducted by Kessler (2016) evaluated faculty members' perceptions about teaching in a virtual classroom. Kessler's survey consisted of 733 respondents who had substantial teaching experience and significant online experience. One of the key findings of this study was that faculty felt that the training provided (often an hour or less) was not sufficient to affect the instructors' perceived effectiveness in the virtual classroom (Kessler, 2016). For training to be both impactful and consistent, Kessleer recommended that institutions should conduct a faculty needs assessment. According to the University of Minnesota (2016), faculty needs assessment results should be used to plan what content should be included and how the training will be delivered. Trainings should also be ongoing to help facilitate faculty learning and comfort with the new technology. Kessler's (2016) study also concluded that the training provided to faculty should focus more on learning the technology rather than adapting the pedagogy or content to be more conducive to facilitating learning in a new environment.

A Shift to Remote Learning in Higher Education Due to COVID-19

Lawson, Comber, Gage, and Cullum-Hanshaw (2010) reported that the use of video-conferencing technology can be traced back to the motion video telephone that was introduced by AT&T at the 1964 World's Fair in New York. Initially, this platform was utilized by businesses to conduct long-distance meetings. In 2017, Reese and Chapman indicated that in higher education, video-conferencing, whether accessed via the web or desktop, was considered one of the most commonly used tools for facilitating learners' self-directed use of technology in a synchronous mode.

According to Jaffee (1998), higher education is mired in longstanding traditions and operation methods that make it difficult to enact change. In the spring semester of 2020, colleges and universities were forced to switch to remote and online delivery of instruction due to the worldwide COVID-19 pandemic. Some institutions utilized an asynchronous coursework delivery format, some used synchronous delivery of classes through video conferencing, and others used a combination of multiple formats. Zoom, a video-conferencing platform, reported an increase from 10 million users to an excess of 300 million users during the pandemic of 2020 (Reuters, 2020). New users of Zoom consisted of business and educational entities. Zoom offered its platform free to educational institutions so that finances would not be an educational barrier for students' remote learning.

Colleges were forced to transition to virtual and remote delivery of learning due to the 2020 pandemic, and faculty had mixed reactions to switching from in-person delivery of learning. Cullings (2020) wrote an article about an interview conducted with a mathematics professor at a small, private, 4-year institution in Kansas. In the article, the professor discussed how he only had one week to transition all classes to an online instructional platform. The professor considered himself to be fairly tech-savvy and stated that the delivery method's change made him more mindful of the ways he could help students achieve course outcomes. The professor said that he had become unexpectedly inspired to use more technologies when classes returned to face-to-face formats. Burke (2020) described a professor from the University of Washington who posted on his social media account, “Teaching well online requires a much more intentional arc of planning and learning around design and pedagogy”(para. 30).

There were many different perceptions and opinions from educators regarding the practicality and effectiveness of utilizing technology as an educational medium. June (2020) reported the results of a survey conducted by the Chronicle of Higher Education between May 11 to May 17, 2020. Many instructors indicated that spring 2020 courses delivered remotely were worse than those taught face-to-face. Another commonality in the survey results was that many instructors said they needed a lot more experience and training to continue to teach remotely (June, 2020).

Lederman (2020) described the experience of Eric Loepp, an assistant professor of political science at the University of Wisconsin at Whitewater. Loepp recorded his students' perceptions and anxieties about moving to remote learning due to the pandemic. Initially, students were more worried about how they could perform and what they would learn than concerns about technical operation difficulties with the transition to a virtual course delivery format. Students indicated stress, frustration, and confusion around how they would perform in a virtual space and the impact on their overall grade. Loepp reported that most of the students liked having a synchronous component to their learning which allowed them to interact with their classmates and instructors. An interesting concern Loepp expressed was how to meet for planned, structured time with students while being careful about mandating synchronous meetings out of respect for those who work, care for dependents, or otherwise have complicated lives (Lederman, 2020). While Lederman did not indicate if Loepp's recordings were provided by undergraduate or graduate students, the concerns echoed many of the challenges and responsibilities associated with nontraditional students. Lederman concluded that higher education needs to re-evaluate the methodologies used in teaching virtually.

Serhan's (2020) study of students' attitudes and perceptions of transitioning from face-to-face learning to instruction delivered using Zoom, found that students were not fully satisfied with their learning experience during their transition period. Participants in Serhan's study indicated that flexibility was the number one advantage of using Zoom to deliver instruction. When elaborating further on what participants defined as flexibility, the following answers were provided:

> works best with my schedule during the pandemic, you get to do it in the comfort of your own home, makes it easier to attend class and helps with most everyone's schedule, I don't have to show my face every second, I am able to come to class and participate without the need of going to a physical location, and the flexibility of attending class from wherever they are located at that time. (Serhan, 2020, p. 331)

Similar to one of the purposes of the current study, Serhan also investigated students' perceptions of the disadvantages of using Zoom as a delivery tool for instruction. Participants of Serhan's study cited distractions, quality of interaction and feedback, poor education quality, and technical difficulties as disadvantages of instruction delivered using video conferencing. Participants expanded on defining distractions by saying more things in one's home distract students from staying focused on learning because of family, phone, and anything not typically found in the classroom environment. In reference to the quality of interaction and feedback, students stated that the instructors' feedback was not the same as in-person. Students felt that some things were just different live and in-person rather than virtually. Participants compared the difference in face-to face versus remote instruction to attending an in-person sporting

event rather than watching it at home on television. Respondents in Serhan's study also stated that it was difficult to interact with anyone during the use of zoom. They felt a lack of connection between themselves, their peers, and their professor.

Serhan's (2020) participants stated they felt like they were getting a poorer quality of education and that they were not learning as well with the given material in contrast to being taught the same material in-person. These feelings also led students to express they were not getting a good value for the amount of tuition they were paying. Lastly, students cited technical difficulties being a negative aspect of using Zoom for video instruction delivery.

Results from Serhan's (2020) study showed that 23 % of the students agreed that they enjoyed having instruction delivered using Zoom compared to 55 % of the participants who indicated they did not enjoy classes delivered using Zoom. Nineteen percent of the students indicated they would like to have other classes delivered using Zoom while 55% indicated they would not like to have future classes delivered using Zoom (Serhan, 2020).

In contrast, Agarwal and Kaushik (2020) conducted a study in which 99% of students found that delivery of instruction using Zoom was adequate to their level of learning. Agarwal and Kaushik's participants were medical students who had face-to-face classes replaced with delivery of 40-minute lectures using Zoom due to the COVID-19 pandemic. Based on the findings from the study, the researchers concluded that a remotely delivered teaching component should be part of postgraduate training in future classes. Agarwal and Kaushik's findings concured with those of Fantana (2020) and Roy

et al. (2020) that indicated participant satisfaction with instruction delivery using video conferencing.

Much of the current research regarding students' perceptions of video conferencing technology's use as a platform for the delivery of course instruction focuses on undergraduate students. Taylor and Hamdy's (2013) theory on the continuum of learning implied that the perceptions of undergraduate students would not be the same as graduate students' perceptions relating to video conferencing technology in the classroom as the two groups fall on different points of the continuum. With many workplaces moving to a remote work environment due to the COVID-19 pandemic, some adult students might be more attracted to taking coursework delivered through video conferencing (Dyki, Singorahardjo, Cotronei-Baird, 2020).

Zoom

Zoom is a video conferencing platform that allows users to share audio and visual data in a synchronous format. It also allows registered users to transmit files, slides, static images, and text through the platform being used, such as a desktop or over the internet (Krutka & Carano, 2016). Zoom is one tool that allows educators the opportunity to teach students in a synchronous manner using the Internet to facilitate student interaction with classmates and instructors regardless of geographical location. Zoom is described as a "modern learning tool for the modern student by creating a collaborative classroom through web communications" (Zoom, 2019, p. 1). "Zoom allows instructors to create polls, break students into smaller groups, and allows the session to be recorded for later viewing. Students can join meetings or classes virtually from different devices such as their laptop, cell phone, or tablet" (Zoom, 2019, p. 1).

Technological advances allow for increased learning opportunities without the need for students and instructors to be in a physical classroom together. While studies have investigated undergraduate students' perceptions related to computer-based instruction, few have examined graduate students perceptions about instruction delivered using video conferencing specifically. At the time of this study, only one study had researched perceptions of doctoral students related to delivery of instruction that utilized Zoom. Zoom is a compelling instructional delivery technology platform to examine given its rapid adoption by higher education institutions due to the global pandemic.

Summary

Chapter 2 provided the historical evolution of distance learning**,** distance learning in undergraduate education, distance learning in graduate education, faculty perspectives on distance learning, the shift to remote learning in higher education due to COVID-19, and Zoom. Chapter 3 explains the methodology of the research study. Included in chapter 3 is the research design, setting, sampling procedures, instrument, data collection procedures, data analysis, reliability and trustworthiness, researchers' role, and limitations of the study.

Chapter 3

Methods

This study was designed to investigate doctoral students' perceptions about the use of Zoom as a platform for delivering instruction after participating in face-to-face instruction immediately prior to the COVID-19 pandemic. This study was guided by three purposes. The first purpose was to understand the perceptions of doctoral students about challenges related to use of Zoom for delivery of instruction. The second purpose was to investigate the perceptions of doctoral students about positive aspects related to use of Zoom for delivery of instruction. The third purpose was to ascertain doctoral students' recommendations for improving instruction using Zoom as the platform for delivery of instruction. This chapter describes the research design, setting, sampling procedures, instrument, data collection procedures, data analysis and synthesis, reliability and trustworthiness, researchers' role, and limitations of the research study.

Research Design

A qualitative phenomenological research design was selected to examine the perceptions of doctoral students about utilizing Zoom as a delivery platform in their coursework. Qualitative research is a means for exploring and understanding the meaning individuals or groups ascribe to a social or human problem (Creswell 2014). Phenomenological research is a design of inquiry in which the researcher describes the lived experiences of individuals about a phenomenon as described by the individuals (Creswell, 2014). The phenomenon examined in this study was the perceptions of doctoral students attending a small Midwestern university about challenges, positive aspects, and recommendations for improving instruction delivered via Zoom.

A qualitative phenomenological research design was deemed appropriate for this study since the goal was to analyze perceptions of doctoral students whose program coursework was delivered initially face-to-face and then switched to Zoom due to the COVID-19 pandemic.

Setting

The setting for this study was a private 4-year, liberal-arts university in the Midwest (University X). This university was selected due to the disruptions in the platform for course instruction due to the COVID-19 pandemic that occurred beginning in March 2020. In the fall of 2019, participants in the study were enrolled as a cohort in instruction delivered face-to-face. Beginning in March 2020, all instruction was converted to Zoom as the instructional delivery platform due to public health mandates that prevented face-to-face gatherings in public settings. Zoom was used as an instructional delivery platform for the Ed.D. PK-12 doctoral program. Enrollment at University X at the time of the current study included 53 students in a PK-12 doctoral program who were enrolled in a cohort model prescribed two years of coursework.

Sampling Procedures

The sampling method used in this study was purposive sampling. Purposive sampling involves selecting a sample based on specific characteristics (Lunenberg & Irby, 2008). The sample for this study was 10 students who were enrolled in doctoral instruction prior to and during the COVID-19 pandemic. Purposive sampling was used to select a sample that included doctoral students enrolled in the PK-12 doctoral program who had completed a minimum of two courses delivered face to face and because of the pandemic, had instruction in a minimum of two courses delivered completely by using

the Zoom video confencing platform between the fall of 2019 and fall of 2020 at University X. To obtain participants for the study, the researcher contacted the Dean of the School of Education at the university's satellite campus since all doctoral programs are housed at that location. The Dean was asked to provide contact information for students who met the specified criteria. The study included students who met the identified criteria who agreed to participate in semi-structured interviews conducted using Zoom.

Instrument

According to Creswell (2014), qualitative interviews can consist of face-to-face interviews with participants or telephone interviews that involve unstructured and generally open-ended questions to elicit views and opinions from the participants. In order to gather data for this study, an interview protocol was developed by the researcher that included five descriptive and demographic questions and 12 semi-structured interview questions aligned with the research questions. This method for gathering information allowed participants to provide information in their own words to illustrate their experiences in a doctoral program that used both face-to-face and Zoom for delivery of instruction. Interview questions were developed based on a review of existing literature and personal experience of the researcher.

Descriptive and demographic questions included the following:

1. What is your age?
    a. 25-34
    b. 35-44
    c. 45-54
    d. Above 54

2. What race and/or ethnicity do you identify with (Select all that Apply)
    a. Asian/ Asian American
    b. Black/African American
    c. Hispanic/Latino
    d. Indigenous/Native American
    e. White/Caucasian
    f. Other ethnicity: _____
    g. I would prefer not to comment
3. What is your current employment status?
    a. Full-time employment
    b. Part-time employment
    c. Other (please describe)
4. What is your current professional role and title?
5. Prior to enrolling in the Ed.D. program, had you previously taken courses utilizing a web conferencing platform as an educational tool?

The semi-structured interview questions aligned with the research questions included the following:

RQ1. What are the perceptions of doctoral students about challenges related to use of Zoom for delivery of instruction?

IQ6. What challenges did you experience related to courses that used Zoom as an instructional platform?

IQ7. What challenges did you experience interacting with fellow students in courses that used Zoom as an instructional platform?

IQ8. What challenges did you experience interacting with faculty in courses that used Zoom as an instructional platform?

IQ9. What challenges did you experience while preparing and presenting group assignments in courses that used Zoom as an instructional platform?

IQ10. Is there anything else you would like to tell me about challenges you experienced when completing courses delivered using Zoom?

RQ2. What are the perceptions of doctoral students about positive aspects of Zoom to deliver instruction?

IQ11. From a student's perspective, what were the positive aspects of completing courses via Zoom?

IQ12. What positive aspects did you experience interacting with fellow students in courses that used Zoom as an instructional platform?

IQ13. What positive aspects did you experience interacting with faculty in courses that used Zoom as an instructional platform?

IQ14. What positive aspects did you experience while preparing and presenting group assignments in courses that used Zoom as an instructional platform?

IQ15. Is there anything else you would like to tell me about positive aspects you experienced when completing courses delivered using Zoom?

RQ3. What are doctoral students' recommendations for improving instruction using Zoom for delivery of instruction?

IQ16. What recommendations for improving instruction do you have for faculty teaching classes using Zoom?

IQ17. What recommendations do you have for students who are taking classes via Zoom to help them be successful?

Data Collection Procedures

Prior to collecting data for this study, the researcher submitted a Proposal for Research to the Baker University Institutional Review Board (IRB) requesting approval to conduct the study. The IRB request was submitted on December 13, 2020, and approved on December 15, 2020 (see Appendix A). Upon the receipt of IRB approval from Baker University, the researcher contacted the Dean of the School of Education at University X and requested names of Doctorate of Education candidates in the PK-12 program who had completed a minimum of two courses delivered face-to-face and a minimum of two courses delivered using Zoom between fall 2019 and fall 2020. Once names and contact information were received, the researcher sent an email invitation to potential participants (see Appendix B). The email to potential participants included the purpose of the study, the interview questions, and information regarding the ability to opt out of the study at any time or refrain from answering any interview questions. The invitation to participate also explained the voluntary nature of the study and indicated there were no risks or discomfort associated with participation, no compensation, and the anticipated amount of time the interview would require. Potential participants were informed the interview would be recorded and that an anonymized code (e.g., Student 1, Student 2, etc.) would be used to ensure confidentiality of responses. The opportunity to review the interview transcript for accuracy was also explained. For those participants who agreed to participate in the study, interviews were scheduled using Zoom at a time that was mutually agreeable to the participant and the researcher. Prior to conducting interviews with participants, the researcher asked two external peer examiners to review the interview questions for clarity and alignment with the research questions. Examiner

one completed a qualitative dissertation and currently works at a regional public university in the Midwest. Examiner two completed a qualitative dissertation and presently works at a regional high school in the Midwest. In addition, a peer of the researcher participated in a mock interview and provided feedback to the researcher about the interview process, the pacing of questions, and the use of follow-up questions as appropriate. Each participant was required to sign an Informed Consent Form (see Appendix C) that included the same information provided in the invitation to participate in the study (see Appendix B) prior to participating in an interview. The consent form also indicated that the interview would be audio recorded to facilitate transcription. Participants were also informed that the researcher would take notes throughout the interview.

Being interviewed can be an unfamiliar experience. The ability to be more at ease during the interview process is important to help the researcher attain open and candid answers (Lewis & Graham, 2007). Prior to each interview, the researcher thanked the participants for their willingness to participate in the research study and asked them how the pandemic was affecting their lives. Once rapport was established, the researched asked the descriptive and demographic questions followed by the interview questions that were aligned with the research questions

Data Analysis and Synthesis

Creswell (2014) presented five steps to analyze qualitative data. Step one is to organize and prepare the data for analysis. In the current study, upon completing participant interviews, a professional transcriptionist from Rev.com was used to prepare and transcribe the interviews. The researcher reconciled the audio files with the

transcripts to ensure accuracy by listening to each audio file and reading the corresponding transcript simultaneously. Once the interview transcriptions were complete, the researcher sent each participant the transcript from the interview and asked the respondent to review the transcript for accuracy, additions, or omissions. Birt, Scott, Cavers, Campbell, and Walter (2016) referred to this process as member checking. After respondents returned transcripts with any corrections, personally identifiable information was removed from each transcript to maintain participant confidentiality, and a code known only to the researcher (e.g., Student 1, Student 2, etc.) was assigned to each interview transcript. Then the researcher reviewed each transcript again and added observations about sighs, hesitations, laugher, etc. to the margin of each transcript.

Creswell's step two is to read or look at all the data. In the current study, the researcher read each transcript several times to gather an overall impression of the responses. Creswell's step three requires coding the data. The researcher used a colored font to highlight common words and phrases used across the majority of the transcripts. A different color font was used to highlight significant differences in responses. Individual responses that were deemed to be unique and interesting were highlighted in a third color font. Step four, as described by Creswell, is to generate themes. To implement this step, the researcher created a list of the common codes (words and phrases) that occurred across each interview question. A review of these words resulted in the identification of themes that captured the commonality of the interview responses. Finally, Creswell's step five is representing the description of themes. A phrase or sentence was developed to represent each theme. After the data analysis was completed, the researcher asked the same two external peer reviewers who participated in the review

of interview questions to examine the transcripts and identified themes for accurate interpretation of the data. Both examiners concurred with the data analysis. All interview recordings and transcriptions were saved on a jump drive accessible only to the researcher and kept in a locked file. All data will be kept for five years and then deleted.

Reliability and Trustworthiness

Qualitative research is a tool that allows researchers to study the experiences of people. The validity of the research impacts the ability for concepts and theories to be extrapolated from the results. Validity in qualitative research means the extent to which the data are plausible, credible, and trustworthy; and thus can be defended when challenged (Bashir, Afzal, Azeem, 2015). Following recommendations by Creswell (2014), the researcher provided the interview and research questions to two peer examiners prior to the interviews. Both peer examiners were familiar with qualitative research. The peer examiners were asked to give feedback on the wording of the interview questions and indicate whether or not the questions would elicit the necessary responses to obtain information to formulate insight related to the research questions. No modifications in the interview questions were made as a result of the peer reviews.

To ensure reliability and trustworthiness, prior to conducting interviews with study participants, one pilot interview was conducted by the researcher with a peer to gain experience in the interview process, organization and clarity of the interview questions, and delivery of the questions. After interviews were transcribed, a copy was sent to each participant for review and any corrections, additions, or deletions. Birt et al. (2016) referred to this process as member checking. Member checking ensured the trustworthiness of the research findings. Once transcripts were coded and theme

identification was completed, the researcher asked the same two peer reviewers who participated in the review of interview questions to review transcripts and the themes identified by the researcher.

Researcher's Role

The researcher's role is critical in qualitative research. Creswell (2014) stated that in qualitative research, the researcher must acknowledge potential biases, prejudices, and past experiences that could impact the researcher's ability to be objective throughout the study. The researcher for this study was enrolled at University X in an Ed.D. program in Leadership in Higher Education at the time of the study. University X afforded the researcher with familiarity with the institutions' model for offering accelerated evening classes using varied instructional modalities including face-to-face, interactive distance learning using two-way video conferencing with an external campus location, and Zoom. As a student with experience utilizing Zoom for course delivery, the researcher may have had potential biases related to Zoom. To minimize potential biases, the researcher considered all the data obtained and reevaluated and reviewed the data to ensure themes were consistent with the interviewee's responses.

Limitations

A limitation is a factor that may have an effect on the interpretation of the findings or on the generalizability of the results (Lunenburg & Irby, 2008). The findings in the current study are specific to the Ed.D. in Educational Leadership (PK-12) program at University X and may not be generalizable to other programs at the institution or to other institutions that deliver instruction using Zoom in doctoral program coursework. Another limitation was participants' ability to accurately remember their experiences

while enrolled in the program at University X. A third limitation that may occur in qualitative studies is that interview participants may feel pressure to manage impressions and may not be entirely forthcoming with their responses. A final limitation is that this study relied on only one type of data, interviews. Triangulation of multiple types of data may have increased the rigor of this research.

Summary

This chapter described the research methods used in the current study. The research design, sampling procedures, instrument, data collection procedures, data analysis and synthesis, reliability and trustworthiness, and the researcher's role in the study were described. Five descriptive and demographic questions and 12 semi-structured interview questions were asked of 10 participants to better understand their lived experiences in a doctoral program that converted from delivering instruction in-person to delivering instruction using Zoom during the COVID-19 pandemic at University X. Chapter 4 presents the results of the data analysis.

Chapter 4

Results

The purpose of this study was to gain an understanding of the experiences of 10 doctoral students whose instruction in the fall of 2019 and early spring of 2020 was taught in person. Due to the COVID-19 pandemic and restrictions related to in-person gatherings, the platform for delivering instruction was changed to Zoom video conferencing in March of 2020. Each participant completed an interview using Zoom, and their responses were analyzed for this study. Chapter 4 includes a summary of participant descriptive statistics and an explanation of themes and subthemes that emerged from the interviews.

Eight participants were female and two participants were male. Participant ages ranged from 27 to 42 years of age. None of the participants had prior experience in having doctoral instruction delivered using Zoom prior to the COVID-19 pandemic. Nine participants were employed full-time. One participant was a full-time homemaker.

Qualitative data were gathered from the participants' responses to an interview protocol that included descriptive and demographic questions and semi-structured interview questions aligned with the research questions. The data were analyzed to gain a deeper understanding of:

a. The perceptions of doctoral students about challenges related to use of Zoom video conferencing for delivery of instruction.
b. The perceptions of doctoral students about positive aspects related to use of Zoom video conferencing for delivery of instruction.

c. Doctoral students' recommendations for improving instruction delivered using Zoom video conferencing.

Three major themes aligned with the research questions and seven subthemes were identified from the data analysis. The first theme was challenges related to instruction delivered using Zoom video conferencing. Technology issues and distractions were identified as two subthemes. The second theme was positive aspects related to instruction delivered via Zoom. Participant responses resulted in the identification of two subthemes, flexibility and access to faculty. The third theme was recommendations for improving instruction delivered using Zoom video conferencing. Three subthemes were identified for this theme: faculty training, student training, and allocated time for social interaction. The following sections provide a summary of the three major themes and seven subthemes identified from the data analysis.

Challenges Related to Using Zoom for Delivery of Instruction

All participants described challenges they experienced using Zoom for delivery of instruction. Responses about challenges clustered into two subthemes: technology issues and distractions. The next sections describe each of the two subthemes.

Technology issues. All 10 respondents shared technological issues they experienced during instruction delivered using Zoom. Student 1 described internet connectivity issues hindering group work by stating,

> Sometimes if you don't have the best signal, I guess there's times where all you hear is static, or the person goes in and out, and then it just makes it that more difficult. You don't want to work with that person.

Student 3 shared a similar perception regarding internet connectivity issues.

> I think one of the biggest challenges we've had is the professor's ability to use Zoom and internet connectivity. One class that I can think of, particularly, the professor is out in [Midwestern state] somewhere, and their internet connectivity is very spotty. So they would freeze or they would drop out of class, and we'd have a room full of people waiting for the professor to come back. Or the professor would be talking but we couldn't hear what the instructor was saying. These were frequent issues that we had in class.

Student 4 referenced how internet connectivity impacted her experience by saying,

> We had a lot in our cohort that were in a rural area, and so their internet was an issue. They had a large delay. I think it interrupted the flow, and it stopped the ability to hear everybody's perspective.

Student 8 shared Student 4's perspective on the connectivity issues.

> I would say the biggest challenge is that we have a couple of, or I have a couple of classmates that live out in more rural areas. I can think of two students specifically that their internet isn't always great. And so, a lot of times they'll be in the middle of saying something and they cut out or maybe they get kicked out of Zoom and have to come back in.

Student 6 referenced the influx of people using Zoom due to COVID-19, "A lot of times connection was poor because you're imagining how many people are trying to use Zoom at one time."

Distractions. Eight of the 10 of the respondents stated that they experienced distractions using Zoom as a platform for instruction delivery. These distractions

originated inside and outside of the Zoom delivered class sessions. Student 1 described how having children can be a distraction.

> Obviously, you can hear my background. I have kids, so it makes it hard for students to concentrate whether you're doing group work, course work, it doesn't matter. It makes it so much harder. So for me, if I'm trying to learn or trying to talk or whatever, for someone else to be listening to me, I think it's harder for them to try to concentrate on what I'm saying, because my children make noise.

Student 5 concurred with Student 1's assessment of distractions by saying, "A lot of my peers have kids literally running around them during class." Student 2 also expressed that having a baby at home provided a personal family distraction for her if she was Zooming into class from home and the baby needed tending to during class. Student 3 stated,

> The true, probably biggest challenge I've had since we've gone Zoom and I've been doing it from Zoom versus being in the building is the outside distractions you don't escape. I have two small children who have not quite learned, "Don't come into daddy's office when he's in class."

While eight study participants described distractions due to family members, Student 8 commented about distractions from pets. "I know everybody has a different home situation with pets, as you heard earlier when my dogs went crazy."

Student 3 said that people were not the only distractions when it came to participating in class using from home. Student 3 stated,

> I'm sitting in my [home] office, and I've got a TV in front of me, and I've got a window next to me, and I don't want to be here. And so, that has probably, honestly, been the most difficult part of using Zoom full-time.

Positive Aspects Related to Using Zoom for Delivery of Instruction

All of the respondents described positive aspects of using Zoom as an instructional tool for course delivery. Responses clustered into two subthemes: flexibility, and access to faculty. The next sections describe responses that illustrate each of the subthemes.

Flexibility. Each of the 10 interviewees described the positive aspects of using Zoom for instruction delivery during their doctoral program. All or the participants shared various views on how using Zoom delivery afforded them flexibility in learning and logistics. Student 3 stated,

> It's not as stressful in being here [home] as it is sometimes going to class. I can get a snack when I'm hungry, and I can get a drink when I'm thirsty. And at the end of class, no matter how tired I am, my commute is just going to the next room and going to sleep.

Student 2's response echoed a sentiment similar to that shared by Student 3,

> I would just reiterate the flexibility. Even though it's hard to separate work in school, it's nice to not have to grab dinner every Wednesday for my husband. My husband can finish up dinner and then I can eat when we're [the class is] meeting. Just the flexibility with logistics.

Student 4 shared how delivery of courses using Zoom allowed her to balance work and personal responsibilities when they conflicted with her scheduled class time.

> You could do it [attend class] from anywhere. So there was one week that I had a work event in Arizona, and I was able to fly to Arizona, but do my class. So I didn't lose any class time, so that was nice. I've had my babysitter not be able to make it, and so I've been able to still do class from home.

Student 10 expressed how delivery of instruction using Zoom allowed her to manage work conflicts and improve her class attendance.

> There were several times when I would have a conflict because I'm a teacher, so there'd be a conference or concert or something where without Zoom, there'd be no way to do a conference, drive to [Midwestern University] and then back. I could just very easily say like, Hey, I have to step away for 20 minutes and then get right back on to Zoom. That was huge, because it improved my attendance because there would have been at least a couple of classes where I just couldn't have made it.

Saving drive time was a common response among many respondents. Student 5 stated, "It's more personal, not having to be driving 45 minutes to class. I saved myself a ton of time. I wasn't getting home late at night."

Student 6 expressed concerns that the pandemic would have interrupted her ability to complete the doctoral program and stated, "I mean, the biggest thing [positive aspect of Zoom] is that we get to complete it [the Doctoral Program]. I think that was a huge worry of a lot of people."

Access to faculty. A second subtheme that emerged was students' access to faculty with the implementation of Zoom delivery of instruction. Eight of the respondents indicated that utilizing Zoom as an instructional platform for course delivery

increased their access and interactions with faculty and staff. Student 6 indicated that faculty were more accessible due to teaching via Zoom. Student 1 provided an example of accessibility when she expressed that meeting with her professor in person would have provided a logistical challenge. "She lived out in the middle of nowhere and would not have been able to meet. I mean she could talk over the phone, but [on Zoom] I could share my screen, or she could share her screen and walk me through [the material]." Student 2 shared similar comments about faculty accessibility:

> The biggest thing would be professors being able to meet with you so easily. I have been able to share my screen with my advisor and my professor at the same time when they weren't anywhere near each other. Before, without Zoom, we'd have to be around the same computer or emailing or something or talking on the phone over a Google Doc. With Zoom, we were able to just see on one screen, here's the paper, everyone's notes, have a conversation just like if we were around a table. But honestly [Zoom] was even more efficient because that screen is right in front of us, and we didn't have to travel or really even coordinate transportation or anything like that. We just picked a time that worked for us and turned on Zoom.

Student 4 shared Student 1 and Student 2's sentiment by stating, "It's so easy to hop on Zoom for a five or 10-minute conversation about my paper, or an assignment, or my dissertation. We didn't have to travel or meet anywhere." Student 3 expressed that he would not have met with his professor if he did not have a Zoom meeting as an option. "I wouldn't have met with [professor] in person so that [Zoom] was a lifesaver for sure.

Some of those things where it's essential to see what you're clicking and what you're putting in."

Recommendations for Improving Instruction Delivered Using Zoom

All 10 respondents provided recommendations for improving instruction using Zoom. Three subthemes emerged: the need for faculty training in how to use Zoom, the need for student training in how to use Zoom, and allocated time for social interaction. The next sections explain each of these three subthemes.

Faculty training. Respondents described issues related to the lack of faculty facility with Zoom as an instructional delivery tool. Four students said faculty needed some type of training to use the technology, three expressed that faculty struggled with learning to use the technology [Zoom], one student shared that "technology definitely was not something that they [faculty] were most fantastic at."

Student 3 said, "I don't think there was a lot of [faculty] experience with Zoom, and honestly, I don't feel confident there was a lot of training either. So I would definitely say more training on the professor's part." Student 2 added, "I feel like we dealt with some teachers not knowing how to use Zoom." The majority of the participants responded that faculty training would have made the student experience in a Zoom delivered class more positive.

Many specific examples were provided by study respondents to describe lack of faculty expertise in using Zoom as an instructional delivery tool. Student 1 shared an experience with an instructor in one of the Zoom courses,

> Every time she turned her head, you couldn't hear anything she was saying. So we would constantly have to repeat, we can't hear you, we can't hear you. So then

she'd turn her head back and then we could hear her. So that was really, really hard for the whole entire course for that one.

Student 2 shared that some instructors had problems manipulating the technology and how one instructor was not monitoring the chat feature communication channel available via Zoom. "Some of my professors have definitely had a harder time showing videos. I remember one class where we probably watched four or five minutes of a video with no sound, and no one was monitoring the chat." Student 3 concurred with Student 2's chatbox statement by saying, "We've had some instructors that are very tech-savvy, and you can put questions in the chatbox, and they can respond to it. And then you have other instructors who aren't even sure what the chat box is."

Student training. Data analysis indicated there were many examples where students expressed an inability or a lack of comfort with utilizing Zoom during their coursework. Student 2 provided an example that illustrated the challenges she experienced when screen sharing on Zoom. Student 2 said she was constantly having to self-talk through the procedure for sharing a screen, then check with peers to make sure they could see the screen share, then affirm the microphone was on. According to this respondent, there was a constant concern that the technology was not working correctly. Student 4 also said, "Yeah, sharing the screen was a big deal. It was like a fourth of the class [first Zoom course] was spent on figuring out how to share screens."

Student 1 shared an interaction with an instructor. "One of our teachers, I guess he couldn't log in for whatever reason, asked me to go ahead and start the Zoom link for everyone else because it was with two other students. And I was like, "Oh, Lord have

mercy. I have no idea how to do that." Student 3 further shared the opinion that, “As a teacher, you need to make sure you don’t assume the person knows how to use Zoom.”

Allocated time for social interaction. All 10 respondents indicated that having allocated time in class for social interaction between students would have made their experience better for courses utilizing Zoom as an instructional delivery tool. Student 1 shared,

> The professor left us 30 minutes before class in our breakout room and we could talk about anything we wanted and that’s when we just kind of vented abut whatever was going on in life or the classroom or whatever. I think it helped build a sense of community. Made you feel a little more of the connections that we lose being digital or online.

Student 2 and Student 7 shared similar views regarding allowing students time to have undirected social time. Both participants indicated that all the students loved the breakout room social time because it provided a time for students to chat and decompress from the day. Regarding this social break out room, Student 7 shared:

> I feel like that time that we're in breakout rooms there is a little bit more depth to the conversations that we have, and we utilize all of that time. Even if it's not necessarily always on topic, we're getting to know our classmates better when we are in those breakout rooms.

Student 8 added additional information about how the allocation of social time in breakout rooms increased the support students felt during their program,

> We talked about what we did, what assignments we’ve done since the last time we talked, what was coming up in this class, and then also anything that was

> going on in our old worlds of education. And that was something our entire cohort agreed was awesome. Not only for doing better on assignments, getting a better understanding of what the coursework is, but getting to know each other better and just feeling supported within the program… [I] would say that it's important to allow for those social moments. That was really one of the positive things that happened in the group because if the social aspect is important, you have to find a way virtually to recreate that social aspect."

Student 10's opinion was similar to Student 8 in expressing a desire to allow social time to be built into class to nurture a sense of community among classmates.

> I think it helped really build a sense of community and we could ask and answer questions without the professor. We could just maybe be a little bit more candid or be ourselves more. And that was really nice since you could come in and be like, "Hey, how's it going? How's your kiddo doing," or whatever. Just to kind of have that sort of informal start was nice. Made you feel a little bit more of the connections that we lose being digital or online. So yeah, anytime a professor can naturally build those times for genuine connection to make it seem a little bit more personable, I think it would be really helpful.

Summary

Ten participants from a Midwestern university were interviewed to gain an understanding of doctoral students' perceptions about using Zoom for instruction delivery. Interview questions focused on challenges, positive aspects, and recommendations for improving doctoral students' experiences in courses that were delivered using Zoom as an instructional tool. The results derived from the interview

data were presented in chapter 4. Chapter 5 provides a study summary, findings related to the literature, and conclusions.

Chapter 5

Interpretation and Recommendations

The participants in this study were doctoral students who participated in the program as a cohort at a Midwestern University between the fall of 2019 and the fall of 2020. The study investigated participants' perceptions of challenges and positive aspects of using Zoom for instruction delivery due to the COVID 19 pandemic after initial instruction had been provided in-person. Study participants also shared their perceptions about recommendations for improving graduate instruction when using Zoom as an instruction delivery platform. Chapter 5 includes three sections. The first section provides a study summary that includes an overview of the problem, purpose statement and research questions, review of the methodology of the study, and major findings. The second section provides a summary of study findings related to the existing scholarly literature. The third section offers conclusions related to the study including implications for action, recommendations for future research, and concluding remarks.

Study Summary

This section provides a summary of the study beginning with an overview of the problem. The purpose statement and research questions are restated. Finally, the section concludes by reviewing the methodology and discussing the major findings.

Overview of the problem. Universities are looking for new and creative ways to expand the boundaries of learning. Digital technologies offer promising tools to assist learning in general. Such technologies can change the ways we learn (when, where, and how) and can make learning more democratic, equitable, and accessible (Candarli &Yuksel, 2012). Instruction delivered using Zoom can enable adult students to interact

with classmates, the instructor, and materials while also being able to fulfill home obligations. There is limited research on doctoral students' perceptions of the use of video conferencing or Zoom as an instructional delivery tool. This study contributes to that gap in the literature.

Purpose statement and research questions. Three purposes aligned with three research questions guided this study. The first purpose of the current study was to understand the perceptions of doctoral students about challenges related to use of Zoom for delivery of course instruction. The second purpose was to investigate the perceptions of doctoral students about positive aspects related to use of Zoom for delivery of instruction. Finally, the third purpose was to discover the recommendations doctoral students had for improving instruction while using Zoom for delivery of instruction.

Review of the methodology. A qualitative phenomenological research design using semi-structured interviews was employed for this study. A phenomenological approach allowed the researcher in the current study to analyze the lived experiences shared by respondents related to their perceptions about challenges, positive aspects, and recommendations for improving instruction using Zoom as an instructional delivery platform. An interview protocol that included descriptive and demographic questions and semi-structured interview questions was developed in alignment with the research questions for the purposes of this study. The semi-structured interview questions were derived to ascertain doctoral students' perceptions of Zoom technology as an instruction delivery tool. Two external reviewers examined interview questions for understandability and alignment with the research questions. In addition, a practice interview was conducted to determine whether or not any changes needed to be made in

the understandability or delivery of interview questions. All interviews were audio-recorded and transcribed. Member checking was used to verify the accuracy of the interview transcripts.

Ten students enrolled in a doctoral program that prepares leaders for PK-12 settings participated in interviews. Interviews were scheduled and conducted for 60-minute sessions using the Zoom platform. Each respondent's transcript was assigned an anonymous code (e.g., Student 1, Student 2, etc.) to protect participant confidentiality. Creswell's (2018) five steps for data analysis were used to analyze the data: 1) organize and prepare the data for analysis, 2) read or look at all the data, 3) start coding all the data 4) generate a description and themes, and 5) represent the description and themes, were applied during data analysis. Reliability and trustworthiness were insured through having external subject matter experts review the interview protocol prior to implementation. Member checking verified the accuracy of the transcripts. External subject matter experts reviewed the data analysis process and resulting theme identification based upon the analysis of the transcripts.

Major findings. Three themes and seven subthemes were identified as a result of the data analysis. Theme one was challenges related to using Zoom for delivery of instruction. Participant responses were grouped into two subthemes: technology issues and distractions. An example of technology issues was internet connectivity. Distractions included background noise and visual distractions from family members and pets. Theme two was positive aspects related to using Zoom for delivery of instruction. Respondent comments clustered in two subtheme areas – flexibility and access to faculty. Participants provided examples of the reduction in commuting time and the ability to

attend classes from anywhere to explain how using Zoom to deliver instruction provided flexibility. All respondents indicated that it was easier to 'connect' with faculty using Zoom. Impromptu and scheduled meetings that required no travel time could be scheduled using Zoom. Screens could be shared between faculty and students during Zoom meetings that promoted simultaneous viewing of written materials. The third theme was recommendations for improving instruction delivered using Zoom. Three subthemes: faculty training, student training, and allocated time for social interaction were identified within the third theme. Faculty training was mentioned by eight of 10 respondents as a recommendation for improving the use of Zoom as an instructional delivery tool. Participants provided examples of faculty who were not well versed on the need to face the microphone when speaking to the class, and those who did not know how to respond to the chat and other instructional features, including screen sharing, within the Zoom platform. Respondents also indicated that students needed instruction on how to use Zoom. Four students referenced difficulties they had using the technology to share their screen during coursework. All 10 respondents indicated that moving to instruction delivered using Zoom reduced their overall sense of community with other students that occurred naturally when instruction was previously in-person. The third subtheme identified within the recommendations for improving usage of Zoom as an instructional delivery tool was allocated time for social interaction. Respondents stated they attended one course that allowed them time to socialize in small groups over Zoom at the beginning of class. These small groups afforded students the opportunity to have undirected, unmonitored discussions in which they were able to create connections with other students in a virtual space. The respondents recommended that allocated time for

social interaction be used in all courses that use Zoom for course delivery for doctoral students.

Findings Related to the Literature

Mohammed et al. (2007) reported that participants experienced a decreased interactivity with other students when learning was delivered remotely in comparison to face-to-face learning due to the limitations of interpersonal communication in synchronous audio-visual delivery. Wang et al. (2020) and Serhan (2020) also indicated that participants in video conference delivered courses reported a lack of connectivity with peers. Participants in the current study concurred with findings presented by Mohammed et al. (2007), Wang et al. (2020), and Serhan (2020). All 10 respondents in the current study reported a reduced sense of community when delivery of instruction in the doctoral program was switched from in-person to Zoom.

Mohammed et al. (2007), Sahin and Shelly (2008), Wickersheim and McGee (2008), Lei and Gupta (2010), Bollinger and Halupa (2012), Calendari and Yuksel (2012), Justinia and Shalaby (2014), and Serhan (2020),reported that remote and online delivery of instruction allowed students to complete their coursework in a convenient and flexible manner. Participants in the current study concurred with these authors and agreed that being able to take classes remotely using Zoom allowed them to continue their coursework when the COVID-19 pandemic prevented face-to-face instruction. Current study respondents also provided examples of reduced travel time associated with attending class via Zoom and the flexibility associated with attending class during parent-teacher conferences or when traveling out of state for professional meetings. Participants in the current study provided examples of how work and home-life responsibilities

exacerbated due to the pandemic would have hindered their ability to attend class if they did not have the option to participate in classes delivered using Zoom video conferencing.

Blunt and Munro (2008) reported that higher education faculty were not familiar with the technology being used to deliver a video conferenced course and only used basic features of the technology. Sahin and Shelly (2008) stated that computer expertise was critical to the success of video conferenced instruction. Wang et al. (2010) indicated that undergraduate medical students expressed concerns about the lecture content, speaker, and delivery style of course content delivered using video conferencing. Mills et al. (2015) described the need for faculty to be technologically competent when using technology-based platforms to deliver instruction. Fantani (2020) and Serhan (2020) reported that faculty were not ready for the sudden changes due to the pandemic that prohibited face-to-face instruction and the almost overnight switch to a new instruction delivery platform that used video conferencing. The perceptions of participants in the current study were consistent with the findings of Blunt and Munro (2008), Sahin and Shelley, (2008), Wang et al. (2010), Fantani (2020), and Serhan (2020). Participants in the current study reported that faculty may not have been prepared for the sudden transition that required delivering instruction using Zoom. In the current study, respondents indicated that faculty exhibited frustration with utilizing Zoom technology in the delivery of instruction related to using features within the video conferencing platform such as screen sharing, use of the whiteboard, and the chat feature.

Doggett (2008), Justinia and Shalaby (2015), Fantana (2020), and Serhan (2020) all reported technical difficulties when video conferencing was used to deliver instruction. The current study concurred with findings stated by Doggett (2008), Justinia

and Shalaby (2015), Fantana (2020), and Serhan (2020). Respondents in the current study reported audio (hearing the instructor and peers) and visual (seeing the instructor and peers) technical problems associated with course delivery. Many respondents reported inconsistency in their internet connectivity which resulted in frozen computer screens or inability to have continuous interaction in the class session.

Burke (2020) said that teaching online requires a much more intentional arc of planning and learning around design and pedagogy. In the current study, respondents indicated that faculty were not given much time to adapt the in-person curricula to meet learning needs associated with delivery of instruction using Zoom since the switch was due to unforeseeable reasons that required a sudden transition to remote learning. All participants in the current study responded that additional training in Zoom functionality was needed for both faculty and students.

Several researchers reported that undergraduate and graduate students prefer face-to-face instruction over instruction delivered using video conferencing. Doggett (2008), Altiner (2015), Justinia and Shalaby (2015), Agarwal and Kaushik (2020), Roy et al. (2020), and Roth et al. (2020) indicated a student preference for face-to-face delivery of instruction over video conferenced delivery. At the beginning of the interviews in the current study, several participants expressed that one of the reasons they selected the current program was because it was one of the few that could be completed in-person locally.

Doggett (2008), Candarli and Yuksel (2012), and Agarwal and Kaushik (2020) reported that video conferencing technology was a barrier to student interaction with the instructor. The current study did not concur with findings reported by Doggett (2008),

Candarli and Yuksel (2012), or Agarwal and Kaushik (2020). While Doggett is a salient researcher in the field of video conferencing usage in the classroom, it should be noted his research was published in 2008. Doggett investigated an undergraduate woodworking course which involved hands-on learning and instruction in an instructional setting that combined in-person and virtual students. The present study is a more contemporary exploration of video conferencing for doctoral-level education. Participants in the current study described increased interactions with faculty outside of the standard class time once Zoom was implemented for course delivery. Participants stated that the Zoom platform allowed students to meet with faculty in an impromptu fashion without needing to meet at a physical location. The ease of scheduling impromptu and scheduled meetings with faculty and the ability to simultaneously view shared documents were cited as examples of increased interactions with faculty.

Conclusions

This study examined doctoral students' perceptions about the use of Zoom as a platform for delivering instruction after participating in face-to-face instruction immediately prior to the COVID-19 pandemic. Ten respondents answered the interview protocol questions via Zoom for this study. This section includes implications for action, recommendations for research, and closing remarks.

Implications for action. Participants in the current study indicated that technology issues were a challenge associated with using the Zoom platform to deliver course instruction. Inconsistencies in internet connectivity and problems with screen sharing during classes were described by respondents. Institutional personnel should discuss potential technical issues with faculty and students that may arise when delivering

instruction using Zoom. Institutions should have a plan for minimizing technology issues (e.g., how to reconnect audio via a call-in feature, closing all non-Zoom windows on a computer, etc).

Participants in the current study reported distractions related to family members, pets, and access to their cell phones. Prior to Zoom delivered instruction, class participants should be instructed to attend class from an area where there is privacy and limited distractions, including shutting off cell phones during class time. However, it should also be recognized that not every student has access to a private space for study at home. Asynchrnous online learning options could be provided for students who live in a distraction filled environment. Students should be advised to treat the virtual classroom as they would the in-person classroom. Cell phones should be put away, and students should stay visible on the camera for the entire class session. It is also recommended that participants who are not actively speaking should ensure the computer's microphone is muted to avoid potentially creating background noise that will distract other participants.

Participants in this study provided recommendations for improving instruction when Zoom is the instructional delivery platform. Respondents stated it would be beneficial for students and faculty to become familiar with utilizing and manipulating the Zoom platform prior to the first day of the class when using Zoom video conferencing for delivery of instruction. Providing training opportunities for faculty to familiarize themselves with conducting course instruction using Zoom and showcasing additional tools that can assist in classroom engagement could improve students' learning experiences. This could include how to use the polling feature within the Zoom software, using interactive tools such as Quizlet or Nearpod, or using other applications that

promote student engagement beyond the traditional lecture model. Higher education institutions should also provide opportunities for students to learn how to manipulate Zoom technology in a manner consistent with how it will be used during their coursework.

The current study indicated that students felt disconnected from their classmates due to the lack of social time that naturally occurred when instruction was delivered in person. Allowing students unstructured time in small groups may provide an opportunity for class attendees to experience social interactions similar to those that occurred during in-person classes. Having these unstructured groups would enable students to create organic conversations, facilitating the creation of a sense of community with other classmates.

Bao (2020) stated that there are five high-impact teaching practice principles to help achieve a high-quality remote education. The principles are 1) appropriate relevance between online instructional design and student learning, (2) effective delivery of online instructional information, (3) adequate support by faculty and teaching assistants to students including timely feedback, tutoring, and email guidance after class; (4) high-quality participation to improve the breadth and depth of student learning, and (5) contingency plan to deal with unexpected incidents of online education platforms. Participants in the current study referenced a deficit in their learning experience using Zoom as an instructional delivery tool related to principles one, two, four, and five. This leads the researcher of the current study to conclude that institutions should continually evaluate and adapt teaching practices when using Zoom to promote students receiving a high-quality remotely delivered education.

Recommendations for future research. This study was conducted at one higher education institution and with students in one doctoral program. Similar studies should be conducted at other public and private higher education institutions and with students in a variety of different degree programs. Only 10 participants were interviewed in the current study. Future research should be conducted with a greater number of participants. The current study used a qualitative phenomenological research design. Future research could use varied research designs that would promote the collection of multiple types of data. For instance, direct observation of classes delivered using video conferencing could be conducted to determine real-time issues experienced by faculty and students. At the time of the current study, there was limited research regarding the perceptions of doctoral students using video conferencing as an instructional delivery tool. This study was conducted during a global pandemic, which may have resulted in different results than pre- and post-pandemic studies. Future studies similar to the current study should be conducted once the pandemic is no longer forcing massive, unplanned delivery of instruction using video conferencing platforms. Future research should also study student perceptions about using Zoom to deliver courses in which students enrolled in the course knowing it was being delivered via Zoom, versus students who enrolled for in person instruction and were moved to Zoom for reasons outside of their control. Finally, the current study focused on student perceptions of using Zoom to deliver instruction. Future studies should be conducted to determine faculty perceptions about teaching courses delivered using a video conferencing platform such as Zoom.

Concluding remarks. The use of technology to deliver instruction in higher education has evolved dramatically during the past three decades. Numerous platforms

for providing instruction including synchronous and asynchronous technologies have recently emerged. The COVID 19 pandemic has opened the door to video conferencing in the classroom and other delivery methods for learning. Zoom and Skype synchronous video conferencing are also being integrated into asynchronous course delivery. Instructors record the synchronous class session and post it online for students to view later, providing additional flexibility for students. New technologies to facilitate teaching and learning are being developed faster today than in the past. There is a need for both faculty and students to receive training on the learning management and instruction technologies they are expected to use in instruction. While many institutions offer training related to operational functions of the different technologies, there is a need for formal and required training to assist all parties involved in the use of technology to assist them to become comfortably acclimated with manipulating required technologies. The recommendations from this study may be useful to the Midwestern university where the study took place and other universities employing video conferencing to deliver instruction. Future research should continue to investigate faculty and student perceptions about the challenges and positive aspects of new and emerging technology platforms as well as recommendations for improving instruction using technology tools.

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Appendices

Appendix A: Baker University IRB Approval

Baker University Institutional Review Board

December 15, 2020

Dear Charlie Mackey and Tes Mehring,

The Baker University IRB has reviewed your project application and approved this project under Expedited Status Review. As described, the project complies with all the requirements and policies established by the University for protection of human subjects in research. Unless renewed, approval lapses one year after approval date.

Please be aware of the following:

1. Any significant change in the research protocol as described should be reviewed by this Committee prior to altering the project.
2. Notify the IRB about any new investigators not named in original application.
3. When signed consent documents are required, the primary investigator must retain the signed consent documents of the research activity.
4. If this is a funded project, keep a copy of this approval letter with your proposal/grant file.
5. If the results of the research are used to prepare papers for publication or oral presentation at professional conferences, manuscripts or abstracts are requested for IRB as part of the project record.
6. If this project is not completed within a year, you must renew IRB approval.

If you have any questions, please contact me at npoell@bakeru.edu or 785.594.4582.

Sincerely,

Nathan Poell, MLS
Chair, Baker University IRB

Baker University IRB Committee
Sara Crump, PhD
Nick Harris, MS
Christa Manson, PhD
Susan Rogers, PhD

Appendix B: Invitation Email to Participants

Greetings XXXX,

I would like to invite you to participate in my study for my doctoral dissertation. My study is titled *Doctor of Education Students' Perceptions of Zoom Video Conferencing as an Instructional Tool.* Your invitation to participate consists of a one-on-one interview over the phone or via Zoom which should last no longer than 45 minutes.

Here are a few details that may assist in your decision to participate

- This study is a qualitative study that will involve a one-on-one interview.
- Personally identifiable information will be removed from the research findings to insure confidentiality. An anonymizing code (e.g. Student 1, Student 2, etc.) will be applied to each interview transcript. Your name will not be associated in any way with the research findings. If you chose to participate, you may indicate a preference for not providing a response to any of the questions and may withdraw from participation at any time.
- Participation in the study is voluntary, there are no risks, personal discomfort, or compensation associated with participation.
- The interview will begin with descriptive and demographic questions that include: your age range, ethnicity, current occupation and title, and whether or not you had previously taken courses utilizing a web conferencing platform as an educational tool prior to enrolling in the Ed.D. program. The semi-structured interview questions will focus on challenges you experienced while completing courses using Zoom as the instructional tool, positive aspects of Zoom, and recommendations you have for improving instruction using Zoom. After the interview is transcribed, you will have an opportunity to review the interview transcript for accuracy.

If you are interested in participating, please contact me at Charliemackey@stu.bakeru.edu by X date. Once I receive your reply, we will schedule a time to meet virtually or via a phone call. Also, if you have any questions about the study, do not hesitate to contact me and I will be happy to provide additional information.

Thank you,

Sincerely,

Charlie Mackey
Charliemackey@stu.bakeru.edu
Baker Doctoral Student

Major Advisor
Dr. Tes Mehring
tmehring@bakeru.edu

Appendix C: Consent Form

Consent Form

Purpose of the Study:

The current study was designed to examine the experiences of doctoral students at a small, 4-year, private, liberal arts institution in the Midwest who were initially enrolled in in-person classroom instruction in a doctoral program and then were switched to Zoom instruction due to COVID 19 personal contact restrictions. Participants will be asked to share their perceptions about challenges, positive aspects, and recommendations to improve instruction using Zoom interactive video conferencing technology.

Participant Requirements: As the interviewee, you will respond to descriptive and demographic questions followed by semi-structured interview questions related to perceptions about experiences utilizing Zoom as an instructional tool during a doctoral program. The interview will last no more than 45 minutes. Interviews will be conducted via Zoom, transcribed, and uploaded to a secure database. Once your interview has been transcribed, I will share your transcription with you via email and you will have the opportunity to review your responses for accuracy. Additionally, after I have compiled all themes and findings, I will share the overall findings.

Potential Risks/Discomforts: There are no known anticipated risks or discomforts associated with this study.

Benefits: There are no direct benefits to you as a participant in this study. However, the results of this study may be of interest to college and university leaders, staff, faculty, and future students. This study may aid faculty, staff, administration, and students to understand the experiences of doctoral students who are enrolled in instruction that utilize Zoom as an instructional tool. These findings may be used by college and university

leaders to assist in program creation, and improved training for faculty, staff, administration, and students.

Confidentiality: Any feedback you provide in this study will be handled confidentially. Your data will be anonymous which means that your name will not be linked to the data. Your interview data will be assigned an anonymizing code (e.g. Student 1, Student 2, etc.) to ensure your anonymity.

Voluntary Participation: Participation in this study is completely voluntary.

Right to Withdraw from the Study: You have the right to withdraw from the study without penalty. At any point during the interview you may opt out of responding to any question and you may terminate the interview at any time. Should you decide to withdraw from the study, your audio recording will be destroyed.

How to Withdraw from the Study: If the interview is in progress and you wish to withdraw, tell the researcher to stop the interview. If you would like to withdraw before the interview or after completion of your interview, please contact me at **CharlieMackey@stu.bakeru.edu**. If there is any question asked during the interview you wish not to answer, tell me you wish to skip the question. There is no penalty for withdrawing from the study or not answering any of the interview questions.

Compensation: There is no compensation associated with participation in the interview.

Consent Form Signature: Your signature below indicates that you have agreed to participate in this research study and to audio taping of the interview.

For Questions Regarding This Study Contact:

Principle Investigator:

Charlie Mackey

CharlieMackey@stu.bakeru.edu

913-259-4657

Academic Advisor:

Tes Mehring, PhD

Graduate School of Education, Baker University

P.O. Box 65

Baldwin City, KS 66006-0065

tmehring@bakeru.edu

Agreement: I agree to participate in the study described above and to the audiotaping of the interview.

Name (Printed): _____

Signature:_____ Date: _____

Email Address: _____

You will receive a copy of this form for your records.