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The Lived Experiences of Educators Using Co-Teaching to Meet the Needs of Students with Disabilities in a Virtual Environment

Laura Elizabeth Ridings
University of Northern Colorado

UNIVERSITY OF NORTHERN COLORADO

Greeley, Colorado

The Graduate School

THE LIVED EXPERIENCES OF EDUCATORS USING CO-TEACHING TO MEET THE NEEDS OF STUDENTS WITH DISABILITIES IN A VIRTUAL ENVIRONMENT

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Laura Elizabeth Ridings

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Accepted by the Doctoral Committee

_____
Robin D. Brewer, Ed.D., Research Advisor

_____
Silvia M. Correa-Torres, Ed.D., Committee Member

_____
Kay Alicyn Ferrell, Ph.D., Committee Member

_____
Heng-Yu Ku, Ph.D., Faculty Representative

Date of Dissertation Defense _____

Accepted by the Graduate School

_____
Linda L. Black, Ed.D.
Associate Provost and Dean
Graduate School and International Admissions

ABSTRACT

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Virtual education in the United States continues to be a popular option for K-12 students. The enrollment in full-time virtual schools not only represents typical learners but a growing number of students with disabilities, including low-incidence disabilities. In some states, this population exceeds the state-wide average percentage of students with disabilities enrolled in public education and is compelling virtual schools to focus their attention on the legal expectations of serving individual needs.

A pilot study, *Virtual K-12 Teachers' Perspectives on the Provision of Inclusive Online Environments* (Ridings, 2016), investigated the types of inclusive strategies used by teachers in the virtual classroom and indicated a steady use of six of the seven strategies surveyed. Among those reported, the co-teaching strategy ranked the lowest, yet open commentary about co-teaching was positive. Thus, this study utilized transcendental phenomenology to gain more information about the use of co-teaching as a strategy to support the education of students with disabilities in the virtual general education classroom.

Sixteen co-teachers participated in questionnaires, interviews, and focus groups. Four research questions related to the implementation, roles and relationships, school culture, and successes and failures in co-teaching guided the collection and analysis of

data to obtain the true essence of co-teaching. Indications of this study show that despite the significant differences in model and delivery, the body of research pertaining to co-teaching in traditional, face-to-face schools is still highly relevant. Research provides prescriptive practices such as the use of application-based training both prior to strategy implementation and as an on-going approach as well as the need for improving the value of co-teaching roles and expertise of co-teaching partners.

Findings also uncovered factors of co-teaching specific to virtual schools, including unique challenges to relationship building, greater emphasis on the value of content knowledge, the development of triad and team configurations, and the challenging impacts of a culture of change in virtual schools. Based on these findings, the study's implications emphasized the need to address the training of general and special educators as well as the necessity for virtual schools to investigate the structure and roles of teachers as they deliver inclusive services to students with disabilities.

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INTRODUCTION

Background of the Problem

Today's virtual education models present unique and attractive features for students with disabilities who are seeking alternative educational environments to the traditional, brick and mortar settings (Repetto, Cavanaugh, Wayer, & Liu, 2010; Rhim & Kowal, 2008). The inception of virtual schooling came as a response to filling the needs identified for both advanced and struggling students, offering greater availability of high-level coursework and options to recover credits for failed courses respectively (Repetto et al., 2010; Spitler, Repetto, & Cavanaugh, 2013). Significant numbers of students with disabilities have turned to this model of public school as their full-time option (Rhim & Kowal, 2008). Virtual education continues to play a role in boosting graduation for students with disabilities who otherwise might not graduate (Repetto et al., 2010).

Virtual special educators who are responsible for the implementation of students' individualized education plans (IEPs) must work with general education teachers to deliver academic and behavioral services to students in a fully virtual setting (Müller, 2009). Federal guidelines specific to supporting students with disabilities in virtual schools do not yet exist, and not much is known about how students are served in this setting (Müller, 2009; Rhim & Kowal, 2008). It has been indicated by various researchers (Müller, 2009; Repetto et al., 2010; Rhim & Kowal, 2008; Spitler et al.,

2013) as well as data from a pilot study conducted prior to this dissertation (Ridings, 2016) that inclusive practices are being applied in the virtual world; strategies applied to a virtual setting lack an empirical research-base. Because of the vast conceptual departure of virtual education from traditional education, great care and consideration must be used to ensure that policies and practices offer students with disabilities the same opportunities as their peers without disabilities (Rhim & Kowal, 2008).

Starting with the passage of The Education for All Handicapped Children Act (PL94-142), legislation contained significant changes in the requirements for placement and programming of students with disabilities, most importantly the expectation of educating a child in his or her least restrictive environment (LRE) (Lamport, Graves, & Ward, 2012). During the last two decades, the importance of inclusion as a service delivery model increased through published research studies both in the United States and internationally (Kurth, Lyon, & Shogren, 2015; Laluvein, 2010; Lamport et al., 2012; Obiakor, Harris, Mutua, Rotatori, & Algozzine, 2012; Strogilos & Avramidis, 2016; Tremblay, 2013; Zigmond, Kloo, & Volonino, 2009). Recent legislative amendments, specifically the reauthorization of Individuals with Disabilities Act (IDEA, 2004) and No Child Left Behind Act of 2001, reemphasized that students with disabilities be taught in their LRE, with access to the general education curriculum, and instructed by highly qualified teachers (HQT) (Friend, Cook, Hurley-Chamberlain, & Shamberger, 2010; Lamport et al., 2012). This legislation spurred an even greater focus by researchers like Friend (2000) on collaborative, teacher-driven strategies to support inclusion. One such strategy, co-teaching, gained significant popularity (Friend et al., 2010; Kurth et al., 2015). The approach of co-teaching gained initial momentum as parents and educators

advocated for the placement of students with disabilities in the LRE (Hudson & Glomb, 1997). Pearl, Dieker, and Kirkpatrick (2012) considered the continued popularity of co-teaching a result of its application in building more inclusive classrooms and schools.

The co-teaching approach became a well-researched strategy for working with students with disabilities (Murawski & Swanson, 2001; Scruggs, Mastropieri, & McDuffie, 2007; Solis, Vaughn, Swanson, & McCulley, 2012). As research studies emphasized co-teaching as a method of ensuring that students with disabilities can benefit from general education teachers' content expertise, administrators responded by placing special educators alongside them in the classroom (Kloo & Zigmond, 2008). Co-teaching also gained popularity as a way to compensate for educators who lacked the expertise of special education knowledge and special educators' lack of content area knowledge (Pugach & Blanton, 2009). An exhaustive search that focused on the effectiveness and challenges of co-teaching was conducted within two university databases, and publicly available search engines that focused on effectiveness and challenges of co-teaching did not uncover articles related to the K-12 virtual environment. Growing student populations in virtual schooling, including students with disabilities (Rhim & Kowal, 2008; Spitler et al., 2013) gives urgency for researching practices such as co-teaching within this new environment.

Statement of the Problem

Educators who teach in public virtual schools have the responsibility to comply with special education law and to provide learning environments that meet the needs of students with disabilities. According to the U.S. Department of Education's (USDOE) *37th Annual Report to Congress on the Implementation of the Individuals with*

Disabilities Education Act (2015), an average of 62.1% of students in the United States spend a majority of their day in a general education setting as their LRE, which is an environment that includes both students with disabilities and those without. Co-teaching, in which a special education teacher joins the general education teacher in providing instruction within the general education classroom, supports students with special needs (Friend et al., 2010). With the continued generation of virtual school models in the 21st century, educators must empirically research the application of teaching practices to ensure the adequate support of students with disabilities and guard against their exclusion.

Purpose of the Study

This study aimed to document common experiences and perceptions of special education and general education teachers who participated in co-teaching within the virtual environment. This empirical investigation of the experiences of co-teachers as they pertain to the virtual school culture, co-teaching relationships, co-teaching activities, and their impact on students adds to the research base, enhancing effective practices and policies for implementing co-teaching to support students with disabilities in virtual schools.

Significance of the Study

Various, yet similar, research-based models of co-teaching exist for the traditional classroom environment stemming from the work of Cook and Friend (1995) and other researchers such as Dieker and Murawski (2003), Weiss and Lloyd (2002), and Wischnowski, Salmon, and Eaton (2004). Given the limited empirical research base

related to virtual special education, no empirically documented experiences of co-teaching in a virtual school model appear in available scholarly publications.

Lamport et al. (2012) stated the following about traditional classrooms, which equally applies to the virtual environment:

> General education teachers do have concerns about teaching students with learning impairments including lack of training, planning time, and resources so research is essential to demonstrate how the inclusion model can have a positive impact on academic achievement as well as social interaction among students with disabilities. (p. 54)

In addition, Spitler et al. (2013) supported research on strategies for working with students with disabilities in the virtual world by acknowledging that "evidence-based practices are necessary to support the effectiveness of online learning for students with disabilities" (p. 6).

According to Creswell (2009), documentation of common experiences can help to identify common features of a phenomenon, which can lead to the development of best practices or educational policies. Determining common features gives understandings of whether effective co-teaching methods in a virtual environment align with those in the traditional classroom environment or what, if any, differences exist. A descriptive analysis of virtual co-teachers' experiences provides educators with a greater understanding and insight into the potential successful application of existing models as well as the need for development of new ones.

Research Questions

The overarching question of this study was: What are the experiences of virtual education teachers who co-teach to meet the needs of students with disabilities? Specific questions investigated included:

Q1 How do virtual co-teachers describe their experiences related to implementation of the co-teaching strategy?

Q2 How do virtual co-teachers describe their co-teaching roles and relationships?

Q3 How do virtual co-teachers describe their experiences involving school culture (e.g., school values and organizational structures)?

Q4 How do virtual teachers describe their experiences related to feelings of success or failure in co-teaching?

Research Design

A transcendental phenomenological qualitative design was used to study the lived experiences of K-12 virtual co-teachers. Originating through the work of Edmund Husserl in the early 20th century, transcendental phenomenological design is rooted in the importance of understanding meaning and represents the collection and analysis of data to attain the essence of the human experience (Moerer-Urdahl & Creswell, 2004). Moustakas (1994) further developed the approach for transcendental phenomenology with the addition of specific procedures, termed reduction and imaginative variation, giving greater structure to the analytical process than other qualitative designs experience (Moerer-Urdahl & Creswell, 2004).

During a pre-analysis step termed epoché, the researcher examines his/her own experiences with the phenomenon (Moustakas, 1994). In addition to reflecting on those experiences, the researcher identifies personal biases, judgments, or assumptions. Completing this step prior to engaging in interviews with participants allows the researcher to bracket, a procedure where biases, judgments, and assumptions are temporarily set aside (Merriam, 2009) to allow the data to be looked at in a fresh way (Moerer-Urdahl & Creswell, 2004). After the collection of data, horizontalization occurs,

where all data are considered and analyzed with equal weight (Merriam, 2009; Moustakas, 1994). Merriam (2009) described horizontalization as the organization of data into themes. Significant statements are taken directly from transcripts and categorized, eliminating repetition and redundancy (Moerer-Urdahl & Creswell, 2004). Moerer-Urdahl and Creswell (2004) explained that textural descriptions are then used to express to the reader "what" was experienced, and structural descriptions are developed to convey "how" the phenomenon was experienced. Merriam (2009) highlights that applying imaginative variation assists the researcher to look at the data from various angles to create meaning.

Theoretical Framework

Jean Lave and Etienne Wenger first proposed *Communities of Practice* in a co-authored book. It is defined as "Communities of practice are groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly" (Lave & Wenger, 1991, p. 1). Originally stemming from Lave's (1991) theory of situated learning in which individuals learn through their own experiences and situations, Lave and Wenger (1991) and Wenger (2010) further developed community of practice within later publications. Although qualitative studies exemplify a descriptive nature, a theoretical framework gives structure to the many aspects of literature presented and to the discussion of the data collected. Given Lave's background in cognitive anthropology and Wenger's perspective as an educational theorist, applications *of* community of practice extend to many areas. Discussion of community of practice appears in research related to the practice of co-teaching through the larger context of inclusion (Laluvein, 2010) as well as to the elements of online learning (Hoadley, 2012).

This study will attempt to use this theoretical framework as a lens during the presentation of empirical literature, discussion of the analysis, and considerations of future impacts.

Conceptual Framework

The practice of co-teaching gained significant structure through the published works of Marilyn Friend and colleagues, particularly Cook and Friend (1995) and Friend et al. (2010). The elements of co-teaching can be determined through both of these works as well as those of Dieker and Murawski (2003), Weiss (2004), and Wischnowski et al. (2004).

Foundational aspects that influence a successful implementation of co-teaching are said to be not only on teachers' disposition toward working with colleagues to deliver instruction (Austin, 2001), but also on their perception of teacher roles (Hudson & Glomb, 1997). Teachers must also have advance training (Cook & Friend, 1995) with the opportunity to determine instructional and environmental parameters prior to instructing students (Keefe & Moore, 2004). A structure for planning time is needed and assures the involvement of both teachers on-going (Keefe & Moore, 2004).

The function of day-to-day co-teaching is executed through the use of co-teaching styles. Variations of these styles appear in literature authored by Cook and Friend (1995), Dieker and Murawski (2003), Weiss and Lloyd (2002), and Wischnowski et al. (2004), among others. Generally, a consensus exists between researchers on five of the basic styles outlining instructional roles. The following styles have similarity between researchers: (a) one teacher leading the group while the other supports, (b) both teachers teaching small rotating groups, (c) students are evenly split between two teachers instructing identically, (d) students are unevenly split between two teachers using

different approaches on the same content, and (e) both teachers instructing the whole group in tandem where either may be instructing or supporting at any given time. Cook and Friend (1995) pointed out that all styles are needed and should vary frequently to meet the needs of the students, teachers, and curriculum.

Limitations and Scope of the Research

Given that no research of co-teaching in a virtual K-12 setting exists, the scope of this study is broad. Creswell (2009) offered "if a concept or phenomenon needs to be understood because little research has been done on it, then it merits a qualitative approach" (p. 18). A phenomenological contribution to the research base may serve as just a beginning to more focused research inquiries related to virtual co-teaching in the future; however, Creswell (2009) added that the qualitative methodology is, at times, criticized for limiting the potential replication of a study. As implied by Moerer-Urdahl and Creswell's (2004) statement of "systematic approach with procedures clearly identified" (p. 32), the use of transcendental phenomenology lends itself to more structure than other qualitative methods and was chosen to improve the possibility of replication.

Limitations in participant selection, number of participants, verification of participant experiences, data collection setting, and potential difficulties with study replication exist due to the nature of the qualitative design (Creswell, 2009) and lack of available information. First, phenomenological research requires the use of purposeful selection in choosing participants (Creswell, 2009; Yuksel & Yildrim, 2015). Given there is no systematic way to identify those who are virtually co-teaching, a small pool of participants was derived from professional connections and word of mouth. Individuals meeting the criteria were selected to participate. Verification of virtual teaching or co-

teaching will come only from each participant's provision of answers to the questionnaire and the interview questions, but is necessary to protect the participants' anonymity. Creswell (2009) acknowledged this indirect information filtered through the participant during an interview is one of the limitations to qualitative research.

A phenomenological study, by its nature of individual interviews, is limited to smaller numbers of participants. This study aimed to gain insight from the experiences of 16 virtual co-teachers with no pre-determined controls over the recruitment of participants who are varied in teaching years, virtual teaching experience, and geography. The addition of focus groups added to the depth of data and helped relieve some of the limitation created by the small numbers of participants.

The setting for these interviews also posed a limitation as it was outside of the authentic setting of the experience (Creswell, 2009). Merriam (2009) added that this change in setting can alter the behavior of the participant. Although geographical elements restricted the use of face-to-face encounters, the use of online conferencing for data collection also lessened the impact of an alternate setting as it more closely resembles virtual teaching. Requested documents that supported participants' experiences with co-teaching varied between those who had a structured, well-documented approach and those who made first attempts without much support. This incomplete documentation limited analysis (Creswell, 2009).

Definition of Key Terms

Definitions provided in this section assist with the understanding of the terms used in the literature review, methodology, and analysis sections.

Asynchronous(ly) relates to an online instructional session where students are engaged in activities, such as discussion boards, that are not in the same real time as an instructor (Müller, 2009; Watson, Murin, Vashaw, Gemin, & Rapp, 2011).

Bracket stems from a mathematical concept to bring focus and eliminate outside considerations, however, the brackets are metaphorical. Within the brackets, there is natural purity. Within transcendental phenomenology, it is often paired with the concept of epoché (Bradbury-Jones, Sambrook, & Irvine, 2009; Moerer-Urdahl & Creswell, 2004; Moustakas, 1994).

Community of practice is a theory developed by Lave and Wenger (1991) in which "groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly" (p. 1).

Co-teaching is a practice of special education service delivery that involves a special education teacher and a content teacher collaboratively instructing students who are both disabled and non-disabled within a general education environment (Friend et al., 2010).

Epoché is a term that is defined by process of temporarily setting aside one's beliefs and assumptions (Moustakas, 1994).

Essence is a common or universal condition that makes something what it is (Moustakas, 1994).

General education teacher is defined by Friend and Bursuck (2011, p. 412) as a "teacher whose primary responsibility is teaching one or more class groups."

Horizontalization is a step within the reduction analysis of transcendental phenomenology that Merriam (2009) described as categorizing the data into themes.

Hybrid denotes a type of instruction that is part virtual and part face-to-face (Watson et al., 2011).

Imaginative variation represents the phase of analysis after reduction in transcendental phenomenology in which the researcher begins to extrapolate meaning from the statements (Moustakas, 1994).

Inclusion relates to the model of educating students with disabilities in the general education setting alongside their peers without disabilities, despite any differences in learning abilities, and are full members of the classrooms (Friend & Bursuck, 2011). Full-inclusion extends this idea that all students with disabilities should be educated in the general education classroom full-time, regardless of the severity of their disabilities (Mastropieri & Scruggs, 2009).

Learning management system (LMS) is defined as an education-specific technological platform in which curriculum materials and lessons are delivered to the student (Watson, Pape, Murin, Gemin, & Vashaw, 2014). An *LMS* often incorporates various communication tools such as video chat (Greer, Rowland, & Smith, 2014)

Least restrictive environment (LRE) is a term presented within special education legislation that states that students with disabilities will be educated in the general education setting or in the environment that is the closest possible to the general education environment while still meeting the individualized disability needs (Friend & Bursuck, 2011).

Member checks is a process that serves to gain validation from the participants by soliciting feedback of how well their input is represented by the transcripts of the

researcher (Merriam, 2009). In this process to boost internal validity, participants are asked to verify or clarify their meaning, adding additional information if needed.

Peer examination is a process that uses expert peers to examine the accuracy of the analysis of raw data into findings, which can be done by an individual or a committee of peers or formal peer review for publication.

Reduction is the first analytical phase of transcendental phenomenology in which the raw data are cleansed of unrelated information (Yuksel & Yildrim, 2015).

School culture is defined on the Association of Supervision and Curriculum Development (ASCD, n.d.) web page as "The sum of the values, cultures, safety practices, and organizational structures within a school that cause it to function and react in particular ways." The ASCD's (n.d.) definition continues to clarify its meaning by stating, "Teaching practices, diversity, and the relationships among administrators, teachers, parents, and students contribute to school climate." The definition given directly to co-teachers during the interview process is stated as the values, cultures, and organizational structures in place that affects teaching practices, diversity, and collaboration among teachers and other school staff.

Situated learning theory, developed by Jean Lave (1991), argues that learning is a naturally occurring event through one's activities, culture, and context.

Structural description is an element of transcendental phenomenology which tells "how" something was experienced and developed through imaginative variation using textural descriptions that tell "what" was experienced (Moerer-Urdahl & Creswell, 2004).

Synchronous(ly) relates to an online instructional session where students are engaged in activities, such as video-based lessons, that are in the same real time as an instructor (Müller, 2009; Watson et al., 2011).

Textural description within the procedures of transcendental phenomenology is defined by Moustakas (1994) as a full description of one's conscious experience that includes thoughts, feelings, examples, ideas, and situations. Moerer-Urdahl and Creswell (2004) describe this as the "what" of the experience.

Virtual schooling within a full-time virtual public or charter school is a model in which students are instructed through online courses. "Such schools deliver all curriculum and instruction via the Internet and electronic communication, usually asynchronously with students at home and teachers at a remote location" (Miron & Gulosino, 2015, p. i).

Summary

Publicly funded virtual schools must adhere to the law regarding the rights of students with disabilities, legislatively mandated rules, and delivery of services (Rhim & Kowal, 2008). Technological advancements have removed the physical walls, changing time and space to create new environments (Müller, 2009). The focus of this research was to better understand the practice of co-teaching in a virtual environment to effectively serve students with disabilities. As Rhim and Kowal (2008) state,

> Educating in a virtual environment is a somewhat radical departure from how we typically construct the notion of public schools. Consequently, carefully constructed policies and practice are required to ensure that students with disabilities can access the opportunities afforded in virtual charter schools analogous to their peers. (p. 3)

The lack of empirical research, noted by Müller (2009) and Rhim and Kowal (2008), on the provision of special education services within virtual schooling leaves many unanswered questions about the implementation and effectiveness of co-teaching practices. This transcendental phenomenological study aimed to understand the experiences and perceptions of virtual co-teachers with the hope of gathering rich data that can be used to enhance the development of effective procedures and policies.

CHAPTER II

LITERATURE REVIEW

Introduction to Virtual and Inclusive Research

The field of education continuously improves teaching practices designed to meet the needs of an increasingly diverse range of learners. The practice of inclusion, which embraced the concept of students with disabilities learning alongside their peers, discards original models rooted in segregation. Despite the progress made, teachers continue to face an on-going evolution of education. The 21st century brought with it online learning and a new challenge of meeting the needs of students with disabilities in virtual school environments. As the use of technology advances the growth of K-12 virtual education, teachers need clear understandings of effective practices and must not rely on untested assumptions of the effectiveness of serving students with disabilities in the virtual environment. The following chapter presents literature on the foundations of virtual education and its significance for servicing students with disabilities, exploring further into both the theoretical and conceptual frameworks of co-teaching for application to the virtual environment.

Virtual schooling, simplistically defined as "A comprehensive educational program delivered primarily through distance learning that may include a continuum of means of delivery of content" (Rhim & Kowal, 2008, p. 45), began in the 1990s. Initially, virtual education hoped to impact drop-out rates for those considered at-risk and

provide supplemental courses to those needing more options (Repetto et al., 2010; Spitler et al., 2013). Virtual schools recognized the need to reach out to students who became at-risk of not graduating or students with disabilities failing to succeed in the traditional brick and mortar school setting. In an attempt to address the diverse needs of learners and improve their likelihood of success in the virtual environment, virtual schools initiated certain practices and strategies. Repetto et al. (2010) stated, "These strategies include designated faculty and staff for academic support, differentiating instruction through technology, and specific instructional strategies that support achievement" (p. 98). Since then, it has grown to meet a spectrum of academic needs to be considered part of mainstream American education (Repetto et al., 2010). According to Rhim and Kowal (2008), "There are no federal education laws specifically addressing special education in virtual schools" (p. 9). Arguments exist on both sides of the issue about the appropriateness of virtual schooling for students with disabilities (Müller, 2009; Repetto et al., 2010; Rhim & Kowal, 2008; Spitler et al., 2013). Despite the variance in opinion, enrollment of students with disabilities, including low incidence disabilities, remains strong (Repetto et al., 2010; Spitler et al., 2013).

It was not until the mid-1900s that significant educational legislation and advocacy for individuals with disabilities initiated changes that would guarantee a free, appropriate education for students with special needs. Since the 1975 enactment of PL94-142, the changes in placement and programming to meet the LRE for educating students with disabilities have been significant (Lamport et al., 2012). Researchers have studied the practice of inclusion which promotes services to students with disabilities who learn alongside their peers. Recent legislation, specifically the reauthorization of the

Individuals with Disabilities Act (IDEA, 2004) and Every Student Succeeds Act (ESSA, 2015), formerly the No Child Left Behind Act (2001), reemphasized that the instruction of students with disabilities occurs in the *least restrictive environment* (LRE) with access to the general education curriculum instructed by highly qualified teachers (Friend et al., 2010; Lamport et al., 2012). Legislation spurred an even greater focus on inclusive strategies by researchers like Friend (2000) on collaborative strategies to support inclusion. One such strategy, co-teaching, gained significant popularity in building inclusive classrooms and schools (Friend et al., 2010; Kurth et al., 2015).

The approach of co-teaching initially gained momentum as parents and educators advocated for the placement of students with disabilities in their LRE (Hudson & Glomb, 1997) and continued as it had become a popular model of collaboration in conjunction with the focus on inclusion (Austin, 2001; Lamport et al., 2012). Co-teaching promotes inclusion by combining the expertise of both a content teacher and a special education teacher in a classroom instructing students with and without disabilities (Cook & Friend, 1995). As Cook and Friend (1995) stated,

> Co-teaching involving special educators or related services specialists is undertaken because students with individualized educational programs (IEPs) have educational needs that can be met by moving their supports to the general education classroom through this instructional arrangement. (p. 2)

This strategy also aligns with the theoretical foundations of community of practice, originated by Lave and Wenger (1991) by connecting the idea that learning comes from interactions and relationships among peers and professionals. This chapter explores both theoretical and conceptual frameworks of co-teaching and empirical literature on the effectiveness of co-teaching to consider the application of co-teaching practices in the virtual environment.

Virtual Education

In 21st century learning, technology has taken a leading role, helping the physical classroom to evolve beyond the confines of brick and mortar walls. Benjamin Herold published an article in *Education Week* online (2016) that overviewed the use of technology in K-12 public education. This article outlined the many ways in which the implementation of technology is affecting teaching and learning. Herold (2016) emphasized virtual schooling, either an individual course or full-time educational option, as one of the recent technology-driven advancements. Watson et al. (2014) wrote an annual publication titled "Keeping the Pace on Digital Learning" and offered this view about their impressions of K-12 virtual education,

> The broader digital learning landscape continues to shift in many ways, including the exploding growth of new digital learning technologies and products, the changing and merging ways these resources are used, and shifting levels of usage within the various sectors of the K–12 education industry. (p. 4)

The growth of technology has opened the door to new and exciting virtual environments which challenge our thinking and practices in teaching students, especially those with disabilities (Greer et al., 2014; Müller, 2009; Rhim & Kowal, 2008). Virtual schooling is defined by Müller (2009) as

> Instruction in a learning environment where the teacher and the student are separated by time, space, or both; and the teacher provides course content via course management applications (e.g., Blackboard), multimedia resources, Internet, video conferencing, or other alternatives to traditional face-to-face education. (p. 1)

Virtual schooling changes the scope of educational environments by eliminating the confines of physical space, bringing innovative possibilities to a new level.

Students transitioning to virtual schools began to impact full-time K-12 student enrollment data in the 1990s. Factors stemming from early correspondence learning

heavily influenced the expansion of virtual schools. Through the advancement of the Internet, learning at a distance, formerly correspondence via mail, evolved to allow individuals wider access through online coursework which also increased access to prepared curriculum (Rhim & Kowal, 2008).

Another significant influence was an increase in the numbers of virtual charter schools granted through the explosion of charter opportunities in many of the United States. Rhim and Kowal (2008) stated, "the growth of the charter school sector dating back to 1991 has created new opportunities for developers interested in creating new online and virtual distance educational opportunities" (p. 3). Molinar (2015) confirms in the National Education Policy Center (NEPC) report on virtual schooling that a large number of the virtual schools across 30 states during the year 2013-14 classified themselves as charter schools. Because of the charter school trend, many initial virtual schools were full-time, multi-district state charter schools, but by 2011, the fastest growing virtual options became schools that were developed by individual districts for full-time and part-time attendance (Watson et al., 2011). Today there remains a mixture of virtual school models across the country.

As colleges and universities began offering more online course options, K-12 public school systems increased their virtual learning opportunities, even adding online high school graduation requirements, to help prepare students for higher education (Watson et al., 2014). The NEPC acknowledged a continued increase of virtual learning options at the K-12 in their 2013-14 report, listing virtual enrollment as 263,705 students nation-wide and suggested that virtual schooling is here to stay (Greer et al., 2014; Molinar, 2015). Although the advances in providing school opportunities bring

excitement, the rapid growth of virtual schooling demands our attention toward its impact on students, and increasingly, those with disabilities.

Many organizations and publications now exist to produce resources and research related to virtual education. In 2003, the International North American Council for Online Learning (iNACOL) organized to increase support for K-12 online learning. Membership for the organization includes thousands of educators, schools, and organizations, publishing collaborative reports and resources for online learning (www.inacol.org). In addition to iNACOL publications, annual reports from independent researchers publish the status of virtual schooling. The report, "Keeping Pace with K-12 Digital Learning," is published annually and sponsored by a number of companies and organizations who promote virtual schooling, including iNACOL. The National Education Policy Center at the University of Colorado compiles yet another report, but does not have corporate sponsorship from the virtual learning industry.

Virtual educators face the challenges of meeting the needs of diverse student populations, which often results in criticism over poor performance. Virtual school leaders often argue that the scrutiny is unjust as they attract populations of students with unsuccessful academic track records (Kamentz, 2015). The NEPC report (Molinar, 2015) was critical of virtual education and offered school-specific data in every state providing a general statement of "On the common metrics of Adequate Yearly Progress (AYP), state performance rankings, and graduation rates, full-time virtual schools lagged significantly behind traditional brick-and-mortar schools" (p. 8). A rebuttal of NEPC's previous reports and specifically the notion that their virtual schools underperform came from K12 Inc., a leading virtual school curriculum and management company (K12 Inc.,

2012). According to K12 Inc. (2012), the NEPC utilized older data, and therefore their claims of poor student outcomes were not credible. Despite attempts to challenge the allegations, critics remain strong as shown in the NPR education article by Kamentz (2015). This article pointed to several factors fueling concerns about virtual education including for-profit companies, such as K12 Inc., at the helm of many virtual schools, the investor problems that come with them and the reported issue of virtual schools with lagging student outcomes. Kamentz (2015) incorporated statements from representatives of virtual schools to speak to concerns; however, virtual education may continue to spark controversy over its effectiveness and student outcomes.

The Virtual Model

Although researchers discussed many virtual K-12 models, sometimes referred to as online within the literature, some common characteristics surface related to the delivery of instruction, environment, staffing, and services. These common characteristics are discussed here.

Instructional delivery. In a virtual school model, students do not typically attend a physical location. Instead, students remain at home using the computer to interact with content as reported by Greer et al. (2014), Rhim and Kowal (2008), and Watson et al. (2014). Technological platforms called learning management systems (LMS*)* are used to support the curriculum, communication, instruction, evaluation, feedback, learner input, learner collaboration, faculty collaboration, etc., and exist in many different configurations. The "look" of virtual learning can vary by school, district, state, or curriculum. The school's LMS, and any added technological tools, provides curriculum

to the students and operates synchronously, asynchronously, or a mixture of both (Greer et al., 2014).

At the younger grades, parents have significant roles as teaching support, assisting students to master content on and offline. Virtual content teachers and other virtual specialists regularly consult with the home-based support person and assist with any needs. Exceptions to this include virtual school or district arranged disability-related services that are delivered in person (i.e., OT, PT, SLP) and on occasion, virtual school-based testing that requires a secure site (i.e., state-mandated testing). Secondary students become more independent, working more directly with a variety of course-based, content teachers, although connections to the home support continue. Regardless of the level, many schools provide synchronous or asynchronous lessons directly to the child (Rhim & Kowal, 2008). These may be supplemental if the school uses a prepared online curriculum, or may be the main curriculum delivery. Synchronous lessons occur on a school-driven LMS or independent technological application. Technology allows teacher participants to share a variety of types of input as well as allowing for student input in the way of chat, survey, video, audio, and file sharing formats (Greer et al., 2014). Input can be student-teacher or peer-peer. Many applications also allow for collaborative activity and provide subspaces, called break-out rooms, for group work during class sessions.

Collaboration. Most staff work remotely, often in a different geographical location than students or other colleagues. Students may be in close geographic proximity or in different cities from their instructors or peers. Fully virtual models lack physical space for students and teachers to interact; therefore, peer-to-peer and instructor-to-peer interactions must happen virtually. Meeting the diverse needs of students

necessitates a significant focus on collaboration (Friend et al., 2010; Santamaria & Thousand, 2004), which may look different in a virtual environment. Friend and Bursuck (2011) outlined specific tactics they termed "Electronic Collaboration" that included blogging, wikis, and team meetings using the Internet or other options for virtual communication. These types of features, often embedded or supported through LMS platforms, allow for ease of collaboration (Greer et al., 2014). These electronic features provide educators, families, and students a chance to plan or develop ideas with other students or staff. This ever-evolving technological perspective for collaboration is instrumental in meeting the needs of students with disabilities in the virtual environment.

Social interaction. Perhaps related to the concept of collaboration is social interaction, which has similarities in its need to use technology within a school that has no natural social environments. Rhim and Kowal (2008) stated,

> It is difficult to replicate the social development that occurs in a traditional classroom environment—in the halls, at lunch and after school. It is still unclear whether virtual charter schools can develop similar opportunities for meaningful social interaction. (p. 8)

However, the availability of technology to provide opportunities that allow peer-to-peer interactions and a sense of belonging (Greer et al., 2014; Rhim & Kowal, 2008) in virtual classrooms is prime for the implementation of inclusive strategies that build community.

Staffing. On the surface, the aspect of staffing for virtual schools is relatively similar to a traditional school. This similarity is in many ways because state-based initial teacher licensure remains the same for both traditional and virtual teachers. Traditional licensure in a virtual world has caused some controversy as Archambault (2011) noted that many teachers lack preparation for the unique aspects of teaching virtually. Some states have initiated special endorsements (Downs, 2015; Molinar, 2015) in which

licensed teachers can add to their traditional license for teaching online; however, more often in-service training and professional development take responsibility for most of the training for virtual education (Watson et al., 2011). Schools are using iNACOL's standards of teaching, or standards by other national online organizations, as guidance (Repetto et al., 2010). Efforts have been made by schools or curriculum providers to deliver content that is accessible to those with disabilities, but beyond that, teachers have little preparation for providing instruction virtually to students with special needs (Repetto et al., 2010). Virtual schools also employ many of the same specialists as traditional schools, including special educators and coordinators, counselors, and school psychologists.

Serving Students with Disabilities in a Virtual School

A broader look at the diversity in virtual schooling brings about a deeper need for inclusive practices. There is a need for more literature on how students with disabilities are served within the virtual school as it may impact the level of attention and resources received. According to the NEPC report (Molinar, 2015), the available information falls short and does not reflect an adequate representation of enrollment for students with disabilities as compared to brick and mortar classrooms. Available state-specific data collected from the Georgia Department of Education (GaDOE) (2015) and the Ohio Department of Education (OHE) (2015) show some public virtual schools enrolling students with disabilities at a higher rate than their respective state average. For example, October 2015 enrollment data obtained directly from OHE show its three largest online virtual schools (Electronic Classroom of Tomorrow, Ohio Virtual Academy, and Connections Academy) serve a total of 27,303 students, in which they identified 4,186

students as having a disability. The calculation is an average of 15.3%, which exceeds the total statewide average of 14.0%. October 2014 Georgia data (GaDOE, 2015) indicated a total enrollment of 13,659 at Georgia Cyber Academy (GCA), the state's largest virtual school. Of those reported (Federal guidelines prevented data of disability areas numbering less than 10), GCA serves a disability enrollment of 11.9%, exceeding a state-wide disability enrollment of 11.0%. Rhim and Kowal (2008) supported this heightened disability enrollment in early virtual school statistics in the following statement,

> In some states, the proportional enrollment of students with disabilities in virtual charter schools is relatively in line with national averages: in Pennsylvania, for example, 12% of students in virtual charter schools in 2001 were enrolled in special education programs, compared to 11.6% nationally according to the most recent national data. (p. 6)

Spitler et al. (2013) also found higher percentages of students with disabilities in a Northeast cyber school when compared to state averages.

It may be a misconception that students in virtual schools represent only high-incidence categories such as learning disabilities or emotional and behavioral needs. The NEPC's (Molinar, 2015) report states that data indicating the area of disability of enrollees were largely insufficient; however, some virtual schools served increasing numbers of students with low-incidence disabilities, students on the autism spectrum, and students with serious health challenges (Müller, 2009; Watson et al., 2011). Data collected from the Georgia Department of Education (2015) showed enrollment in virtual schools in at least nine disability areas, including low-incidence disabilities such as visual impairments and significant cognitive disabilities.

Given the scrutiny of virtual education as a whole, the rise in concern over its population of students with disabilities is no surprise. The need for effective online practices for students with disabilities enrolled in virtual schooling gave support for Office of Special Education Program's (OSEP) funded research organizations (e.g., The Center for Online Learning and Students with Disabilities at the University of Kansas) (Greer et al., 2014). Some disagreement, specifically related to whether or not students with special needs receive adequate servicing in a virtual setting, exists in the literature and reports. Rhim and Kowal (2008) summarized, "While virtual charter schools may in many ways be an excellent fit for students with disabilities, it can be challenging to meet state and federal special education requirements in the virtual environment" (p. 10). Spitler et al. (2013) also documented evidence by various researchers and government entities that showed confidence in the ability of students with special needs to succeed in virtual settings where flexibility, resources, and opportunities are present. Other publications, such as Rhim and Kowal (2008), indicated that multiple stakeholders question whether virtual schooling provides an appropriate educational environment for some children and meets a true LRE. Greer et al. (2014) described one complication:

> Teachers may not be able to understand what students can do independently as opposed to what they can do with parental support, which can make designing appropriate lessons and supporting parents with appropriate techniques to use with their children challenging. (p. 83)

Repetto et al. (2010) stated, "[Special needs] students, in some cases, may be better served in online courses, because adaptive technology is nearly ubiquitous in a virtual school, while social stigmas are reduced" (p. 96). Despite an optimistic view, they concluded, "Research is needed into the design of learning environments that support at-risk students" (p. 100).

According to Müller (2009), results from their survey study found that individual states reported various types of service delivery for students with special needs enrolled in virtual schools. Most states who responded to the survey reported the collaborative implementation process of an IEP similar to that of traditional brick and mortar school. Despite the enrollment of students with special needs and the implementation of special education in virtual schooling, empirical research does not exist about the use and effectiveness of inclusive strategies in these unique environments (Repetto et al., 2010; Rhim & Kowal, 2008; Spitler et al., 2013). Analyzing both the research and policy regarding the use of inclusion in traditional settings seems an obvious direction to meet the needs of students with disabilities, but what do we really know about inclusive strategies in a virtual environment without walls? It is clear that some consideration takes into account how to serve special populations in this unique environment, but what do we currently know about how educators create inclusive environments in a virtual world?

Connections between virtual environments and inclusion surface through research that described the needs of students with disabilities in virtual schooling. Within the literature, researchers failed to provide empirical evidence on inclusive practices in virtual settings (Greer et al., 2014; Müller, 2009; Repetto et al., 2010; Rhim & Kowal, 2008; Spitler et al., 2013). Although Repetto et al. (2010) never discussed inclusion specifically, strategies favorable to inclusive environments (such as an instructional team approach, varied grouping, safety and respect, and scaffolding) emerged as recommended practices. Spitler et al. (2013) focused on a virtual model described as “full inclusion,” and although she addressed issues of graduation rather than practices of inclusion, her

manuscript indicated that the concept of inclusion showed relevance to the virtual environment. Although educators have begun to focus on the benefits of providing inclusive virtual approaches, a need for empirical data to truly impact serving students with disabilities in virtual schools is evident.

Understanding Inclusion

The continued recommendation of inclusion, despite some researchers calling for more empirical data, is important as the numbers of students with disabilities in the general education classrooms rise in both brick and mortar and virtual settings. The U.S. Department of Education's *37th Annual Report to Congress on the Implementation of the Individuals with Disabilities Education Act* (2015) reported nationwide statistics on the number of students now being educated in the general education setting. The data from 2013 used for this report documented that 62.1% of students with special education services, ages 6 to 21, were instructed in the general education setting for a majority of the day (USDOE, 2015). It was noted by the USDOE that the percentage was significantly skewed by the state of Hawaii data of 36.7%, while data for the other 50 states and Puerto Rico were in the range of 45.5%-77.5%. Pearl et al. (2012) acknowledged the 28th version of this USDOE report gave 2004 data that showed only 52.1%, which shows a 10% increase and more in 49 of the states as well as Puerto Rico.

The educational legislation was a significant catalyst in the inclusion of students with disabilities within the general education environment. The increase of students served within general education began with the reauthorization of IDEA, maintaining servicing of individuals in their LRE. Inclusion supported the No Child Left Behind Act (NCLB) (2002), which mandated all teachers, who instructed core content, to become

highly qualified (Friend et al., 2010) by 2005-06. Because many special educators were not licensed or state qualified in content areas, there were limitations on the direct, unsupervised content instruction they could give (Mitchem, Kossar, & Ludlow, 2006). This mandate encouraged teachers to either expand their qualifications or schools to provide more direct instruction to students with disabilities in the content classrooms and, according to Zigmond et al. (2009), created a circumstance in which general educators were expected to teach content to students who had a variety of special education needs.

In the context of virtual schools, each state continues to employ teachers who obtain licensure in the same ways as traditional teachers, and thus, harbors the same difficulties in servicing students with special education needs. General education content teachers must become adept at meeting the needs of individual students and ways to differentiate, although as found in traditional schools, virtual school teacher data emphasize a lack of readiness and skill to work with students who have varying needs. Rice, Dawley, Gasell, and Florez (2008) investigated the professional development needs of virtual teachers and found that in the areas of addressing diverse learning styles, intervention and enrichment, and team teaching, the needs of the virtual teacher far exceeded the training needs of their traditional brick-and-mortar counterparts. Inclusive practices do require virtual general education teachers to play an active role in instructing students with special needs, but it also brings about the opportunity for supportive collaboration among faculty.

Over the years, there have been many different interpretations as to what inclusion means. Definitions of inclusion in past years were more focused on a school learning community, usually within general education classrooms. The National

Dissemination Center for Children with Disabilities' (NICHCY) 1995 Digest article on inclusion makes it evident that placement focused on in the early years of inclusion. Their definition of inclusion read as follows, "The practice of providing a child with disabilities with his or her education within the general education classroom, with the supports and accommodations needed by that student" (Kupper, 1995, p. 2). The article further stated that education should take place at each student's geographically assigned home school.

Literature during this period emphasized the need to differentiate between mainstreaming, inclusion, and full inclusion in the definition. The NICHCY's Digest article (Kupper, 1995) made the point that practitioners often inaccurately used inclusion and mainstreaming interchangeably. Not only was mainstreaming not the intention of inclusion, but Hilton (1992) reported it has shown to have little effect. Hilton (1992) studied the integration of students with more severe disabilities into the traditional classroom and concluded that schools lacked effective practices for integration. Through analysis of his results, Hilton (1992) demonstrated that "merely placing students with severely disabling conditions into integrated settings does not ensure the successful integration of students and how teachers and administrators can monitor the quality of integration" (p. 168). More recently, Mastropieri and Scruggs (2009) identified the need to clarify the meaning of full-inclusion as placing all students, regardless of severity, into the general education setting, as opposed to offering a continuum of services that offers inclusion. Researchers documented the argument on applicability and practicality of full-inclusion (Obiakor et al., 2012; Zigmond et al., 2009) which became further compounded by Mastropieri and Scruggs' (2009) viewpoint that teachers do not yet have the

preparation for full inclusion. Despite that, some of the empirical research discussed later in this review (Lamport et al., 2012; Pierson & Howell, 2013; Spitler et al., 2013) emphasized full-inclusion.

Viewing the broader perspective of inclusion as integration into the learning community takes the emphasis off placement in a physical space. Wang and Birch (1984) stated that the practices of partial inclusion resulted in a focus on inclusion being on placement instead of instruction. Tralli, Colombo, Deshler, and Schumaker (1996) provided a great direction by focusing on "supported" inclusion as the wording to differentiate between placement and services. Inclusion by their definition incorporated inclusive philosophy, planning time for diverse needs, incorporating diverse teaching methods, collaborating with special educators, options for the short-term intensive pull out, and options for sustained instruction in basic skills or strategies outside of the regular classroom. As years passed, the concept of the practice of inclusion was further enhanced.

Friend and Bursuck (2011), highly noted researchers in the area of collaboration, added structure by offering Marilyn Friend's philosophy on inclusion through a multidimensional definition. This definition of inclusion included: (a) Physical integration--priority on general education placement, alongside peers, with pull out only when demonstrated as a necessity; (b) Social Integration--the ability to foster relationships between disabled and peers without disabilities, which would extend to relationships with adults; and (c) Instructional Integration--priority on the same curriculum as non-disabled peers, adapted to the extent needed, changing the design of teaching and learning for students to succeed. Friend and Bursuck (2011) also offered

that if it is necessary to modify the curriculum, it should be rooted in the standard general curriculum. As stated by Friend and Bursuck (2011), instructional techniques that enhance the collaboration between general educators, special education teachers, service providers, and parents were also emphasized in the literature as inclusive practices to meet the needs of students with disabilities in the regular classroom. This enhanced vision on inclusion is essential for understanding its relevance to virtual education where physical space and community environments become redefined.

Inclusion in a Virtual Environment

In the world of publicly funded virtual schools, no prescribed method for providing services to students with special needs exists within the reauthorizations of IDEA. The literature on virtual education (Greer et al., 2014; Müller, 2009; Repetto et al., 2010; Rhim & Kowal, 2008; Spitler et al., 2013) shed light on the issues of virtually serving students with special education needs; however, data on any specific method in order meet the legal expectations of current method or its effectiveness in a virtual environment remain absent. The continuation of data gathering supports the ability to plan and execute empirical studies needed to impact services for students with disabilities positively.

A pilot study (Ridings, 2016) provided information about the use of inclusive practices by virtual educators. Virtual teachers nationwide completed surveys about the frequency of use of seven specific strategies as well as factors that inhibit or promote the use of inclusive strategies in the virtual environment. The strategies rated by virtual teachers were mixed ability collaborative small groups, supported instruction

(consultation with special education), individual support (provided by general education teacher), tiered instruction (expansion/pre-teach/re-teach), curricular modifications/ accommodations, and assistive technology/software. On a 0-4 point scale, teachers reported using a combination of strategies with a mean of 2.23 and a median of 2.86. Survey data (Ridings, 2016) provided information on each inclusive strategy implemented to differentiate the curriculum (Figure 1). The results showed that the majority of the strategies had moderate to frequent use, but most interesting was the limited use of co-teaching, despite favorable comments specific to co-teaching in answers to open-ended questions (Ridings, 2016).

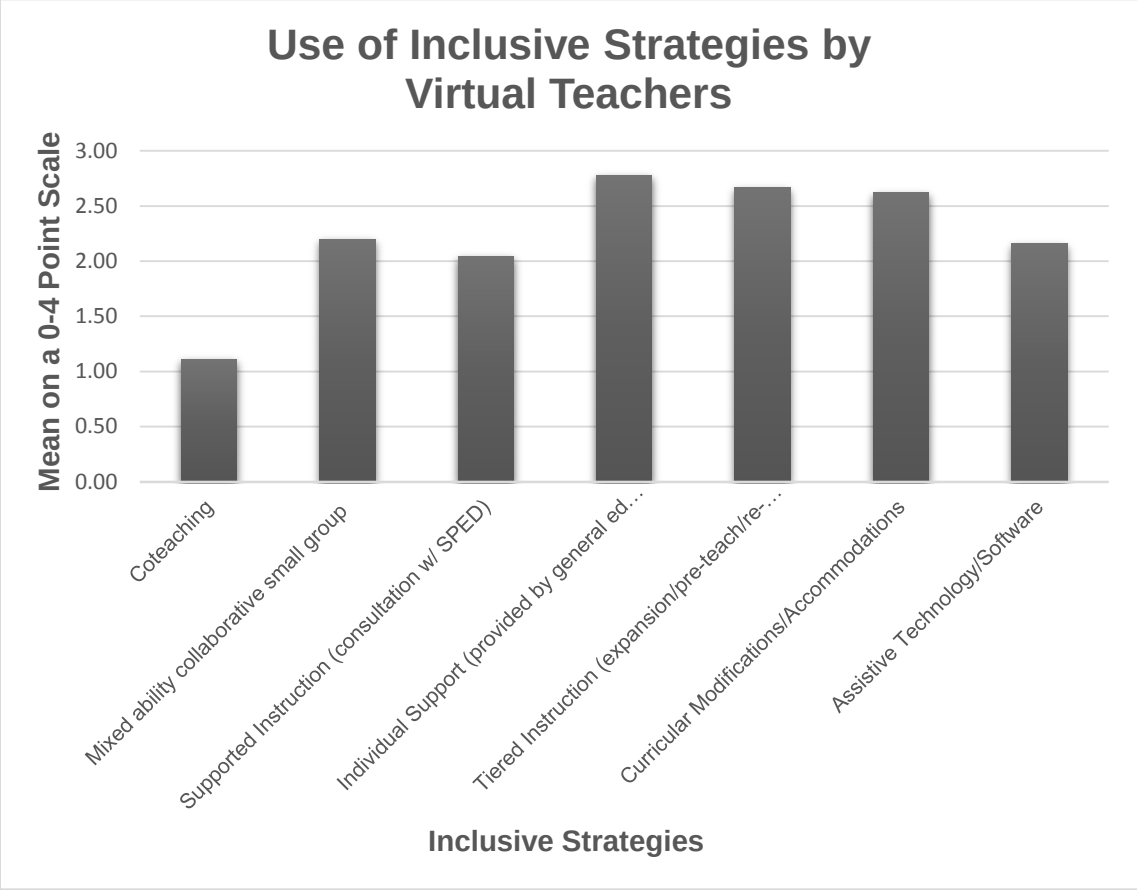

Figure 1. The use of inclusive strategies within virtual school environments.

The increase of students with disabilities participating in virtual schooling drives the need for "new tools and new solutions to be considered and implemented for the student as well as the teacher" (Greer et al., 2014, p. 89). Greer et al. (2014) emphasized, "teaching online does not mean that teachers ignore or forget about effective instruction for students with disabilities" (p. 84). Although Rhim and Kowal (2008) attempted to "demystify" special education in a virtual setting, stating that its unique features are not understood and offer opportunities for students with disabilities, others share the concern. Greer et al. (2014) stated, "The growth in K–12 blended and virtual learning environments indicates that students with disabilities will increasingly be exposed to or engaged in these [virtual] learning options" (p. 60). These concerns, along with weak research on student outcomes in virtual settings, have created a need to continue improving inclusive practices in these environments. Exploring the unique qualities of virtual schooling can help us understand how inclusion occurs in a virtual environment, which has a considerable impact on how we understand and implement inclusive strategies such as co-teaching.

Co-Teaching as a Strategy to Provide Special Education Services

Co-teaching began in the 1980s as a method to provide social interaction for students with disabilities placed in traditional, brick and mortar, general education classrooms. Since then, co-teaching has become a more widely used form of collaborative service delivery in the 21st century within the push for inclusive practices (Friend et al., 2010). For the same legal and policy reasons that inclusion catapulted to the education forefront, co-teaching has risen with it as an inclusive strategy. Given significant ethnic, learning, and cultural diversity in the modern classroom, many general

education teachers find it difficult to deliver instruction without support (Hilton, 1992; Kluth & Straut, 2003). This factor makes collaboration a necessity in the transition to more inclusive teaching (Kamens, 2007).

Defining Co-Teaching

The way in which researchers define co-teaching proves essential to understanding its impact on virtual education. Kloo and Zigmond (2008) offered this definition:

> Coteaching is a special education service-delivery model in which two certified teachers--one general educator and one special educator--share responsibility for planning, delivering, and evaluating instruction for a diverse group of students, some of whom are students with disabilities. (p. 13)

Although discussed as early as the 1960s, co-teaching lacked definition as an inclusive model for special education until the 1980s. One of the leading researchers in the field, Marilyn Friend, contributed significantly to the large body of co-teaching research and development. She encouraged collaborative techniques such as planning and co-teaching between special education and regular education teachers as a component to inclusion (Friend & Bursuck, 2011; Friend et al., 2010). Less than a decade ago, co-teaching research provided only logistical and procedural information infused with anecdotal co-teaching experiences of teachers (Cook & Friend, 1995; Kloo & Zigmond, 2008); however, empirical research now exists giving us opportunities to discuss outcomes and successes through a theoretical lens.

Theoretical Framework of Co-Teaching

In an article related to the theory on inclusion in early childhood education, Mallory and New (1994) stated that some of our practices within special education were

ineffective and even harmful due to the lack of reflection on theory. Educators must consider theory related to co-teaching to minimize potential risks or harm in the education of students with disabilities. Mallory and New (1994) emphasized this need and stated, "It seems that practitioners often carry out their work in the absence of clear theoretical frameworks that might help explain the processes of children's learning and development as well as provide guiding principles for program design" (p. 323). Drilling down from the overall practice of inclusion, theoretical frameworks give support for the practice of co-teaching and clarify a foundation for discussions on how to develop and analyze applications of co-teaching in the context of virtual environments.

Initial implementations of inclusion rested on social context and the benefits of students interacting with their peers without disabilities which, though not the sole emphasis in current education, still provides a viable benefit to an inclusive model. The focus on inclusion promoting community in the learning environment is not new to social learning theorists. Researchers Mallory and New (1994) explored the impacts of social-constructivism, perpetuating the idea that collaboration promotes not only socialization, but learning. For this reason, it is logical to extend the theoretical framework from collaboration to co-teaching and explore connections to the work of Lave and Wenger (1991).

Community of practice. Jean Lave (1991), a social anthropologist focusing on conventional theories of learning, initiated the development of Situated Learning Theory. This theory, although compatible with constructivism, is concerned with the context of learning much more so than the process; she viewed culture and interaction as main conduits of learning. Stemming from Lave's (1991) situated learning theory, Jean Lave

and Etienne Wenger (1991) conceptualized that knowledge develops within a community of practice. Situated learning theory resists the concept that learning can be independent and occur within its own context, emphasizing that learning must take place within the context of community. Lave (1991) discussed her view of situated learning as a community of practice by describing the following:

> Developing an identity as a member of a community and becoming knowledgably skillful are part of the same process, with the former motivating, shaping, and giving meaning to the latter, which it subsumes. It is difficult to move from peripheral to full participation in today's world (including work-places and schools), thereby developing knowledgeably skilled identities. (p. 65)

In his essay, Wenger (2010) acknowledged the growth of the applications of community of practice as a social learning system that has occurred since the original coinage of the term by him and Lave (1991). Wenger (2010) summarized the connection to education as the following:

> Communities of practice are increasingly used for professional development, but they also offer a fresh perspective on learning and education more generally. This is starting to influence new thinking about the role of educational institutions and the design of learning opportunities. (p. 7)

Matusov, Bell, and Rogoff (2002) expressed their interpretation of Lave's work as, "Lave and Wenger stress that learning relationships are situated in the broader relationships of community life, and that learning processes entail both the development of individuals' membership in the community and the shaping of identity" (p. 918).

Researchers like Laluvein (2010) and Hoadley (2012) also connected the theory of community of practice to education. Laluvein (2010) directly linked the two in her article titled "School Inclusion and the Community of Practice":

> The community of practice provides opportunities to access information, dialogue with peers, collaborative and individual planning and reflection. It offers an enhanced knowledge and skill base. The collaborative process enables teachers to

> expand on repertoire of methods for teaching diverse needs, accommodating student diversity. (p. 45)

Laluvein (2010) relates to inclusion as a team-oriented process that can be applied to both the collaboration of professionals as well as to student peers.

Hoadley (2012) more specifically relates community of practice to the classroom and its impacts on learning as follows,

> In the community of practice view, learners must have access to experts, and must either perceive themselves to be members or aspire to membership in a community in which expert practices are central; contrast this with the ways students are segmented into grades or levels within schools. (p. 291)

Students of all abilities need to interact and learn from each other, both in academic and social contexts. Hoadley (2012) further remarked that a student must have opportunities to participate beyond direct interaction with the teacher and stated in response to lecture style is that it narrows the access to expertise to one, instead of all that the classroom as a whole has to offer. "[Lecture] seems unlikely to allow a student to develop any identification with the authentic practices of the classroom, much less the world outside the classroom" (p. 291). Although Hoadley (2012) did not specifically address inclusion or co-teaching classrooms, we can surmise from this that classifying students in ways that preclude natural heterogeneous collaboration amongst peers, not to mention teaching professionals, inhibits the learning process.

Relating the theory of community of practice to co-teaching is thus twofold. First, in an inclusive, co-taught classroom the learning environment promotes diversity with constant transitioning of learning strengths and needs throughout the student population involving many possibilities for interaction. Second, the deep collaboration encouraged between the general education teacher and the special education teacher,

along with any other related services or specialists, in creating and executing dynamic lessons to meet the needs of all learners, develops a community of practice among faculty. Applying this theory to the virtual environment has all of the same potentials; however, the ability to foster that community relies heavily on technological tools.

Empirical research on co-teaching. The field of education continues to promote and implement the co-teaching model as a way to satisfy legal and policy-based requirements, yet special education based agencies are still cautioning about the degree of empirical effectiveness related to student outcomes and the validity of those results as affirmed by Pearl et al. (2012),

> Despite the potential for co-teaching as a service delivery model, the field has continuously questioned the overall impact of this practice, with particular concerns regarding the validity of the role of the special educator and the impact of co-teaching on student learning outcomes. (p. 572)

Researchers such as Pearl et al. (2012) and Walsh (2012) stated disagreement with those that caution co-teaching's effectiveness by acknowledging that a previous empirical base existed through meta-syntheses by Murawski and Swanson (2001), Scruggs et al. (2007), and Solis et al. (2012). These interpretations of the research base gave important understandings about the positive impacts of co-teaching. Walsh (2012) specifically stated,

> Although there are continued calls for more efficacy research regarding co-teaching, quantitative and qualitative research over the past 20 years have consistently determined that students in co-taught classrooms learn more and perform better on academic assessments than do students in more restrictive service delivery models. (p. 32)

The frequency of citation of these meta-synthesis publications within the co-teaching research and their implied importance requires a thorough review of the literature to understand the value and impact of co-teaching completely.

Published in 2001, Murawski and Swanson analyzed 37 studies published between the years 1991 and 1998, identified using a multiple search method as studies measuring co-teaching as an intervention strategy; they eliminated all but six for lack of sufficient qualitative data that could be used to determine an effect size. The methodology criteria used required collaboration between general education professionals and specialists that included co-planning as well as instruction, intervention instruction that lasted a minimum of two weeks, and instruction of a heterogeneous group of students within the regular education classroom.

Statements made by Murawski and Swanson (2001) about the effect of co-teaching were that it had moderate effectiveness, based on their calculated mean effect size of .40 for the six studies overall. This statement preceded a strong caveat that the data harvested were problematic in their ability to report the types of data needed and with only six studies, conclusions were limited. The research questions posed by Murawski and Swanson (2001) were unable to be fully answered. One question specifically looked at effects of varied dependent measures (grades, social outcomes, and academic achievement), but due to the variability reported among the different studies, only a couple of factors were able to be discussed. Despite the lack of consistency of how data were classified, Murawski and Swanson (2001) reported results in two areas. The first was high effect sizes for academic achievement in literacy and second, co-teaching moderately impacted effect sizes for mathematics and conduct referrals. The other research question evaluated the effects of gender, disability, grade level, etc. Once again, the variability of the information did not allow a complete answer to the question, but some moderate effect sizes were noted for K-3 and 9-12 grade levels. Middle grades

lacked representation in the studies, and grades 3-6 did not result in a significant effect size.

Not so surprisingly, at the end of their study, Murawski and Swanson (2001) discussed at length the problems encountered with the research performed on co-teaching as well as the overall lack of research available. Making a specific plea to co-teaching educators about their need to participate in research they stated, "teachers who are employing co-teaching as their services delivery option at all grade levels should open their classrooms for study" (p. 266). In addition, Murawski and Swanson (2001) re-emphasized points originally made in a study by Weiss and Brigham (2000) who encouraged specific changes to the reporting of co-teaching research such as quantitative versus qualitative values, vital information being unreported, variance between participants' definition of co-teaching, too much emphasis put on teacher personalities, and a lack of discretion of the special educator's role. Murawski and Swanson (2001) included their own deep concern for the lack of reporting of the integrity of the intervention data collection and stated that the continuation of co-teaching was imperative because research ceases unless teachers continue to co-teach. This study indicated the potential positive effects of co-teaching, but perhaps served an even greater purpose in detailing the systematic need for change in our early research on the practice of co-teaching.

Later studies appeared to improve the ability for measurement, although still lacking in empirical evidence. A meta-analysis by Scruggs et al. (2007) was conducted using studies between the publication years of 1995 and 2004. In total, 32 studies met the criteria of the authors, dissertation or theses involving primary and substantive qualitative

data collection with a co-teaching focus within the research question. The method used, in contrast to Murawski and Swanson (2001) was qualitative in investigating integrated themes for a broad understanding of the impact of co-teaching in the research analyzed. In considering the general strengths of this meta-synthesis, the researchers expressed a definitive conclusion that co-teaching showed an overall benefit for students. It was stated, however, that the benefit for students with disabilities was more academic and more social for students without disabilities. Within all of the discussion came one of the most interesting aspects of this study in which the researchers concluded that ideal co-teaching is not yet realized.

Scruggs et al. (2007) made a great effort to explain the qualitative methodology as well as qualitative style analysis, its benefits, and how they systematically compliment these procedures. These details were essential to understanding the basis for which they made evaluative comments of co-teaching.

> Rather, the purpose is to integrate themes and insights gained from individual qualitative research into a higher order synthesis that promotes broad understandings of the entire body of research, while still respecting the integrity of individual reports. (p. 73)

Scruggs et al. (2007) made several important conclusions stemming from their research. Several important co-teaching elements analyzed were the various criteria that previous studies indicated needed to be in place for successful co-teaching to occur. Training was identified in a significant number of the studies. The overall perception was that teacher training in the area of co-teaching was reported as very needed and noted statements of teachers expressed discomfort when training was not received. Another identified criterion was planning time among co-teachers, which was also a struggle faced when pairing novice teachers with building mentors. The issue of administrative support was

expressed as generally needed for successful co-teaching, emphasizing impacts on the relationship of co-teaching pairs, the nature of inclusion for all students, and team planning time.

The investigation of teacher roles within reported co-teaching participants showed the approach of co-teaching of one teacher instructs while the other supports was highly prevalent among all studies reviewed. Despite being a valid style of co-teaching, it is the least equitable in appearance, and without a balance in the use of styles, can adversely affect the success of co-teaching. Although some of the studies cited supported it as an initial stage of co-teaching, researchers admitted that the participants identified as having co-taught for some years had never moved beyond that stage. Even rare alternative co-teaching methods that the study described used two rooms and gave the overtone of traditional "pull-out" special education services. More importantly, this review focused heavily on the contributing aspect of subordinate roles that many of the special education teachers reported. Several reasons cited for teachers' passive acceptance in their co-teaching experience were lack of content area expertise and the territorial nature of the classroom teacher. This discussion offered insight to the authors' overall finding that true ideal collaboration of co-teachers planning and teaching together continued to be an unmet goal and a significant rationale for improving the co-teaching instruction given to pre-service teachers.

Instructional strategy was another theme in the meta-synthesis by Scruggs et al. (2007) which presented unexpected conclusions. The most surprising finding was that classroom instruction had not changed overall as a result of co-teaching. Researchers reported that most of the studies reviewed observed that classroom teachers implemented

whole-class versus individual adaptations to lesson presentation. Classroom teachers continued not to make accommodations for the individual needs of learners. It usually fell to the responsibility of the subordinate special education co-teacher to address the needs of individual learners. Despite the strength of co-teaching to add more teaching power and more easily develop student-centered classrooms, the data within the meta-synthesis indicated that observations of co-teaching rarely occurred during any of the studies.

The initial perspective of the authors in their discussion of meta-synthesis was a positive outlook of the general benefits of co-teaching. In retrospect, a failure in observing the criteria needed for successful co-teaching, including the limited practice of true co-planning and co-instruction and insufficient instructional strategies, painted the perspective that there was much more to do to ensure successful co-teaching, questioning the overall conclusion of the benefits of co-teaching. Despite the fact that this meta-synthesis provided significant details, it still lacked information on critical co-teaching elements and focused too intently on the significant amount of consistency between the various studies included.

A study by Solis et al. (2012) took a different approach by looking at an entire body of evidence through analyses of multiple meta-syntheses of research, including the two studies above, totaling 146 studies. Although using this approach was more global, lacking many specific details about the practice of co-teaching, it did provide a framework and additional support for discussing major implications. Summary remarks that focused in on the areas of co-teaching help to support the state of empirical research up until 2012.

As others have, Solis et al. (2012) confirmed the significant use of the co-teaching, in which the general education teacher leads, and the special education teacher lends support. It has never been the intent of true co-teaching that one partner is more subordinate even in the One Teach--One Support style, yet implementation of co-teaching faced the challenge of implementation as well as the lack of co-teaching training for those engaging in the practice. Solis et al. (2012) also point out that the evidence suggested co-teaching becomes ineffective as a stand-alone strategy without the incorporation of sound instructional practices known to assist those with special needs (i.e., differentiation, direct instruction, grouping techniques, etc.). One major interpretation from Solis et al. (2012) implied the general education teacher did not often change instruction when the special education teacher made direct recommendations, as opposed to a more collaborative role in making those changes. This further exemplifies how a co-teaching equitable relationship with shared responsibilities and planning can impact the quality of co-teaching. Moreover, Solis et al. (2012) summarized the need for logistical support such as administrative support, time for planning, and other resources to make an impact on learning. Solis et al. (2012) quickly pointed out that approximately 15% of the studies embedded in the meta-synthesis reviewed provided any data on student outcomes, encouraging the continuation of co-teaching research.

More recent empirical studies after 2012 are available that do, in fact, show more significant outcomes for co-teaching. The use of co-teaching search terms within two large university databases of peer-reviewed journals returned studies by Walsh (2012), Pierson and Howell (2013), Tremblay (2013), and Strogilos and Avramidis (2016), which provided more recent empirical evidence on the effectiveness of co-teaching. Together,

these four studies give a more enriched understanding of the outcomes related to co-teaching in modern, traditional schools and classrooms.

During his time as a director of special education in a Maryland school system, James Walsh (2012) completed a post-hoc analysis of data collected between 2003 and 2009. The data detailed student achievement within inclusive versus non-inclusive environments for students grades three through eight. Results over this six-year period showed stronger achievement in inclusive co-teaching settings. Walsh (2012) stated, "the improvement in student performance is associated with the increased implementation of co-teaching in our schools" (p. 30). One of the more notable implications from the successes reported by Walsh (2012), consistent with community of practice theory, involved the context in which systematic professional development on co-teaching occurred throughout the school district. The results of a self-study of each school's resources gave support benefits of increased time for co-planning and professional development. Community of practice requires collaborative relationships of co-teaching partners and other school personnel. On-going training utilized materials developed by a leading co-teaching researcher, Marilyn Friend, and emphasized important instructional strategies such as grouping techniques and differentiation within the scope of co-teaching. This study sets itself apart from earlier research studies that reported results of untrained co-teaching partners as participants and questionable co-teaching resources.

A study by Pierson and Howell (2013) reported the results of following two suburban high schools (one new and one established) in which all 341 students identified with disabilities gained services through a full-inclusion model that used co-teaching. Case study methodology over a two-year timeframe identified strategies leading to

successes. Administrators removed special education teachers out of segregated environments and placed them in co-teaching teams. Many indications supported the development of a community of practice in the schools. School leadership took a supported team-approach to the implementation of co-teaching, setting the stage for building the cohesion that initiates a community of practice. The effort applied by the schools included an intensive range of training that included topics of co-teaching models (specifically training materials authored by Marilyn Friend), student engagement and involvement, questioning techniques, and differentiation, which not only built relationships among teachers and staff, but also fostered exchanges of knowledge among students. Pierson and Howell (2013) included satisfaction statement data indicating students' enjoyed participation in everything their classroom peers were doing and appreciated having the support of staff. Although these data were not detailed enough to evaluate the degree of community of practice amongst peers, they did imply some sense of belonging within the classroom. Pierson and Howell (2013) reported results as, "Overall, students with disabilities were challenged with more demanding curriculum and did make academic gains as reported by the teachers and paraprofessionals at both school sites" (p. 229).

A study by Tremblay (2013), published in an international journal of special education, matched comparison groups of first and second graders enrolled in special education classes (control group) or in inclusive environments, defined as a co-teaching environment and specifically as, "full-time co-teaching context involving a general education teacher and a special education teacher and centered on the inclusion of a group of students with LD" (p. 253). Although this two-year study was heavily focused

on the measurement of student outcomes in math and reading/writing as opposed to the implementation of co-teaching, Tremblay (2013) described factors contributing to a community of practice within the co-teaching setting. Teachers in the study varied in level of specialization, but one statement of importance indicated the co-teaching pairs participated in meetings with school administrators and support staff, training on the processes of co-training and advanced opportunity to plan together before the co-teaching experience, exemplifying the types of activities needed to build the deep collaboration between teachers and staff that contribute to a community of practice. Little was said about the teacher-to-teacher interaction, although the description of the two-day training reported that the co-teachers learned the methods of co-teaching and differentiation as well as practice in the application and analysis of co-teaching. This evidence loosely implies that the teachers learned varied styles of co-teaching, which encourage diverse groupings and student activity.

The author reported findings in two ways; achievement in a content area and assessment of the gap in achievement. Tremblay (2013) stated the specific academic effects of co-teaching as:

> The impact of the two instructional models on student achievement demonstrated that compared with students in special education, the students in the inclusive setting noticeably progressed on the external evaluations in reading/writing between the beginning and the end of grade 1 and grade 2, but the differences were only statistically significant for grade 1. (p. 256)

Tremblay (2013) added, “Although not significant, the outcomes in math for the students in the inclusive model are positive” (p. 256). When achievement gaps between the students in a special education class and those in the inclusion (co-teaching) class were analyzed, Tremblay (2013) found a decrease in the year-two gap in the students placed in

the inclusive co-teaching class. For those students in the special education class, the gap "significantly and systematically increased" (p. 256) in comparison to both special education and general education students in the inclusive class. Tremblay (2013) concluded, "These findings appear to show that inclusion with co-teaching provided students with LD with the necessary support for academic achievement on standardized tests" (p. 256).

A study by Strogilos and Avramidis (2016) examined whether co-teaching had an effect on the teaching experiences of 12 students with autism spectrum disorder (ASD) and 10 students with an intellectual disability (ID) as compared with the experiences of the same students in non-co-taught classes. Although the setting for this study was in Greece, their legislation pushing for inclusion is similar to that of the United States. Strogilos and Avramidis (2016) stated, "In response to this, co-teaching has been advocated as a promising means for improving the inclusion of students with [special needs] especially those at the severe end of the continuum" (p. 24).

Structured observations of the 22 students, as well as the co-teaching pairs, allowed for the collection on various instructional behaviors such as engagement, student participation, types of instruction, etc. Several notable details of these data appear important. First, the level of engagement for either disability type was significantly greater in the co-taught classroom. The authors also found that students with special needs received more individual instruction and directions in a co-taught classroom, while other researchers had questioned the existence of that individualized approach. However, it was implied that the increase in attention might have a connection to another finding of the study, results that showed less peer interaction was happening in co-taught

classrooms than in those that were not co-taught. As Strogilos and Avramidis (2016) explained, the education agencies in Greece assigned special education professionals to individual students as opposed to a school or district. This practice, they felt, supported One Teach--One Assist and potentially created a negative impact on the amount of interaction with the general education teacher as well as the group collaboration in the co-taught classroom. This factor seems particularly interesting when considering the theory of community of practice. According to Laluvein (2010), if community of practice is the exchange of ideas with peers and collaborative planning and reflection, individual supports that interfered with these elements would impact outcomes for the student and the overall presence of a community of practice.

Although seasoned professionals taught in all of the study's classroom settings, researchers noted a limitation in that none of the co-teacher participants had training in the elements of co-teaching; a factor Strogilos and Avramidis (2016) felt likely would have influenced the outcomes. Strogilos and Avramidis (2016) did not reflect on concepts based on community of practice in their discussion of the results; however, they predicted the negative effect of the lack of training on collaboration amongst co-teaching pairs. Overall, the statistically significant findings of the study supported that a classroom co-taught by both a general education teacher and a special education teacher created positive experiences, but elements impacting proper implementation still needed attention.

Conceptual Framework of Co-Teaching

In addition to the general definition already given, there are other elements that have come to define the successful practice of co-teaching of a special and general

educator. Friend et al. (2010) emphasized the importance of training participating teachers, which should occur not only before beginning collaboration, but throughout their partnership. Cook and Friend (1995) stated that planning, another critical factor in the method of co-teaching, must have a structure that helps to develop goals, determine responsibilities, and make decisions. Co-planning must be a deliberate, reflective process which is vital to meeting the individual needs of students (Cook & Friend, 1995; Dieker & Murawski, 2003; Mastropieri & Scruggs, 2009). Cook and Friend (1995) stressed that successful co-teaching requires specific on-going support to evaluate the co-teaching effectiveness and the ability to reflect on those practices.

Within the practice of co-teaching, styles of teaching exist, identifying the roles of the two teachers during delivery. Although slightly modified styles in the research and field exist, many research articles such as those by Friend et al. (2010), Hang and Rabren (2009), Kloo and Zigmond (2008), and Kluth and Straut (2003) specifically outlined similar co-teaching instructional delivery styles within this model. These styles, described as One Teach--One Observe, One Teach--One Assist, Parallel Teaching, Station Teaching, Alternative Teaching, and Teaming, first presented by Cook and Friend (1995), contribute to the methodology of co-teaching. Many researchers (Dieker & Murawski, 2003; Kloo & Zigmond, 2008; Weiss & Lloyd, 2002; Wischnowski et al., 2004) have pointed to the approaches of co-teaching presented by Cook and Friend (1995) as viable opportunities to support today's co-teaching practices, but have emphasized the roles and nature of each teacher's participation differently. When these practices are used together as an overall approach, they can be very effective; however, when co-teaching approaches are not varied, the equity and value of roles can be

confused. Dieker and Murawski (2003) described co-teaching as "an educational practice currently being discussed in most schools across the nation" (p. 1), but they also referred to collaborative teaching, team-teaching, or just teaming as being synonymous with co-teaching.

Not all research agreed with Dieker and Murawski's (2003) use of terminology. Friend et al. (2010) differentiates that team-teaching (not to be confused with the team style used within co-teaching) and co-teaching are different in two distinct ways; team teaching involves two teachers of the same discipline and that those teachers combine both of their entire class groups, keeping the teacher-to-student ratio the same. These descriptions indicate that team-teaching is not an interchangeable term with co-teaching, as co-teaching is meant to lessen the teacher-to-student ratio and share dissimilar expertise. Some disparity also exists between research and typical educational practice of special educators who may use the term of co-teaching to identify methods of teaching in collaboration with para-professionals or instructional aides as opposed to other certified professionals in the general education setting (Stang & Lyons, 2008). Friend et al. (2010) maintained that co-teaching must involve two licensed teachers, while others like Nevin, Thousand, and Villa (2009) maintained that co-teaching can happen between other instructional personnel and specifically wrote a practitioner's guide to implementing this as a strategy.

Elements of the co-teaching model. Based on the work of Marilyn Friend and Lynne Cook and incorporating ideas about the foundation of co-teaching and other essential elements from research throughout the literature base (Austin, 2001; Dieker & Murawski, 2003; Keefe & Moore, 2004; Weiss, 2004; Wischnowski et al., 2004), a full

model emerges (Figure 2). Three foundational elements are identified for successful co-teaching as supported by current research. First and foremost is the *disposition and perception* of individuals involved in the co-teaching setting. The disposition of teachers to collaborate as well as the team's perceptions of teacher roles and values are essential to territorial or independent in nature and do not favor having another teacher in the classroom, which impedes the co-teaching process from the beginning (Hudson & Glomb, 1997).

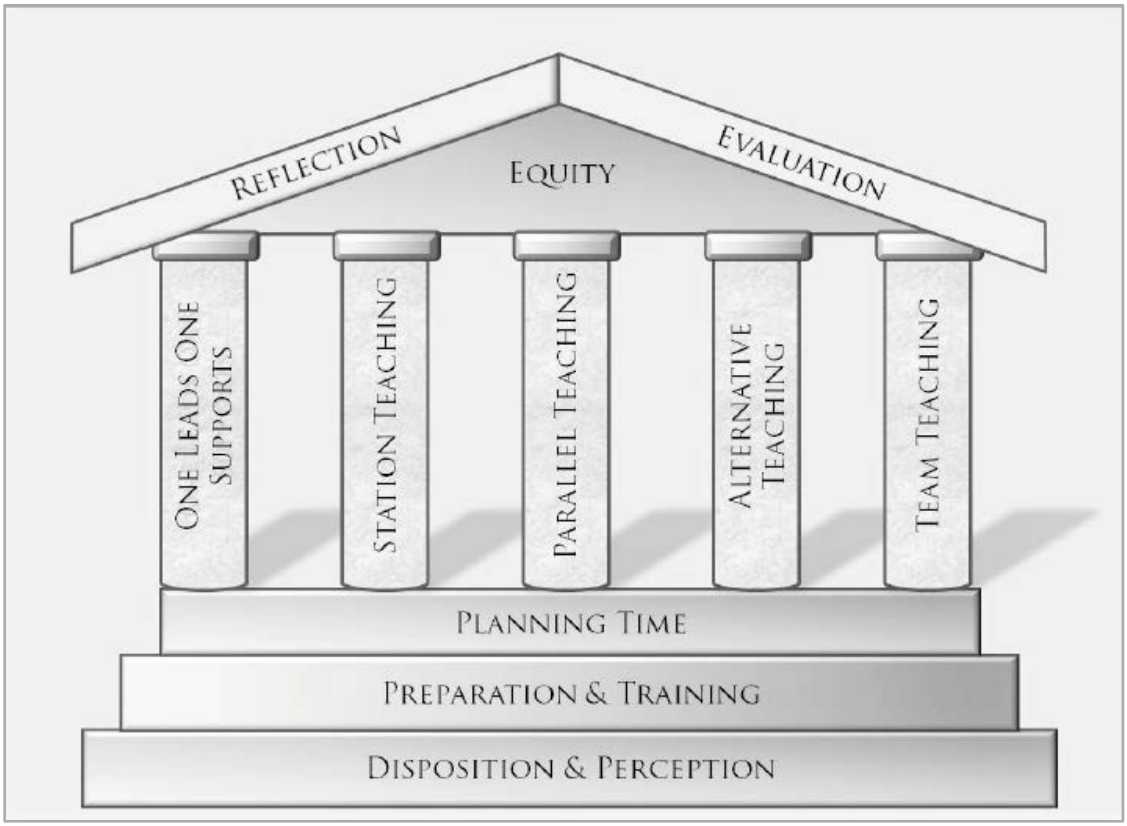

Figure 2. Essential elements of successful co-teaching as discussed in co-teaching literature.

Preparation and training follow as a more formalized effort to enable teams to learn skills and strategies, not only in working together as co-teaching partners, but in

differentiating to meet the needs of their students (Cook & Friend, 1995). Preparation for co-teaching identifies the need to set common ground between partners prior to the onset of co-teaching on the expectations they have of their students as well as procedures they will use for management of instruction and behaviors. Without this element, one teacher might be perceived as a visitor in the classroom of the other by their partner, themselves, or the students (Keefe & Moore, 2004). On-going planning time between co-teachers is vital to the effectiveness of their instruction and connects significantly to the issue of equity among partners (Keefe & Moore, 2004).

The individual pillars in the middle segment further support the understanding of co-teaching styles initially introduced by Cook and Friend (1995) now described throughout the literature (Dieker & Murawski, 2003; Scruggs et al., 2007; Weiss, 2004; Wischnowski et al., 2004). Each pillar represents a style of co-teaching in which all have equal importance and necessity. The structure will fail without the the support of the varied use of styles (Dieker & Murawski, 2003; Weiss, 2004; Wischnowski et al., 2004). Cook and Friend (1995) emphasized a frequent change in style based on "student characteristics and needs, teacher preferences, curricular demands, and pragmatics such as the amount of teaching space available" (p. 6); therefore, the consistent use of One Leads, One Supports is problematic as it does not consider diversity in student groups or varied lesson content.

Each one of the styles offers different approaches to meet the curricular objective and/or the needs of the student population. One Leads, One Supports represents one teacher giving instruction and one teacher supporting the instruction, all within the same group of students. The style of Station Teaching uses three educational professionals, all

in instructional mode, with students rotating among them for short instructional lessons. Co-teachers can also accomplish this by each instructing a station and using the third station as an independent, teacher-guided instruction. Parallel Teaching is a style where two instructional teachers are each teaching part of the class with the same instruction. There are times, however, when a portion of the class, often a smaller subset of students based on the needs for that specific content, would do well with an alternative method of instruction. The goal of Alternative Teaching is to meet the needs of independent groups of students using different strategies or materials while learning the same concepts or skills. Alternative Teaching occurs with two instructional teachers, one teaching the larger group, and one teaching a smaller group using alternative instructional means. Lastly, Team Teaching identifies two teachers, one general educator and one specialist, operating as an instructional pair, teaching in tandem to one group. Teachers often have predetermined understandings of who will lead various sections of the lesson while the other supports, but they typically share commentary and authority of content throughout the lesson appearing tandem.

The remaining three elements add to the overall stability of the structure and its ability to weather time. The concept of equity is an important aspect of any partnership. Cook and Friend (1995) state, “if planning is not shared, the general education teacher often feels overburdened and the special educator feels as though he or she is not an integral part of the instruction” (p. 8). Teachers in Damore and Murray's (2008) study agree that sharing of power is of critical importance in co-teaching. The visual symmetry of equity in Figure 2 relates to the importance of balance between co-teachers. To add to the on-going effectiveness of the implementation of co-teaching, partners must engage in

reflection, both personally and as a team, about their effectiveness. Cook and Friend (1995) encouraged administrators to provide resources and incentives for co-teachers to reflect. Walsh (2012) and Pearl et al. (2012) both showed comprehensive tools for reflection based on self- and district-evaluation. Considerations of effectiveness may stretch to a variety of areas, such as teaching skill, partnering, differentiating, planning, and management. It is also very useful if there is an opportunity for classroom evaluation, particularly an evaluation that is suited for analyzing the components of co-teaching. Cook and Friend (1995) specify that both formative and summative evaluation are critical components of program implementation. Together with reflection, evaluation can provide the opportunities to boost effectiveness and maintain the integrity of the strategy.

Literature on the benefits and challenges of co-teaching. In addition to the outcomes of co-teaching discussed in empirical research studies by Murawski and Swanson (2001), Pierson and Howell (2013), Scruggs et al. (2007), Solis et al. (2012), Strogilos and Avramidis (2016), Tremblay (2013), and Walsh (2012), perceptual and survey studies relating to co-teachers' experiences lend further support for understanding the co-teaching elements. This body of research further identified the benefits and challenges created by this strategy of inclusion. Benefits and challenges may relate to the needs of students and outcomes reported, to the logistics of implementation, or to the experiences of teachers as co-teachers.

As supported in the educational literature, teachers with co-teaching experience perceived that positive impacts from the implementation of co-teaching improve their teaching ability, their students' performance, and classroom community (Austin, 2001).

Friend et al. (2010) viewed co-teaching as a reasonable response to the demands of a class with diverse student needs on one individual professional who may not possess all of the knowledge and skills necessary to serve a complex population. Kloo and Zigmond (2008) offered in response to teacher's need for skill building as the following description of co-teaching, "job-embedded professional development for general education teachers" (p. 13). Co-teaching literature does not take the stand that co-teaching alone is adequate professional development. Teachers in Austin's (2001) study reported that they felt the need for co-teaching presented for professional development was an individual benefit to their teaching. Overall, research indicated that benefits to general education teachers were in classroom management and curriculum adaptations, whereas special educators benefitted through their additional knowledge of the particular content area.

Research also reported that effectively implemented co-teaching provides academic benefits for the entire class. By informally reviewing students' test scores and assignment grades, surveyed teachers shared their perception that co-teaching contributed to the academic development of their students as well as to the improvement of their own teaching abilities (Austin, 2001). A study by Hang and Rabren (2009) reported that outcomes for students with disabilities significantly increased in reading and math after one year of placement in a co-taught classroom. As identified by Kloo and Zigmond (2008), the increased achievement may be a direct result of reducing the student-to-teacher ratio and increasing the attention students with disabilities get within the general education setting. Kloo and Zigmond (2008) stated, "Coteaching has been proffered as one way of ensuring that students with disabilities benefit from content instruction taught by content specialists in general education classrooms" (p. 13).

Another benefit of co-teaching is the impact for students without disabilities being educated alongside their peers with disabilities. In Austin's (2001) study, teachers perceived that in co-taught classes where students with mild-moderate disabilities participated, students had a high degree of participation; their tolerance for individual differences had increased and they were more co-operative with peers and teachers. Austin (2001) further stated, "[co-teaching provides] opportunities of students without disabilities to gain some understanding of learning difficulties experienced by many students with disabilities" (p. 251). A number of researchers have indicated that students with disabilities specifically benefit from co-teaching by eliminating the stigma associated with special education while continuing to receive individual help (Keefe & Moore, 2004; Kloo & Zigmond, 2008). Co-teaching participants in Austin's (2001) study noted other teaching-related areas of benefit that impact students. The addition of an extra teacher in the room allowed the improved student-to-teacher ratio, but it also allowed each teacher to gain from the expertise of the other. Co-teaching also increased flexibility in implementation options for scheduling, giving teachers the ability to implement the strategy for just an individual class for an all-day collaboration (Friend et al., 2010).

Even though negative teacher attitudes exist which create hurdles to overcome and hesitancy in the implementation of co-teaching, Pierson and Howell (2013) concluded from their study that,

> Some teachers at the existing high school resisted involvement in the inclusion process, but eventually the majority of this dissenting group became supportive of the project. This finding indicates that educators' initial negative perceptions about inclusion were not reason to delay or deny inclusive practices at a school site. (p. 230)

Co-teaching can be challenging if not implemented with support for partnering, proper development opportunities, and administrative support (i.e., community of practice), which may contribute to the perspective of co-teachers' negative pre-conceptions of co-teaching. Taking important steps to safeguard the implementation of co-teaching is crucial to gain the commitment of teaching staff.

Although various co-teacher roles exist, the establishment of equitable roles should be emphasized (Keefe & Moore, 2004). Perceptions from co-teachers agree on what ideal practices of shared responsibilities should be, but they also report that those responsibilities are often not practiced with their co-teaching partner (Austin, 2001). Damore and Murray (2008) found a disparity between the teacher-reported practices in their urban schools and what teachers actually implemented. This research indicated that teachers might know the elements of co-teaching and may have collaboration occurring in their building, but still struggled to put co-teaching into effective practice. The literature related to the co-teaching phenomenon emphasizes equitable co-teaching roles, teachers' ability to collaborate, training opportunities, and administrative support. This implies that not only must teachers be instructed in co-teaching understandings, but also guided in their application.

One key to facilitating effective co-teaching roles involves general education and special education fully interacting with one another to plan and provide instruction. Dieker and Murawski (2003) pointed out that secondary special education teachers often collaborated with other special education teachers or specialists, instead of general education teachers, in a way that would support a more exclusionary instructional model. Similarly, these same researchers recognized that general education teachers interacted

mostly within their own departments with some disregard for other building professionals. Active co-teachers within various studies reported that more often, special educators modified and remediated, while general education teachers planned and instructed (Austin, 2001; Keefe & Moore, 2004). Other researchers summarized as, "Although, theoretically, co-teaching could enhance instruction in the general education classroom, in practice, co-teaching is not often implemented as proposed" (Volonino & Zigmond, 2007, p. 298). Keefe and Moore (2004) studied general and special education co-teachers within a particular high school and found that most teams settled into roles of the general education teacher being in charge of the planning and delivering of curriculum, with the special education teacher helping individuals and making modifications. Teachers in this study stated they felt the students viewed the special education teacher as a teaching assistant. These circumstances indicate that co-teachers who are being asked to collaborate often defaulted into what might appear as the *One Lead--One Support* approach of co-teaching. As Solis et al. (2012) and Strogilos and Avramidis (2016) found, this may ultimately be damaging to the co-teaching participants' perspectives about collaboration and its overall effectiveness.

Research provides considerable discussion in the research about the special education teacher's lack of content area knowledge and the challenges teachers perceive that it brings to a co-teaching partnership. Without content area expertise, general educators often feel territorial in nature about lesson content and how it is being taught (Scruggs et al., 2007), leaving special education teachers to become insecure about their ability to contribute, which leads to perceived helplessness and a submissive role in co-teaching (McKenzie, 2009). Austin (2001) reported that the most compelling outcome of

his study was that both special and general educators were in agreement that the regular education teacher did more in the partnership and that the special education contribution lacked forethought or preplanning. He continued to theorize that the viewpoint of the special educator as a visitor in the classroom could have an impact on the equity of the shared responsibility.

Various studies found that teachers clearly had a negative impression of the value that a special educator could bring to the partnership. Scruggs et al. (2007) contemplated that a special education teacher may only gain acceptance in a co-teaching arrangement for as much as they resemble the general education teacher. Solis et al. (2012) stated that special educators lack influence when making instructional recommendations, but changes can occur when they are actively involved in the coordination of the curriculum. Their involvement may pose difficult as Scruggs et al. (2007) offered that a general educator's push to continue large-group instruction consequently imposes limitations on the role of the special education teacher. In the evaluation of various studies, Kloo and Zigmond (2008) found that special educators were not making a unique contribution and that simply putting a licensed general educator and a licensed special education teacher together in a co-teaching situation was not enough. The understanding of "expecting general and special educators to possess the same content and knowledge base is ludicrous; instead, teachers need to be taught how to recognize one another's areas of expertise and collaboratively build upon those strengths" (Dieker & Murawski, 2003, p. 3) proves critical in developing better partnerships.

In-service education, often termed professional development (PD), is a method which school districts employ to assist general and special education teachers to develop

skills in co-teaching professionally. McKenzie (2009) stated that this type of education did more to foster the dissemination of information and was not likely to yield effective results in the development of co-teaching partnerships because it lacked the ability to offer guided application. The empirical studies of Tremblay (2013) and Walsh (2012) supported this view and combatted the effect by utilizing strong training protocols with an emphasis on application. Being able to engage both special educators and general educators in pre-service collaborative activities may do more to yield better results at the in-service level (McHatton & Daniel, 2008). Pearl et al. (2012) and Walsh (2012) published studies on their authentic applications of co-teaching (within each of their respective school systems) and indicated that the use of collaborative, on-going professional development was a necessity for success.

Even with measures to build sound co-teaching partnerships, administrative support is needed to lend assistance with logistical factors that promote co-teaching. The effectiveness of co-teaching also depends on the administrator playing a supportive role. "These leaders have the responsibility to partner teachers, arrange schedules and common planning time, and resolve dilemmas that arise" (Friend et al., 2010, p. 20). Cook and Friend (1995) specified that useful strategies to support co-teachers involve assistance with planning and scheduling programs or courses, the presence of resources and incentives for self-reflection about the provision of services, and help for co-teachers to prioritize and maximize their time. Scheduling collaborative planning time together is often a huge challenge to co-teachers, and administrators need to see value in it (Cook & Friend, 1995). Without administrators at the building level to give support and eliminate

logistical issues, co-teachers face failure from an overload of responsibilities and unequal or ineffective partnerships.

Challenges to co-teaching clearly exist, but research points to practices as solutions to challenges impacting efforts in planning, training, and support. The transition to authentic co-teaching practices can be formidable, but beneficial when pairing general education teachers with special education teachers. Schools and teachers pushing beyond consultation and other service delivery options find co-teaching one of the most popular models within traditional inclusive classrooms (Kloo & Zigmond, 2008; Lamport et al., 2012) and has much potential to offer the virtual world.

Implications for Virtual Co-Teaching

Based on research conducted in the traditional classroom, the practice of co-teaching has strong viability for building inclusion in the virtual school environment. The theoretical case for the success of co-teaching in traditional schools continues to apply in the virtual world. A community of practice supporting co-teaching can still exist using the technological tools available to virtual schools. Moreover, there are numerous considerations of strengths and weaknesses within the environment of virtual schooling that align with the history of challenges for traditional brick-and-mortar schools--equitable co-teaching roles, ability to collaborate, training opportunities, and administrative support, but also those that are particular to virtual schooling such as determination of LRE, accommodations, student attendance, parent support, and technology.

Online Co-Teaching Research

A search for empirical evidence of co-teaching in the virtual K-12 environment did not prove highly valuable. A thorough search of two large university databases and an online Google search for scholarly articles with the search terms of "virtual co-teaching," "co-teaching online," and "team-teaching online" surfaced only a few articles related to higher education: Burks (2004), Scribner-MacLean and Miller (2011)**,** and Wilson and VanBerschot (2014). Research could not be located related to co-teaching in an online K-12 environment. This was further supported by the rationale for a pilot study (Ridings, 2016) on inclusive strategies in the virtual environment, including the use of co-teaching. In an effort to make connections to other related research, the context in higher education was explored.

Scribner-MacLean and Miller (2011) explored the idea of co-teaching (two content experts) online in college courses**.** This article considered the benefits of K-12 brick-and-mortar co-teaching reported in the research and discussed the application of proven K-12 methods to the environment of online college courses. Scribner-MacLean and Miller (2011) theorized ways in which co-teaching could impact online courses. Concepts like community building and verbal communication were consistent with teaching online, but most of the collaboration seemed focused on workload sharing and the division of tasks, indicative of team-teaching between two content teachers verses co-teaching as service delivery for students with diverse needs. The most transferable benefit discussed was the students' ability to gain different perspectives, which can work well when instructing students with disabilities.

Two other publications focused on virtual courses within higher education, exploring the use of what this review would again define as "team teaching" and the body of research related to adult e-learning and instructional design. A dissertation study, Burks (2004), provided an in-depth interview-style qualitative methodology for investigating the effects of co-teaching a law course. The context was of an online multimedia WebCT (asynchronous video) based course which did not include many contemporary online course features such as discussion. The author did take initiatives to consider its transferability to more modern platforms, yet none were very applicable to the K-12 model. Wilson and VanBerschot (2014) provided an introspective article about their application of a practice-centered approach to co-teaching involving two content instructors in a university context. The context had limited application to the K-12 virtual school environment.

Unfortunately, all of these articles focused on adult learning and took a team-teaching approach (two instructional professionals of similar content), which differs significantly from the definition of co-teaching for support of students with special education needs in the K-12 classroom. Rice and Dawley (2009) gave specific cautions in using this type of research:

> While there are some consistencies between effective teaching in higher education versus K-12 education, and while there is value in the personal input of experienced online teacher trainers, there are also as yet unidentified PD needs due to the multiple unique contexts of K-12 online schools and the unique and differing needs of teachers who teach children as opposed to adult learners. This reliance on research, practice, and policies from contexts that may not reflect the needs of K-12 online education may result in unintended negative consequences. (p. 524)

In addition, the research on co-teaching online at the higher education level used K-12 traditional co-teaching research as its basis, but that same research has not sparked further

research related to K-12 online teaching. Perhaps the field takes for granted a point that Rhim and Kowal (2008) initially made, which is that many strategies can transfer over from the traditional brick-and-mortar setting into the virtual setting. However, as Rice and Dawley (2009) reminded us, co-teaching is dependent on its environment, which has "unique contexts" (p. 524) in the virtual world. Therefore, the belief that co-teaching as prescribed in the traditional, brick-and-mortar environment applies directly to co-teaching definitions, uses, and practices in the virtual environment are presumptive.

Implications for Conducting Research on Co-Teaching in Virtual Schools

Given the absence of research on virtual co-teaching, including general descriptive research about students with disabilities in virtual schools, the need for co-teaching research in virtual environments becomes clearer. There are some unique advantages that virtual environments provide that would likely give support to co-teaching (Repetto et al., 2010; Rhim & Kowal, 2008). Müller's (2009) report emphasized that the advantages of virtual schooling included the availability of multi-media content and supplemental resources, individualized attention, fewer behavioral supports needed, and the ability to offer another schooling option to students with disabilities. Rhim and Kowal (2008) confirmed, "Many virtual charter schools are able to offer instructional methods that are attractive to students with various disabilities, such as individualized pacing, frequent and immediate feedback, a variety of presentation formats and personalized instruction" (p. 9). The ability to differentiate for individual students and instruct a diverse group is key to co-teaching (Cook & Friend, 1995);

therefore, these conclusions would indicate that virtual environments possess the curricular tools and technological structure to accommodate co-teaching.

As Repetto et al. (2010) suggested, virtual schooling also offers a reduction in stigma. Participants of a pilot study (Ridings, 2016) offered statements such as, "The online environment is excellent for inclusive practices, as there is not the same stigma attached to needing additional support in the online world," "because students do not actually see each other get 'pulled out' of the classroom or singled out for additional support," and "It allows the special education students to feel more accepted and less threatened" (p. 17).

Virtual schooling environments may be more accommodating, not only in the ways students access people, places, and curriculum, but also in the limited behavioral and emotional supports a student may need. Many accommodations offered to students with disabilities in a traditional environment to give equal access become necessary because of the limitations of the physical environment. Virtual students learning in their home settings, controlled by parents, lessens the environmental impact, decreasing the need for certain accommodations, and may be an additional strength of virtual education settings. Pilot study participants (Ridings, 2016) offered their understanding of this benefit:

> Students who may have a physical limitation may not have barriers anymore in an online environment. Students with high anxiety and stress can learn how to work with other students without feeling anxious being in a large classroom. Their voice can be heard through chat writing on the whiteboard or through the mic. (p. 18)

Another participant agreed and stated, "Several types of physical or social (anxiety) accommodations are rendered unnecessary, due to the online/home-based format" (p. 18).

One participant noted an ease of accommodating for a curriculum that is computerized and pointed out, “For students who need it, there is text to speech to help with their understanding of material” (p. 23). Repetto et al. (2010) stated, “[These students], in some cases, may be better served in online courses, because adaptive technology is nearly ubiquitous in a virtual school” (p. 96). Between the accommodating nature of the home environment and the benefit of adaptive technology readily available, certain barriers that exist in the traditional setting decrease for students with disabilities in the virtual setting.

Although no specific data exist that indicates exact student-to-teacher ratios for special educators, Molinar (2015) stated, “While the average ratio was approximately 15 students per teacher in the nation’s public schools, virtual schools reported more than twice as many students per teacher” (p. 74). Other indicators of this comparison are limited to the pilot study (Ridings, 2016) in which participants offered statements of their experience similar to this comment that “The potential for amazing inclusion programs exist, but the work load of our special education teachers keeps that from occuring” (p. 28). This commentary further exemplifies the impact of staffing and workload issues on the development of collaborative relationships. As in traditional models, providing the necessary time for planning and collaborating between staff necessitates administrator support to manage a collaborative, inclusive climate (Friend et al., 2010).

Despite the tools and technology available to differentiate for diverse learners, teachers in the virtual world feel less equipped to plan for students with special needs. A report for iNACOL written by Rice et al. (2008) described challenges for virtual teaching as “Virtual school teachers reported higher needs in modify, customize, and/or personalize activities (90%), intervention and/or enrichment (91%), and in team teaching

(70%)" (p. 4). The pilot study (Ridings, 2016) offered one virtual teacher's perception on this issue:

> One [inhibitor of inclusion] is teachers feeling that they may not be able to effectively support students with special needs in the online environment. I have found that this is one that affects most teachers in my school--they don't feel that they know how to do so in the most effective way possible, other than just skipping lessons or modifying assignments. (p. 23)

Co-teaching, when implemented correctly, not only provides the day-to-day expertise of a special educator, but establishes training on strategies that assist teachers to learn specialized skills (Friend et al., 2010; Pierson & Howell, 2013; Walsh, 2012).

Based on current research, it is a valid argument that the practice of co-teaching through the development of a community of practice gives school personnel, in either traditional or virtual model, an opportunity to address many of the challenges for special education. Aspects of collaborative abilities, school culture, and infrastructure, as they pertain to co-teaching in virtual settings, have not been explored in the educational literature. No commentary exists in published research about how virtual educators perceive the implementation of co-teaching, although participants in the pilot study (Ridings, 2016) who responded to the open-ended questions made comments that either directly or indirectly named co-teaching. When reflecting on factors that promote inclusion, one participant commented, "I think the idea of having two teachers in the room helps to implement so many additional strategies that wouldn't otherwise be able to be incorporated," and another noted, "Co-teacher can be discrete, and can freely interact with all students, not just SPED" (Ridings, 2016, p. 17).

Not all challenges of providing inclusion in a virtual school reported in the literature aligned with those in traditional schools. Müller (2009) reported that

challenges of special education unique to virtual schooling start with the attempts to meet the needs of a quickly rising population of students with disabilities, and communication difficulties increase in situations in which a student's local school partners with the virtual school to develop IEPs and oversee services. Other major challenges relate to student attendance, teachers' inability to see faces to interpret student understanding, poor parent and student participation, and the appropriateness of virtual schooling as a *least restrictive environment* do little to support the success of students with disabilities.

Many themes inhibiting inclusion, reported by virtual teachers, are part of a larger systemic concern. Heavy acknowledgment of the impact of the lack of participation by both students and parents were evident (Ridings, 2016):

> Simply put, the students who attend live sessions, participate in discussions and use time in class (when provided) to work on assignments fare much better than asynchronous students, and students who either do not attend class (truant) or log in for attendance purposes, but are not engaged. (p. 26)

Two other participants focused comments on the lack of parental participation, which is key to a virtual model, and commented, "The parent (learning coach) is supposed to be monitoring their progress, but often they do not, so they are not receiving any support or guidance from home," and "The most prominent problem would be when the Learning Coach at home is not willing to support the child" (p. 24).

Virtual teachers also showed concern about the impact of student participation, exemplified in this commentary made by a pilot study participant (Ridings, 2016).

> I feel like it is hard at times to really work with my sped kids in the online setting, because they also tend to be anxious and don't like to attend live sessions. I can't implement any inclusive practices if they don't come. The ones who do come seem to do very well, but it is a challenge to get them there in the first place. (p. 18)

Given issues with student attendance and participation, the need for family support, and other limitations, many virtual school professionals question virtual schooling as an option for every child to meet LRE, despite the fact that, as a public school option, it requires services and LRE for students with disabilities. Researchers also acknowledged that many factors hamper the ability for virtual schools to meet the needs of students with disabilities (Müller, 2009; Rhim & Kowal, 2008). One pilot study participant stated, "Virtual education is not for every student. The student must be self-motivated to focus in live sessions, complete assignments in class and on time," while another agreed, "A general failure to consider whether virtual education is truly a good fit for the student is a serious problem" (Ridings, 2016, p. 17).

One additional factor for the need for integrating peer-to-peer interaction in virtual schools surfaced in research (Müller, 2009; Rhim & Kowal, 2008) in addition to the pilot study (Ridings, 2016). This difference in social opportunity was seen as problematic by some teachers and summarized by one participant as, "Social interaction lacks for both building relationships with peers but also lacks for 21st century skills/team projects/groups." Co-teaching provides a foundation of community of practice which supports collaborative relationships with co-teaching adults and fosters relationships among peers (Friend et al., 2010), which may assist virtual schools to offer more chances for socialization.

Perhaps not all of these virtual education challenges will find resolution through the implementation of co-teaching in the virtual environment; however, given success in the traditional school setting and the unique features of virtual education that better enable collaborative strategies, co-teaching has the potential for wide implementation to

improve overall collaboration between special and general education and ultimately inclusion in virtual settings. Pilot data indicated that the frequency of co-teaching implemented in the virtual schools might significantly lag behind other inclusive strategies (Ridings, 2016). Given the logistical flexibility already available in virtual education, co-teaching would seem a strong fit to build inclusive and collaborative environments supported by well-established learning theory to benefit both students and teachers.

Conclusion

This literature provided an extensive overview of virtual education and the need for support of individuals with disabilities within that environment. The inclusion of students with disabilities into general education given appropriate supports meets legal expectations of students having access to the general education curriculum in their least restrictive environment. Co-teaching is a highly accepted strategy that supports inclusion through systematic collaboration within the general education setting to meet the needs of students with disabilities. Supported by the theoretical framework of community of practice, co-teaching applies collaborative practices, not only among faculty in working together in a common space for common goals, but in providing a classroom environment for varied learning structures fostering collaboration among peers. On a conceptual level, the model of co-teaching has a well-documented framework that has been tested in traditional, brick-and-mortar schools and classrooms (Pierson & Howell, 2013; Strogilos & Avramidis, 2016; Tremblay, 2013; Walsh, 2012). Empirical evidence has shown numerous benefits to the implementation of co-teaching as well as challenges that teachers face when co-teaching. Yet, given the differences of space and time in a virtual

environment, there is not enough evidence to conclude that the same benefits, challenges, and effects would be present with the implementation of co-teaching. In fact, those environmental differences may alter the practice of the strategy itself, but that inquiry has never been formally made, leaving us to wonder what virtual teachers experience with co-teaching.

This study utilized a more focused investigation of the implementation, successes, and challenges of this strategy in the virtual environment. It is necessary to answer questions to understand this phenomenon in this new, technological setting to explore more deeply how virtual education services students with disabilities. The following research questions help to establish best practices for co-teaching in an environment that has its own unique qualities:

Q1 How do virtual co-teachers describe their experiences related to implementation of the co-teaching strategy?

Q2 How do virtual co-teachers describe their co-teaching roles and relationships?

Q3 How do virtual co-teachers describe their experiences involving school culture (e.g., school values and organizational structures)?

Q4 How do virtual teachers describe their experiences related to feelings of success or failure in co-teaching?

Additional empirical studies directed at these questions influence virtual educators on how to provide an inclusive environment to meet the needs of students with disabilities. In addition, a better understanding of the unique characteristics of an effective community of practice in virtual settings provides a broader perspective of the role of co-teaching and inclusive environments in traditional classrooms.

CHAPTER III

RESEARCH METHODOLOGY

Research Design

This study investigated the phenomenon of co-teaching occurring within the virtual school setting. The practice of co-teaching appears systematic through research from the perspective of a traditional setting; however, procedures developed for a traditional setting may not be implemented in the same way within a virtual environment. No evidence of research on virtual co-teaching could be found. Creswell (2009) pointed to a qualitative approach as being the most effective when a topic or concept is new or little research has been done. In addition, Creswell (2009) emphasized that qualitative study "creates an agenda for change or reform" (p. 17); therefore, a design that allowed an inquiry into the lived experiences and perceptions of virtual co-teachers promoted conditions for virtual educators to develop and improve co-teaching practices for the virtual world.

Qualitative design focuses on a particular concept in a way that emphasizes the personal values of participants and studies the context of the phenomenon (Creswell, 2009). The use of phenomenology does not depend on any related literature to collect data, and questions can be broadly stated (Creswell, 2009). Through a qualitative interview, which is typical for phenomenological design, participants share meaning that is more personal, and the result is a densely detailed account of an experience (Weiss,

2004). Qualitative interviews, known for open-ended questioning, also allowed participants to expand on their context in a way that a more structured approach tends to neglect. Both factors aligned with this study's overall research question, "What are the experiences of virtual education teachers who co-teach to meet the needs of students with disabilities?" The approach used in this study to determine the essence of being a virtual co-teacher allowed those experiences to be understood by others and enhanced how educators provide services to students with disabilities.

Within phenomenology, there are two distinctly different analytical approaches; the descriptive approach, also termed transcendental, pioneered by Edmund Husserl, and the interpretive (hermeneutic) approach developed by Heidigger (Bradbury-Jones et al., 2009; Moerer-Urdahl & Creswell, 2004). The two not only differ in the fact that the first only seeks to have participants describe their experiences and the second seeks interpretations about participants' experiences, but also that the researcher's pre-conceptions are heavily guarded against in Husserl's design, yet are boldly accepted as part of the analysis in Heidigger's design (Reiners, 2012).

A transcendental phenomenological qualitative design was selected as the best fit for the research questions in this study as it is the description of the virtual co-teachers' experiences that was wanted, rather than their interpretations about their experiences (Reiners, 2012). This transcendental design also provided more structure within the analytical procedures (Moerer-Urdahl & Creswell, 2004). Moustakas (1994) identified processes that guide a researcher to the development of the essence through the analysis of participant statements and generation of meaning units (Creswell, 2009; Moerer-Urdahl & Creswell, 2004; Moustakas, 1994; Yuksel & Yildrim, 2015).

Transcendental Phenomenology

Edmund Husserl developed the transcendental phenomenological design to emphasize the importance of meaning through the collection and analysis of data to obtain the essence of the human experience (Moerer-Urdahl & Creswell, 2004). Husserl believed, "The experience of perception, thought, memory, imagination, and emotion, involve what Husserl called intentionality, which is one's directed awareness or consciousness of an object or event" (Reiners, 2012, p. 1). In transcendental phenomenology, the meaning rises through a reduction process of the descriptive data, but the interpretation is done through the examination of multiple viewpoints, not through including the researcher's interpretation. Specific procedures termed epoché, reduction, horizontalization, and imaginative variation were further developed by Moustakas (1994) to give greater structure to the analytical process beyond other qualitative designs (Moerer-Urdahl & Creswell, 2004).

The process of epoché must be completed at the beginning of the study. Moustakas (1994) described the experience of epoché and clarified,

> The challenge is to silence the directing voices and sounds, internally and externally, to remove from myself manipulating or predisposing influences and to become completely and solely attuned to just what appears, to encounter the phenomenon, as such, with a pure state of mind. (p. 88)

This description assists with the understanding that epoché involves a process of mentally disconnecting one's personal thoughts from the analysis (Merriam, 2009; Moustakas, 1994; Yuksel & Yildrim, 2015).

The process of epoché allowed my experiences and biases as a researcher to be set aside (Merriam, 2009) to develop a true, analytical representation of what experiences people had with virtual co-teaching. As the researcher, I facilitated this process by

removing myself from past experiences of and positions on co-teaching. By completing this process before interviewing or conducting focus groups, it allowed me to be fully present. Moustakas (1994) offered, "I am more readily able to meet something or someone and to listen and hear whatever is being presented [through epoché], without coloring the other's communication with my own habits of thinking, feeling, and comparing" (p. 104). After data analysis, I applied a theoretical lens and conceptual frameworks to enhance the discussion.

The first analysis phase, called reduction, involved several steps; however, in conceptualizing the entire phase, Yuksel and Yildrim (2015) described it as a process that cleanses the data in a way that leaves conscious elements contributing to the essence of the phenomenon. Horizontalization, described by Moustakas (1994) and further discussed by Moerer-Urdahl and Creswell (2004) and Merriam (2009), is an initial step in which each piece of data is looked at with a sense of equity. Moustakas (1994) explained that "Each horizon as it comes into our conscious experience is the grounding or the condition of the phenomenon that gives it distinctive character" (p. 95). Taking each piece of equal data (in this study, the extracted statements from transcripts) and categorizing it into clusters is how Merriam (2009) envisioned the horizontalization process. Moerer-Urdahl and Creswell (2004) and Yuksel and Yildrim (2015) offered more concrete representations of this analytical step process. Also in this phase of reduction, the paring down of raw data begins to eliminate experiences that were not directly related to the phenomenon (Yuksel & Yildrim, 2015), Moerer-Urdahl and Creswell (2004) stated, "The remaining statements are horizons or textural meanings" (pp. 26-27), which allows for clustering of data into meaningful units.

The other phase of analysis, imaginative variation, is the point at which structural descriptions begin to form and meaning takes place (Moustakas, 1994). At this stage, the researcher is no longer taking the data at face value, but using his/her imagination to extrapolate meaning from the statements (Moustakas, 1994; Yuksel & Yildrim, 2015). Researchers accomplish this task by developing suppositions and reflecting on the data from multiple viewpoints and perspectives. Both textural meanings and structural descriptions came together to understand the true essence of the phenomenon (Yuksel & Yildrim, 2015), and in this study, the essence of co-teaching.

In this study, the transcendental phenomenology research design was applied to various modes of data. In addition to the need to triangulate data within the analysis process, the limited number of participants available and the need for rich detail gave support to a method of comprehensive data collection. The combination of contextual questionnaires, personal interviews, focus groups, and document analyses was determined to be the best option for collecting rich data, giving both dimension and breadth. Lambert and Loiselle (2008) stated,

> When seeking data completeness, it is assumed that each method reveals different parts of the phenomenon of interest (complimentary views) and contributes to a more comprehensive understanding (expanding the breadth and/or depth of the findings). (p. 230)

Although less common to phenomenology, the combination of data sources, specifically individual interviews and focus groups as significant data sources, is supported in research (Bradbury-Jones et al., 2009; Lambert & Loiselle, 2008). Personal interviews are a widely used data collection strategy in qualitative studies and, in contrast, focus groups were thought to be contradictory to the “individual” nature of phenomenological study (Bradbury-Jones et al., 2009). As discussed in literature by

Bradbury-Jones et al. (2009), focus groups can be facilitated in a way that individual voices are not lost within the group. Lambert and Loiselle (2008) offered their experience as, "When performed rigorously, the integration of individual interview and focus group data is a productive strategy that leads to an enhanced description of the phenomenon's structure and its essential characteristics" (p. 235).

In addition to the interviews and focus groups, documents were collected from the participants. Although the significance of information was not foreseen, the dimension brought by documents as well as the support for validity was shown through triangulation. The work of Miller and Alvarado (2005) as well as qualitative methodology descriptions by researchers like Merriam (2009) and Creswell (2009) made a case for document analysis to be incorporated into qualitative research. Although Miller and Alvarado (2005) speak to the use of documents in the process of triangulation, they also stated, "The study of documents provides access to events that cannot be observed, to a species of communication about the social world, and to social actors that generate meaning and practices" (p. 353). Documents assisted in this study to observe some of the elements of the proposed study's environment that cannot be observed with researcher's eyes.

The overarching question of this study was: What are the experiences of virtual education teachers who co-teach to meet the needs of students with disabilities? Specific questions investigated included:

Q1 How do virtual co-teachers describe their experiences related to implementation of the co-teaching strategy?

Q2 How do virtual co-teachers describe their co-teaching roles and relationships?

Q3 How do virtual co-teachers describe their experiences involving school culture (e.g., school values and organizational structures)?

Q4 How do virtual teachers describe their experiences related to feelings of success or failure in co-teaching?

The research questions and their connection to data collection are outlined in Tables 1, 2, 3, and 4. An initial questionnaire served several purposes specific to this study. First, the categorical and descriptive data collected assisted in verifying the criteria for participation. Second, questionnaire data enhanced the description of the diverse participant group. Finally, as shown in Table 1 and Table 2, certain data from descriptive questions were analyzed during the phenomenological process to add understanding to Research Questions 1 and 2.

Table 1

Data Sources for Research Question 1

Questionnaire	Interview	Documentation	Focus Group
• Briefly describe what circumstances you encountered that led you to consider co-teaching? • Please provide a short description of your co-teaching situation.	• What experiences encouraged you to implement virtual co-teaching? • What were your experiences in being matched with a co-teaching partner? • How did you and your co-teaching partner initially prepare for implementation? • What have you experienced in maintaining your co-teaching processes?	• Please provide any of the following documents related to your implementation: Co-teaching model descriptions (followed or developed), school policy, or school procedures, training agendas or materials, etc.	• How does your virtual school model impact the implementation of co-teaching? • What resources did you find helpful to implement co-teaching in a virtual environment? • How well prepared were you for implementing virtual co-teaching? • What changes do you anticipate making to your implementation of virtual co-teaching?

Table 2

Data Sources for Research Question 2

Questionnaire	Interview	Documentation	Focus Group
• What is your co-teaching role? What is the role of your co-teaching partner?	• Describe what activities were part of your role as a co-teacher. a. What response-bilities did each co-teacher have? b. How equitable do you think the responsibilities were between you and your co-teaching partner(s)? • Describe the relationship with your co-teaching partner. a. In what ways did you directly collaborate with your co-teacher? b. What were your experiences with that collaboration?	• Please provide any of the following documents related to collaboration with your co-teaching partner(s)? Co-planning templates, redacted lesson plans, daily/weekly schedules, collaborative planning notes, etc.	• How did you use technology when collaborating in your virtual schools? • How have your collaborative relationships been fostered or challenged in your virtual environments?

Table 3

Data Sources for Research Question 3

Questionnaire	Interview	Documentation	Focus Group
• n/a	• How would you describe your school culture, defined as the *'values, cultures, and organizational structures in place that affect teaching practices, diversity, and collaboration between teachers and other school staff*'? a. How would you describe elements of your virtual school culture that affect serving students with disabilities through co-teaching? b. What other ways have you experienced your virtual school culture effecting co-teaching?	• Please provide any of the following documents related to your school culture: School mission statement, teaching handbooks, special education procedures, etc.	• How does co-teaching align with the culture in your virtual schools?

Table 4

Data Sources for Research Question 4

Questionnaire	Interview	Documentation	Focus Group
• n/a	• What successes or failures in students' learning or social interactions have you experienced during co-teaching? Describe things specific to those with disabilities and those without disabilities. • What experiences have you had during co-teaching that impacted your overall teaching abilities? • What other experiences in virtual co-teaching gave you feeling of success or failure?	• n/a	• What experiences have you had that help you to define what success in virtual co-teaching is? • What experiences have you had that help to define what failure in virtual co-teaching is?

Personal interviews are a common qualitative approach to data gathering, and in fact, those conducted for this study helped determine the lived experiences of virtual co-teachers. According to Onwuegbuzie, Dickinson, Leech, and Zoran (2009), "Transcript-based analysis represents the most rigorous and time-intensive mode of analyzing data" (p. 4). As shown in Tables 1-4, interview transcripts were utilized to answer each of the four research questions. During the transcendental phenomenology process, interview data aided in developing both individual structures as well as composite structures representing the group's experiences.

A purposeful collection of documents (see Table 1, 2, and 3) corroborated statements made by participants during individual interviews. In addition, the unique

perspective of these documents, which pre-existed the collection of data (i.e., the documents were constructed with an authentic purpose without consideration of data collection), as socially constructed elements offered interesting perspectives. A purposeful selection of documents is one of the two prescribed methods for analyzing the context of the content they contain, but as Miller and Alvarado (2005) pointed out, a selection process may not be necessary if the quantity of documents is small. In this study, all documents were coded for information related to the research questions to support the triangulation process. Two broad strategy types in document analysis exist in qualitative research, content analytic strategies intended to look at documents independently for fixed evidence and context analytic strategies that consider production and use (Miller & Alvarado, 2005). A content analysis approach was used because it best aligned with transcendental phenomenology and this study's procedures, similar to Moustakas' (1994) procedures.

Finally, a focus group was used to add to the depth of data in answering the four research questions. As Lambert and Loiselle (2008) pointed out, additional data are only commonly applied to the process of triangulation, yet they have the potential to "give rich information about the range of perspectives and experiences" (p. 229). Although the use of focus groups is supported by qualitative research for these reasons, it has an interesting debate attached to it related to the oxymoron of the individual nature of phenomenology and the general processes of a focus group (Bradbury-Jones et al., 2009). It is important to not only discuss this debate, but to identify the reasons that the use of a focus group was appropriate for this particular transcendental phenomenological study.

To begin, using focus groups is good as a stand-alone or a complementary method for others to gain understanding, perspective, and stories from the participants (Bradbury-Jones et al., 2009; Lambert & Loiselle, 2008; Millward, 2012). However, in their article which dissected the consideration that focus groups in phenomenology is an oxymoron, Bradbury-Jones et al. (2009) emphasized that using focus groups is a sound methodological choice for use with phenomenological research designs. One concern for using focus groups is the potential for losing the individual voice within the discussion of a group, an important element for phenomenology, but Bradbury-Jones et al. (2009) offered ways to combat this issue. First, focus groups provide the opportunity to share their personal stories. It is unclear whether a multi-method approach that involves personal interviews essentially creates this balance. However, members of a focus group who are unfamiliar with each other might enhance the interaction among participants even if the researcher is familiar with each participant's story. According to Bradbury-Jones et al. (2009), the size of the group also makes an impact on how much individuals share. Groups should be kept small. Bradbury-Jones et al. (2009) demonstrated that with a small enough group, individual stories surface without effort, but as the group expands, facilitation should include a strategy so that each participant can share.

Two epistemological assumptions have been offered in relation to how focus groups should be facilitated and how data should be gathered. Millward (2012) discussed both the epistemological assumptions in detail. The first is the essentialist approach, which is concerned with thoughts, feelings, beliefs, values, knowledge, and ideas. Millward (2012) explained that the essentialist approach is a more content-driven approach to data gathering in a way that facilitates a deeper understanding of the

phenomenon as participant interactions stimulate them to share more. In contrast, although data on content may also be collected, Millward (2012) explained that the social constructivist approach seeks to gain the knowledge of interpersonal processes (i.e., dynamics and conduct of the group) that must be understood to interpret meanings.

It is clear from Millward's (2012) research that two intentions have risen from these epistemological approaches of using focus groups to gather data. The first is merely the collection of information; the focus group is content driven. In some cases, researchers are more concerned with the interaction that individuals have with each other. The interaction then becomes the focus of data collection.

For this study, analyses of group dynamics and interaction were unnecessary to gain content and meaning related to virtual co-teachers' experience. An essentialist approach was used to promote interactions within the group, which added depth and breadth of data. The interactions between participants created the opportunity for consensus on varied topics and added depth and accuracy to the composite descriptions developed through the phenomenological process. Using a social constructivist approach to document the behavior of the unrelated participants themselves would have done little to encourage answers to the research questions.

Effects observed in this study did not align with all aspects of the research presented in focus groups. The number of focus groups ended up being dictated more by participant availability than research methodology. Busy schedules and many competing factors gave a very random arrangement of four focus groups of two to five participants. Groups with fewer participants were observed to have more individual input, but less dynamic conversation. Larger groups were more conversational and provided more

consensus across varied topics. One unexpected effect was that larger groups gravitated to the additional use of the simultaneous chat feature, without instruction from the researcher, to add to the conversation or note agreement. It was assumed this was an automatic response of using the chat feature within their similar teaching platform. Chat commentary was added to the transcripts using timestamps. Reflection of this data collection outcome was two-fold. Data from the focus groups using chat appeared richer and allowed for more individual participation within a larger group; however, increased management of the group through the use of a research assistant to monitor and solidify accuracy of what chat commentary was related to would have been optimal.

The strategy of using focus group data in phenomenological analysis is increasing in acceptance (Bradbury-Jones et al., 2009; Lambert & Loiselle, 2008; Onwuegbuzie et al., 2009), yet there is no set strategy in literature as to how these data become incorporated into the transcendental phenomenology analytical processes set out by Moustakas (1994). Onwuegbuzie et al. (2009) referred to the lack of published analytical approaches for focus group data for qualitative researchers in general, but discussed multiple approaches to qualitative analysis of their data. None of the approaches completely aligned with the descriptive nature of this methodology. However, Onwuegbuzie et al. (2009) offered a potential effective approach using the coding strategies utilized in grounded theory research. This possibility was further exemplified in a phenomenological research article by Lin (2013) in which she described the details of using grounded theory coding techniques applied to two phenomenological studies.

Millward (2012) also described two analysis strategies that align with the two distinctive epistemological approaches to focus groups. For content-based analysis,

Millward (2012) suggested the interpretive phenomenological approach (IPA); however, this approach is more in alignment with interpretive phenomenology versus the descriptive, transcendental phenomenological approach taken for this virtual co-teaching study (Bradbury-Jones et al., 2009). Millward (2012) suggested that there is no preferred way of analyzing focus group data and that content analysis is appropriate. The processes of reduction and thematic labeling, used for this study, mimicked the content analysis and coding procedures used in other qualitative analyses, yet stays true to descriptive phenomenology.

Setting

Two settings must be understood for the sake of this study. First and foremost, the K-12 virtual school was the setting in which the participant's co-teaching occurred to provide instruction to students with disabilities. These teachers instructed in a full-time virtual setting in which all course activities were virtual. Learning management system (LMS) platforms, technological tools, and types of instruction (synchronous versus asynchronous) were influenced by the virtual school model. Although limited access to the technological platforms used by the individual participants did not allow for observations of their teaching, it is important to understand the setting in which the co-teaching occurred.

Data collection for the interview and focus group process relied on a virtual conference system, and many of the same types of audio/visual technologies that Greer et al. (2014) participants utilized in the virtual school setting were applied in the interview and focus group setting. Zoom (www.zoom.us), a software company based in San Jose, California, offered a web-based conferencing platform which provided the ability to

record live video and audio interviews between an individual participant and the researcher over a typical personal computer system. The researcher arranged a web-based meeting for a predetermined time and generated a web link that was sent to the participant. Participants chose the physical environment that provided both comfort and technological capability for their interview. The participant also had full control over the audio/video equipment and sharing of information, which enabled the participant to turn on or off those features at any time.

After each interview and focus group, files were downloaded to a chosen file on the researcher's computer. The file was then uploaded to Rev (www.rev.com) which provided a full transcription of the extracted audio from the researcher's video file. Although participants were read the protocol involving confidentiality, some disregarded the expectation. None of the participants' identifiable information became part of the shared audio file, unless the participant volunteered it. For focus groups, Rev identified different participants based on how the participant logged in. Participants were given instructions to keep their identifiable information concealed, but most did not make the effort to conceal their first name. Rev returned the transcriptions directly to the researcher once completed, and the identifiable information was disregarded when reporting findings.

Participants

Due to the lack of educators publicly identifying themselves as participating in co-teaching in a virtual setting, a participant pool for this study had to be determined. A career-based social media account (www.LinkedIn.com) held by the researcher provided a conduit to inquire of virtual teachers and administrators about involvement with

co-teaching. At the time of participant recruitment, approximately 300 active virtual educators across the United States and territories were able to be contacted. Outreach to those contacts and associates of those contacts developed a participant pool in which all 17 virtual co-teachers were purposefully selected for participation based on the selection criteria. One participant was dropped due to a lack of participation after the initial survey, and the study proceeded with 16 participants.

A purposeful selection of participants was based on four criteria: (a) an educator currently co-teaching or who previously co-taught in the virtual environment for at least one semester or the completion of a course; (b) the educator co-taught the course(s) within a K-12 public or charter school system in the U.S. or territories; (c) the course(s) were taught in a completely virtual environment, excluding face-to-face or hybrid courses, and; (d) the co-teaching partnership represented a pairing of general and special education professionals serving students with identified needs. Data from the contextual Qualtrics questionnaire were used to determine how well a participant met the criteria. Two participants were initially allowed to participate, but as further data were collected, it became evident that criteria (d) was not met. However, further reflection during epoché determined relevance in their data. This factor was further detailed in the discussion of epoché in Chapter III and also in the study's limitations.

A participant consenting to the study acknowledged a willingness to participate in five study activities that were conducted and specified as questionnaire submission, personal interview, member check, submission of documents, and focus group participation. First, a short, initial questionnaire that focused on the context of the co-teaching was submitted by each participant. Next, a 30- to 60-minute semi-structured

personal interview was conducted between the researcher and each participant. As a separate, but important activity, validity was enhanced by conducting member checks where participants had an opportunity to check the interview transcripts for accuracy and communicate any clarifications to the researcher. At the end of the interview, participants were asked to provide any of the suggested documents that related to their co-teaching practices or interview questions they answered. However, this did not prove detailed enough and only elicited documents from two participants. A reminder email was used to help aid the process. Documents were not limited to any particular type; however, participants were given a list of suggested documents that aligned with Research Questions 1, 2, and 3, which included school policies, co-teaching procedures or models used, templates for planning, training materials, and other training documents as seen in Tables 1, 2, and 3. Finally, participants interacted in a small (2-5 person), one-session focus group.

Although the researcher maintained full knowledge of participant identities, the data reported remained anonymous, removing any identifying features, such as name of school or specific geographic location. Participants understood through the consent process and information presented again at the beginning of the interview and focus group, as shown in each protocol (Appendices A and B), that the researcher discouraged giving identifying information related to individuals, schools, or related entities during the interview due to recording and transcribing procedures. In addition, as excerpts from transcripts were filtered for individual textural descriptions and direct quoting, details of school or region-specific job titles, specific grade levels assigned, content area taught, and other information that could foreseeably narrow the scope were replaced with generic

terms or eliminated to protect identity. Member checks were not conducted using focus group transcripts because of the implication of sharing a multiple member transcript would have on confidentiality (Millward, 2012).

Instrumentation

Each participant completed a descriptive questionnaire prior to the individual interviews (Appendix C), which aided in the collection of information about each virtual teacher's context. Participants used the questionnaire to indicate their school type, teaching role, partner(s) role, number of years taught, grade level(s), course(s) co-taught, and a description of the context consideration for co-teaching. Categorical information was used to further identify the variation in participants. Descriptive data that aligned with the research questions were used during analysis (see Table 1).

A semi-structured qualitative interview served as one of four forms of data collection for this study. Appendix A provides the entire interview protocol used with each personal interview. The semi-structured interview consisted of main open-ended questions targeting each of the research questions. In addition to the main questions, the researcher used occasional, follow-up clarification questions to clarify and expand the participant's response. The qualitative, open nature of the design allowed a particular theme or idea to be further explored and provided additional flexibility to the researcher. The clarification questions promoted a more complete understanding of perceptions and experiences, especially since each participant consented to only one individual interview.

The focus group was guided by the protocol included in Appendix B. Specific elements of this protocol assisted with facilitation in a way that aligned with the phenomenological approach. The group questions were preceded by an opportunity for

each group member to give his/her story for both the sake of gaining familiarity with each other to promote conversation and, as Bradbury-Jones et al. (2009) suggested, to guard against losing the individual in the group process. Millward (2012) stated that wording and the sequence of questions are keys that invite participants to disclose and elaborate on their answers. "Consistent use of open or probing questions helps create a climate of attentiveness and listening where people feel able to respond in any way they like" (Millward, 2012, p. 429). Participants in this study were observed as open with varied conversation levels. Researcher probes were used, but participants, at times, probed each other.

Procedure

Application to the Institutional Review Board (IRB) was submitted, and a letter of approval was granted (Appendix D) prior to beginning this study. After receiving IRB approval, the formal consent letter and consent form (Appendix D) was emailed directly to the selected participants' preferred email account. The consent provided information on all five research activities and any risks to their participation. Participants who completed the study were presented a small ($40) bookstore gift e-certificate as a token of gratitude for their participation. Each participant acknowledged consent on the demographic questionnaire before submitting it through Qualtrics, which kept participant information private to all but the researcher. At the end of the questionnaire, participants were asked to select day (weekend/weekend) and time (day/evening) preferences within a two-week period for scheduling a one-to-one video conference interview with the researcher. Once an interview was scheduled, a confirmation email was sent which contained the Zoom video conferencing link and another acknowledgment of the consent.

Two reminder emails were automatically sent to the participant at one week and one day prior to the interview, provided that the interview was scheduled more than a week out. Occasionally, adjustments and reschedules were made to best suit the needs of the participant.

The technological capabilities to participate did not exceed those needed to teach virtually. However, arrangements were made for a recorded, audio-only phone interview through Zoom for one participant whose scheduling needs prevented being seated at the computer at particular times. The video conferencing system (Zoom) required only internet access, web camera, and microphone and met compatibility standards with all well-known computer and mobile device operating systems. After completion, the audio for each interview was sent to a company named Rev (www.rev.com) for transcription which was returned directly to the researcher. No identifying information was included in the audio labeling or request for transcription and was only present in the transcription when participants volunteered it. Any identifiable information was later excluded in data analysis.

Focus groups were conducted following the completion of the individual interviews. In order to accommodate each of the 16 participants, four focus groups were facilitated. Participants were assigned to one of the four focus groups based on their availability. An individual email was sent to each participant with the date, time, and Zoom conferencing link as soon as their focus group was scheduled, and another email was sent the day before as a reminder. Despite all efforts made, four participants were unable to join any groups. Scheduling became more difficult toward the end of data

collection when only a few remained whose schedules did not match. Because of the need to have a group, individual accommodations were not applicable.

Data Processing and Analysis

Moustakas (1994) published enhanced procedures and understandings relating to the Husserl model of phenomenology termed descriptive, or transcendental, phenomenology. According to Moustakas (1994), a process termed epoché begins the study to control for researcher biases and to give focus; however, analytical phases of reduction and imaginative variation follow and become realized through the completion of various steps. In this multi-modal study, procedures were configured using the intent set out by Moustakas (1994) in a way that allowed for multiple data sources. Figure 3 depicts the various phases and steps that were followed during data processing and analysis in this study. The following paragraphs provide details of the meaning and procedures completed in each step.

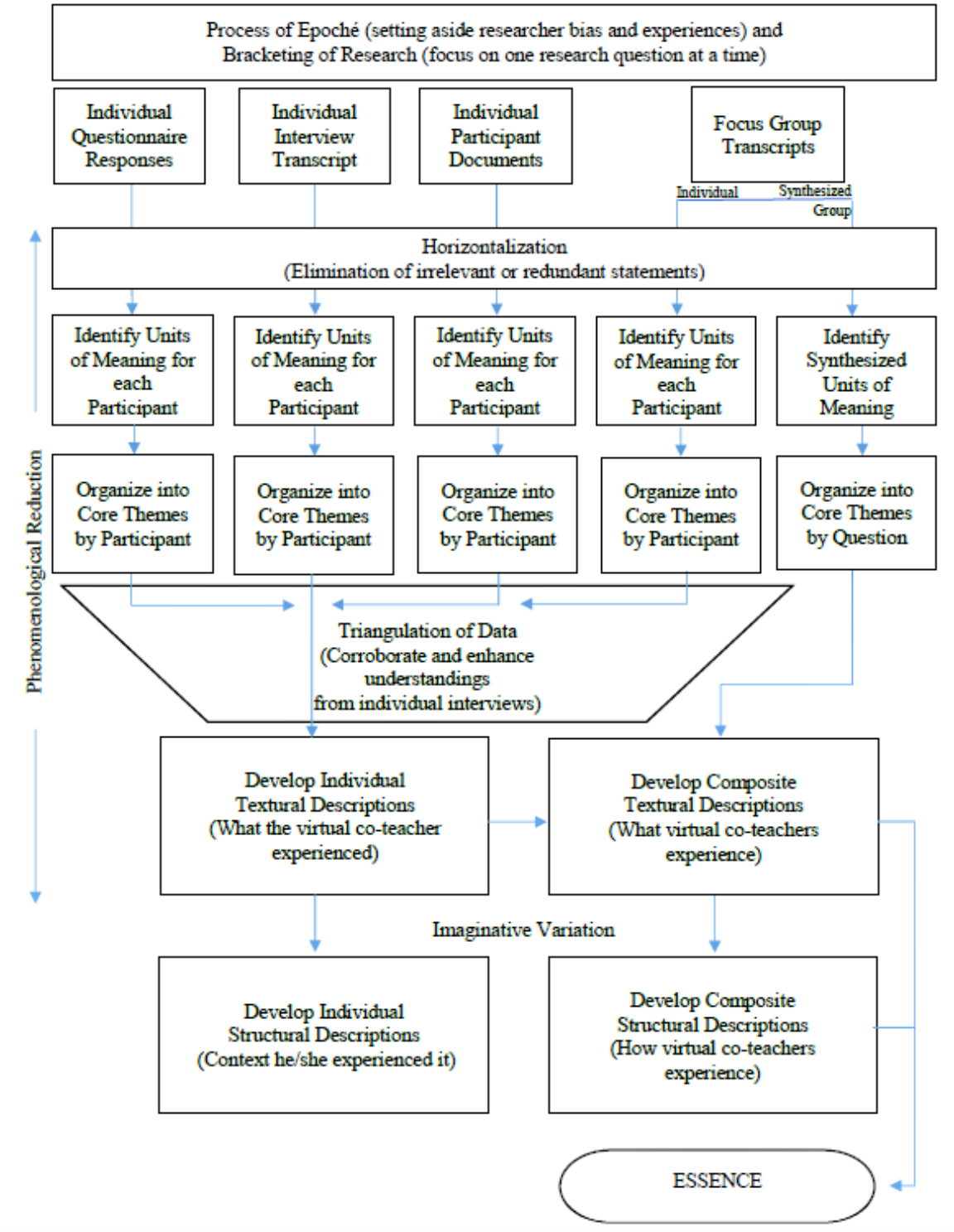

Figure 3. Data processing and analysis following a transcendental phenomenological approach.

Epoché, an initial process prior to processing analysis, is fundamental to transcendental phenomenology. It occurs in such a way that, as the researcher, my personal experiences with co-teaching and any biases were set aside prior to processing the raw data (Creswell, 2009; Merriam, 2009; Moerer-Urdahl & Creswell, 2004; Yuksel & Yildrim, 2015). As part of the process, the written reflection was employed to schematically identify biases related to my past experiences in co-teaching with others and my experiences in training and evaluating those who co-teach. Yuksel and Yildrim (2015) stated,

> This process begins with the writing of a complete description of the phenomenon by the researchers. Before starting the data analysis, researchers should read their subjectivity statement, including the description of their own experience with the phenomena. (p. 10)

In my own epoché process, I had to set aside my knowledge of conceptual framework, beliefs, and biases concerning co-teaching prior to looking at the data and refrain from consciously thinking about it during analysis (Merriam, 2009; Moerer-Urdahl & Creswell, 2004; Yuksel & Yildrim, 2015). I allowed the statements made by participants to enter my thinking so that they were not met with pre-judgments. I mentally bracketed, or focused, on their responses to the specific research question that was being answered.

The most significant hurdle was separating my ideas of what co-teaching should be. I found it difficult not to judge definitions, applications, and understandings of co-teaching. Through epoché, mental barriers that would have limited and possibly skewed data collection and interpretation were removed. Reflection also created conflict within the initial criteria that were set for selecting participants. Criteria (d) surfaced as a potential threat to the nature of transcendental phenomenology by defining what it could

and could not be. Criteria (d) was effectively eliminated and detailed in the limitations section.

The processing and analysis procedures in transcendental phenomenology follow a two-phase step process that begins with the analysis of what each individual co-teacher experienced and culminated with composite structures that revealed the overall essence of the phenomenon. Because the phenomenon of virtual co-teaching has multiple aspects, represented by the four research questions (Tables 1-4), the entire step process was duplicated to analyze each question independently. The analysis answered each individual research question separately, requiring the reduction process to be repeated four times. Together, these analyses completely answered the overarching research question, "What are the experiences of virtual education teachers who co-teach to meet the needs of students with disabilities?," and the true essence of virtual co-teaching.

Within the steps, four data sources were analyzed: the Qualtrics contextual questionnaire, transcriptions of the individual interviews, related documents obtained from the participants, and transcripts of the focus groups. To assist with the storage of documents, an organization of data, and identification of themes within data, a secured web-based software program designed for qualitative analysis titled Dedoose (www.dedoose.com) was utilized. Data from the Qualtrics questionnaire, interview transcripts, focus group transcripts, and documents were uploaded prior to analysis. Although Dedoose was a significant organizational tool in the process, the majority of the analysis remained a manual researcher process.

Phase I

The initial analysis phase of phenomenological reduction (Step 1--Step 5) involves multiple steps with the purpose of cleansing the raw data in a way that reveals true meaning. Steps 1 through 5 represented the applied procedures of horizontalization, identification of units of meaning, organization into core themes, triangulation of data, and the development of textural descriptions (Figure 3). The result is the true meaning, which expresses what each participant experienced related to each of the four research questions.

Step 1. Reduction began with horizontalization to find the significant statements in each data source. Horizontalization was initiated by bracketing the focus of the research, which in this case was each individual research question, keeping all other considerations aside. All related expressions from the raw data were identified as excerpts. As Moerer-Urdahl and Creswell (2004) suggested, all statements or elements were extracted from each of the data sources (questionnaire, interview transcripts, documents, and individual participant focus group transcript) within a Dedoose-based table. In this study, Dedoose was used to house all transcripts and documents, which produced a table-like listing of excerpts when various filters were applied. Analysis of data addressed each of the four research questions. Each piece of information within any and all data sources was initially treated with equal value and then considered for relevance to the research question at hand. Statements that were irrelevant to that research question, redundant, or repeated within an individual participant's data were ignored during coding, only leaving what Moustakas (1994) termed textural meanings, or *horizons*.

Given a transcendental, or descriptive, design for this study, a content strategy was the more appropriate choice for documents that were submitted by the participants, which mirrored processing and analysis of transcripts. Miller and Alvarado (2005) specifically identified transcendental phenomenology as an approach in which content analysis of documents can be used to "elucidate key patterns, themes, and categories" (p. 351). Staying aligned with the approach that Moustakas (1994) presented, document types were content analyzed for associations to each of the research questions and categorized following the step procedure outlined in this chapter. As with transcript data, associated units of meaning were identified with each textual and graphical element and then combined into core themes to be triangulated with the other data sources (see Figure 3).

Focus group transcripts were coded by extracting individual units of meaning as discussed above, which aided in the triangulation of individual data. However, synthesized focus group transcripts of all participants were also analyzed for each research question. When performing composite procedures suggested by Moustakas (1994), an individual's units of meaning were eliminated in order to find those that were more representative of the group. The synthesized analysis focused more on ideas that had some consensus to determine units of meaning. Given that within a group context, contributions by other participants may ultimately change the units of meaning that were used for the development of composite *textural statements* in Step 5, it was determined that reduction using the synthesized group transcripts would provide additional data. All four focus group transcripts were synthesized for this process as Lambert and Loiselle (2008) found this approach to yield a complete picture.

Step 2. Once horizontalization took place in Step 1, the phenomenological reduction process continued by further identifying the remaining statements from Step 1 into units of meaning (Merriam, 2009) for each individual participant. Moustakas (1994) described giving these related meaning units a thematic label. For this study, the task equated to coding those individual units of meaning within the Dedoose software. Merriam (2009) spoke about such software systems as being computer-assisted research, in which categorizing is their best use and real analysis is best left to the researcher. This form of coding was done as Lin (2013) suggested, in an organic way, extracting a keyword or meaning word directly from the excerpt to use as a code. It was not common for codes to be repeated within a single participant. As Yuksel and Yildrim (2015) described, "The translated data should be split into meaning units so that each of the themes has only one meaning" (p. 11), although they could be repeated across participants. The coding across participants was rather unique, but many conveyed the same essential meaning and were further clustered so that original codes did not lose meaning, yet themes emerged.

Step 3. In this step, all of the isolated codes (thematic labeling of units of meaning) take shape to form larger categories, termed core themes. Combining these smaller single-concept themes (units of meaning) into a larger theme identifies what Yuksel and Yildrim (2015) described as core themes. Dedoose assisted in the organization of individual units of meaning and highly related clusters of meaning into larger, core themes.

Step 4. Triangulation through multiple data sources was applied to validate the information given in participant interviews and information generated from original

participant questionnaires. Documents collected from the participants on their co-teaching experiences (see Table 1-3) as well as an individual participant's isolated statements from focus group transcripts helped to corroborate the interview statements. The additional data sources added depth and breadth to textural descriptions in Step 5.

Step 5. The construction of textural descriptions allowed the participants' experience with the phenomenon to be better understood. Both individual and composite textural descriptions were determined in this step. First, a narrative using each participant's direct statements from interviews were developed and then incorporated into descriptions of the units of meaning and core themes identified in Step 3. As stated by Yuksel and Yildrim (2015), "Moreover, the researcher explains the meaning units in a narrative format to facilitate the understanding of participants' experiences" (p. 12). The narrative is termed the individual textural description. Second, composite textural descriptions were developed and represented the experiences of the entire group. The individual units of meaning common to all participants in the study were identified using the individual textural descriptions and were combined to create the core themes within the composite description. This action resulted in a description representing the group as a whole when eliminating individual units of meaning that were not representative (Yuksel & Yildrim, 2015).

The focus group transcripts added to textural descriptions in two ways. The analysis was conducted in alignment with Moustakas' (1994) methods where the reduction process to individual commentary within the transcripts was applied just as it was to individual interview transcripts, which were analyzed and added to individual textural descriptions. In addition, synthesized transcripts of the focus group sessions

were analyzed, statement by statement, reducing statements where group consensus or units of meaning existed and then categorized into larger themes and added to the composite analysis. Analysis of the focus group transcript included a separate analysis of combined group statements. Based on considerations by Yuksel and Yildrim (2015) of synthesis for composite descriptions, units of meaning within a synthesized group transcript may reveal a different composite. A synthesized analysis of the group transcript expanded on the composite textural descriptions.

Phase II

Imaginative variation (Step 5-Step 8) is the second phase of analysis in a transcendental phenomenological study. During this phase, the previously developed textural descriptions were used to develop structural meanings to further understand the "how" of the experience (Figure 3). The process, as stated by Moustakas (1994), "is to seek possible meanings through the utilization of imagination, varying the frames of reference, employing polarities and reversals, and approaching the phenomenon from divergent perspectives, different positions, roles, or functions" (p. 112). Imaginative variation placed the experiences of individual co-teachers within a context that, when combined with composite structures, revealed an overall understanding of "how" virtual co-teachers experience co-teaching (Moustakas, 1994).

Step 6. Individual structural descriptions resulted from the application of imaginative variation to the individual textural descriptions from Step 5. Initially, isolated structures were developed, or as Moustakas (1994) stated, "imagined" (p. 27), from a blending of what is really present to find possible meaning using the vantage point of various perspectives. These structures pulled context from participants' statements,

and the researcher worked to develop additional context by analyzing the data from various perspectives. Lin (2013) applied a strategy similar to open coding that was used for this study, which labeled an individual statement for its various references and potential viewpoints. These isolated structures, and perhaps using this procedure better thought of as structural codes, become the basis of individual structural descriptions, which convey how the experience occurred. These descriptions became narrative statements that concluded the textural description narratives for each individual.

Step 7. According to Moustakas (1994), composite structural descriptions develop by examining the overall composite textural descriptions for composite structures. When applied in this study, the overall "how" of the experience that related specifically to each of the four individual research questions was realized. This process was similar in nature to Step 7 and was written as a narrative to follow the composite textural descriptions (Yuksel & Yildrim, 2015).

Step 8. The last step brought full meaning and understanding to the experience that co-teachers have related to the research question being asked. Both composite textural descriptions ("what") and the composite structural descriptions ("how") were combined and expressed to emphasize the overall essence the phenomenon of virtual co-teaching. Yuksel and Yildrim (2015) described this third-person narrative process as, "The composite structural description is combined into the composite textural description to create a universal description of the phenomenon of the investigation" (p. 13). This step, as an end to the phenomenological process, culminated with universal descriptions fitting each of the four research questions. At that point, each of the four descriptions was presented and discussed using theoretical and conceptual lenses. Together, these

four descriptions provided an understanding of the overarching question, “What are the experiences of virtual education teachers who co-teach to meet the needs of students with disabilities?”

By reducing the experiences of unique individuals to common understandings about a phenomenon--in this case, the experience of virtual co-teaching--we arrived at the true essence. This universal description enabled researchers to understand commonalities of virtual co-teaching. An important aspect when determining how something should be done is first to understand how it has been done and learn from the experiences of others. Providing answers to the research questions about virtual co-teaching informs teachers and administrators about potential best practices.

Validity, Reliability, and Ethics

Internal validity measures the credibility of results of a study. In essence, it is how well the findings reflect reality (Merriam, 2009). Although validity for qualitative methods does not carry the same connotations as for quantitative methods (Creswell, 2009), several factors which ensure internal validity for a transcendental phenomenological study applied to this study specifically. Interviewing was the primary mode of collecting data from participants. The use of member checks, defined by Merriam (2009) and Creswell (2009) as the process of sharing transcripts with participants in order to gain feedback on the researcher’s interpretation, helps to ensure that meaning has not been lost or misconstrued. As described by Merriam (2009), participants were provided the opportunity to share their feedback about how accurately the analysis incorporated their input.

Researcher reflexivity is the process of a researcher engaging in a self-examination of his/her beliefs (Merriam, 2009). Creswell (2009) noted that self-examination clarifies the bias the researcher brings to the study, noting that "Reflexivity has been mentioned as a core characteristic of qualitative research" (p. 192). Epoché, a vital process of transcendental phenomenology, gave a clear and structured gateway for this reflection to occur. Peer examination assists the researchers in determining "congruency of emerging findings with the raw data and tentative interpretations" (Merriam, 2009, p. 229). Merriam (2009) specified that this examination could come from processes of dissertation committees, an expert colleague, or a formal peer review process for publication. During this study, data and analysis were reviewed by the dissertation committee chair.

Reliability speaks to the amount of consistency in the findings. Merriam (2009) suggested that reliability is enhanced by the explanation of the assumptions and the underlying theory. Both of these elements are clearly spoken to in Chapter I. A strong argument for the enhanced reliability of this study is the structured procedures for data analysis using transcendental phenomenology. These well-described procedures increase the likelihood that results would be obtained again. Creswell (2009) also suggested a check for the accuracy of the transcription and that the researcher should be mindful of drift in the definition of categories, both relevant for this study.

External validity relates to the degree in which the findings of a study can be generalized or transferred to another situation. The qualitative nature of this study is of significant relevance when considering external validity. Merriam (2009) stated that in qualitative research, we must look to the reader. "Reader or user generalizability

involves leaving the extent to which a study's findings apply to other situations up to the people in those situations" (p. 226). Rich, thick description was used in this study to convey the details of participants, context, methods, analyses, and findings. Creswell stated, "This description may transport readers to the setting and give the discussion an element of shared experiences" (p. 193). In addition, the processes used for participant selection, although not random, provided maximum variation in participants. Merriam defined maximum variation as, "Purposefully seeking variation or diversity in sample selection to allow for a greater range of application of the findings by consumers of the research" (p. 229). Participants varied in geographic region, teaching experience, virtual teaching experience, and context. Rich, thick description and maximum variation allowed readers to determine potential transferability to their own context.

Ethical considerations for this study included aspects related to confidentiality, informed consent, interview processes, and researcher integrity. Although the data were not shared with the researcher anonymously, only the researcher knew the identities and specific identifying information pertaining to the participants. Those interviewed were never asked to name themselves or place of employment when sharing contextual information or during the interview and the focus group. Participants chose to censor, or not censor, themselves during the interview. All participants received the consent for research (Appendix D) and were specifically informed that completing the contextual survey and scheduling an interview acted as an agreement to participate. Participants were also informed that they could discontinue participation at any time during the study without repercussions. Prior to consent, the purpose and intent of the study were clearly described along with the methods to be used.

Participants potentially gained two benefits from this study. First, the gain of information or the ability to share their experiences through the focus groups aided a participant in his/her profession. In addition, a second benefit, a $40 bookstore e-certificate token of appreciation, did not likely to affect a participant in a way that would unethically encourage the continuation of the study if they wanted to withdraw. According to Merriam (2009), qualitative interviewing brings with it the potential that interviewees may feel an invasion of privacy or embarrassment; however, questions for the semi-structured interview and focus group were not highly personal or political in nature. Limiting inquiry to professional experiences limited the need for ethical concern. Researcher integrity is linked not only to the ethics of the research, but to the validity and the reliability. Measures within the research methodology, such as epoché, member checks, and peer examination, intended to limit the effects of bias and encourage the collection and interpretation of data with an open and equitable mindset.

Summary

The aim of this study was to understand the lived experiences of virtual co-teachers. Given the lack of research on this topic, qualitative research is best suited when little or no research exists (Creswell, 2009). The overarching research question, "What are the experiences of virtual education teachers who co-teach to meet the needs of students with disabilities?," was broadly explored using transcendental phenomenology without heavy reliance on previous studies on virtual co-teaching. According to Moerer-Urdahl and Creswell (2004), "Meaning is the core of transcendental phenomenology of science, a design for acquiring and collecting data that explicates the essences of human experience" (p. 18). The methodology's focus on textural descriptions, derived from

interviews, statements, and documents that represent the "what" of the experience, allows researchers to use imaginative variation to extrapolate the "how" of the experience. These extrapolations evolve into structural descriptions which give meaning and context to the experiences (Creswell, 2009; Moerer-Urdahl & Creswell, 2004; Moustakas, 1994; Yuksel & Yildrim, 2015). This research method was beneficial to a novice qualitative researcher because of the procedural structure developed by Moustakas (1994). Phenomenological research provided a focus on incorporating and analyzing the four data sources of this study including a contextual questionnaire, personal interview transcripts, documents related to participant experiences with co-teaching, and focus group transcripts. In addition, researchers in the field provided support for the data analysis process, especially when using what Merriam (2009) termed, a "Computer Assisted Data Analysis Software" (p. 194), such as Dedoose. Although transcendental phenomenology presented some challenges to validity, it also supported strong, in-depth data about the co-teaching experience of this particular group, especially when data were triangulated (Yuksel & Yildrim, 2015).

CHAPTER IV

FINDINGS

Data Analysis

The data analysis for this study aligns with the transcendental phenomenological methodology shown in Figure 3. Descriptive data analysis of the characteristics and context of the individuals who participated in the study (as presented in Table 5) represented the composite group. These data added depth to individual and composite structural descriptions in this chapter.

Table 5

Categorical Data Across Participants

Characteristic	Percentage
Teacher role	
Special education	56.25
General education	43.75
Teacher gender	
Male	6.3
Female	93.7
Assigned level	
Primary	31.75
Secondary	68.25

The nature of transcendental phenomenology is to analyze units of meaning for each individual prior to the development of composite descriptions; therefore, results have been presented in a systematic structure that aligns with the methodology. The conclusion of this chapter presents what emerged from the composite structural descriptions as the essence of virtual co-teaching, in which Yuksel and Yildrim (2015) defined essence as "universal description of the phenomenon of the investigation" (p. 12).

Descriptive Data

Descriptive data were collected through an initial survey as well as the individual interviews. Data categories analyzed were: (a) the type of school in which the teacher taught virtually, (b) the percentage of years a teacher had taught virtually, (c) the teaching role within the co-teaching relationship, (d) subjects co-taught, and (e) the grade level of students in which the co-teaching occurred.

All teachers who participated co-taught within a full-time virtual public school. In order to protect individual identity, only select data are presented for an individual participant in Table 5. Additional composite data can be found in the narrative following the table.

Data from Table 5 indicate that within the participants of full-time virtual public-school teachers, different roles and school levels of teachers as well as varied ranges of experience were represented. Teaching roles of participants were represented as two licensed roles, Special Educator and General Educator; however, one general educator was not in charge of the content instruction and given supportive co-teaching duties. Within the 16 participants, the representation of roles was fairly balanced (Table 5).

The average number of virtual teaching years and overall teaching years was 5 years. The range of virtual teaching years was 1 to 11 years and showed a very balanced distribution. No participant had less than five years of total teaching and an average of 12.9, which places all participants beyond what most states would acknowledge as a three-year probationary period. Only one participant had no experience in the brick-and-mortar setting other than during teacher preparation.

All participants reported their virtual co-teaching assignment in one of the core curricular areas of English/language arts, math, science or history/social studies. Two participants had additional experience in health/PE-related courses. The level in which teachers co-taught was also reported as either primary (K-5) level or secondary (6-12) level (Table 5).

As a group, the participants in this study represented full-time, public, virtual school general or special education co-teachers. Participants came from 10 different virtual schools across seven different states in the United States. Collectively, they taught across all core curriculum at primary and secondary school levels and represented a complete spectrum of teaching experience.

Individual Textural and Structural Descriptions

The process of transcendental phenomenology requires the individual units of meaning taken out of (a) individual surveys, (b) individual interview transcripts, (c) school documents, and (d) the individual's independent contribution within the focus group to develop textural descriptions of the phenomenon for that individual. This is done through the lens of each of the four research questions: implementation, roles and relationships, school culture, and successes and failures.

To adhere to Moustakas' (1994) transcendental phenomenology methodology, shown in Figure 3, imaginative variation is applied to "reveal possible meanings through utilizing imagination, varying the frames of reference, employing polarities and reversals, and approaching the phenomenon from divergent perspectives, different positions, roles, or functions" (Lin, 2013, p. 472). The process of imaginative variation allows the researcher to use the individual textural descriptions to build from context and develop suppositions to create structural descriptions. These descriptions directly follow each individual's textural description and are not intended to replace the researcher's discussion in Chapter V, which is focused on composite themes.

Participant 1. This virtual co-teacher represented special education at the primary level. Participant 1 reported an above-average amount of virtual teaching experience.

***Implementation*.** This participant taught in a virtual school where co-teaching had already been implemented at upper-grade levels. The lower grades she taught were in the preparation stage of implementation. The rationale for the use of co-teaching at this participant's school was the general understanding that co-teaching supported what direction the school was being encouraged to move in by the state. This direction of being more inclusive and supporting students with disabilities was supported by their executive and improvement reports. She reported that the rationale for implementing co-teaching was also influenced by the knowledge that other virtual schools with similar models had implemented co-teaching and had reported success. As an individual, she shared, "Co-teaching was not necessarily something that I chose to do."

This special education participant stated that training, thus far, had been reserved for certain individuals, particularly in leadership, that was planned for expansion to other staff. This training was described as PLC training and unclear as to what extent it relates to co-teaching, although the participant made the connection when asked. Describing more about their preparation, co-teaching assignments were something that she described as still undecided. She explained the issue as, "It's just really hard to do that because we don't know who we're going to get at any given time and what grade level they're going to be. I guess it's probably just going to have to be based upon your student caseloads or we're going to have to break it apart grade-wise."

Roles and responsibilities. This co-teacher offered her thoughts on roles for a partnership at her school as, "Then the whole theory is that we're going to bounce back and forth ideas, and we're going to take that one instruction class and break it into two different [groups]." The process became more specific with her explanation:

> Next year, the plan is that the special education teachers will go into the online gen education classes, and then after the general education instruction is done, then we will pull the lower kiddos or those struggling into a breakout room to work with them in a small group.

When initially asked about the potential equitability of roles and responsibilities once they fully implement co-teaching, she stated, "At first, I would say initially it's probably going to be the gen ed teacher probably making the lessons up first while the special education teacher figures out how they're going to fit into it and how they're going to make it work." She commented on the likelihood that special education teachers would find some balance. She noted special education responsibilities in this stage as

> We have to come with standards and goals that the kiddo is supposed to work on, and some ideas on how we can maybe implement modifications and

> accommodations within the lesson so that they're still getting the general education instruction as well as meeting their needs of their level.

She described that the communication that has been built within her school level, leading up to co-teaching, was really strong. Communication was stated as open and that teachers frequently used email and a chat option to communicate often.

School culture. Although this participant described the culture as open and generally positive, she also indicated a sense of separation between the school departments by saying,

> Some of the general education staff think of special education students as your students. They're not my students, or they're not our students. That's been a really negative thing we've had to overcome, to change that whole growth mindset and that mindset of they're our students.

She added that the separation was often compounded by the fact that she had more contact with the special education families, given her additional responsibilities as the special education teacher. Analyzing the improvement plan for the school, goals centered around school culture focused on the use of professional learning communities (PLCs) to encourage collaboration and share expertise in collegial and professional ways. This participant felt that on-going co-teaching would make a positive impact on the school culture. She stated, "I think that's helping give those teachers a bit more clarity and feelings of, okay, I can do this. I can teach these kiddos. Whereas before, they had no guidance or direction."

Successes and failures. This participant had no ability to report on the outcomes of co-teaching at her level since it was not yet fully implemented; however, she did have anticipated benefits in mind. She felt relationships between special education teachers and students with disabilities may improve as a product of the student seeing the teacher

in the general education setting. She explained, "We're trying to become this cohesive team where it's not, 'Oh, he's your kid,' or 'he's your kid. He's our kiddo.' We're going to work with him together." Another potential benefit this participant anticipated involved the sharing of ideas and resources which she elaborated as,

> Even though I'm not necessarily in the class teaching with them right now, I am able to ask them for lesson plans, PowerPoints. They'll do the same for me. I've got an entirely different repertoire of curriculum than they have because I am a special education teacher. I've got a million different things that I use.

This teacher also collaborated with her co-teacher on data-based decision making for individual students.

***Applied imaginative variation*.** Although this teacher's discussion of co-teaching lacked the circumstance of full implementation, elements surfaced within her planning and even other levels of her co-teaching school, allowing understandings of considerations and processes at this stage. One noteworthy element was that above average time was being taken to plan for implementation. It was also clear what difficulties arose related to late co-teaching assignments given student enrollment fluctuations.

The picture portrayed of this school's preparation seemed, in part, to be a structure of making gradual adjustments. There was a logical assumption that it would take some time to build equitable responsibilities and solid relationships. Even as the roles for the future were related by the participant, there was still the anticipation of special education being more in the support seat. This participant's outlook was really positive, but it was not discussed if her colleagues all felt the same way or if there were those who were resistive. Regardless, their work of building on PLCs was used as a stepping stone to implementation and aligns with the community of practice theory.

This participant, given the data collected, strongly indicated collaboration as a primary school-wide goal of improving education for students. Despite this participant's assertion about some disconnect between the intent of each department, this school had some aspects of collaboration happening. The expectation this participant had about facilitating collaboration to improve school culture through co-teaching was reasonable and perhaps had happened in other parts of the school where co-teaching was already in full phase.

Although highly speculative in some ways, the continued application of co-teaching into this primary level of the school seemed hopeful of the benefits that could be brought. Once implemented, co-teachers may see factors of failure surface that indicate needed adjustments in the structural organization of co-teaching or the strategy itself. It could be assumed that specific factors already had a trial-and-error process, through the implementation of co-teaching in other grades, and indicated that implementation might be smoother for the primary level.

Participant 2. This virtual co-teacher represented general education at the primary level. Participant 2 reported an above average amount of virtual teaching experience.

Implementation. Co-teaching was a circumstance chosen by this teacher and her colleagues for school-wide implementation. This choice came after looking at the scheduling requirements for that year's school model. This participant gained approval after presenting it to administration. She reported that finding time to have students work with a special education professional had been a challenge. Additional considerations that encouraged her school's support of co-teaching was that support sessions offered to

assist students were poorly attended, and the co-teaching has also provided some mentorship for other teachers. This participant was part of a three-teacher team which gives support to a group of students through co-teaching who all have "additional supports of some kind." She further defined that group as below benchmark. This participant identified herself as general education paired with a special education teacher and an academic support teacher. Tight schedules encouraged the team to gravitate to a "stations" style of co-teaching. The participating teacher was familiar with the teaching style and personality of one of the teachers and knew they aligned, which "was very helpful with being willing to try [co-teaching] out." Her training only consisted of previous co-teaching experience in which she only utilized some parallel co-teaching. Her team also benefitted from their own research gathered in preparation for presenting it to the administration. No other training was mentioned, and it was stated that getting co-teaching resources from her school had not happened.

Roles and relationships. This partnership consisted of a general educator, a general education interventionist, and a special education teacher. As the third member of the team, the special education teacher had the role of working with the students with IEPs who received the most intervention a few times per week. Only a few students were identified with special education IEPs in the class. The rest of the responsibilities rested on the general education teacher and the support teacher, who also has a special education background, to support the remainder of the students.

This participant saw the partnership as equitable in many ways, which included working with data and holding parent conferences. Each lesson plan was developed in one document, per administrative requirement, which defaulted to her as the general

education teacher in addition to the grading of assignments. She saw this represented as a natural division of job responsibilities. The special education teacher also had her share of special education responsibilities, which ultimately created a balance. This co-teacher reported the development of a good, trusting relationship with the academic support teacher and shared her perspective stating, "I do firmly believe that not all teacher personalities are suited to co-teaching together."

Weekly co-teaching planning is scheduled up against team data meetings, which allowed the co-teachers to look at factors of effectiveness. Informal communication with her co-teaching partner happened as frequently as daily through a variety of technology-based methods. Computer-based communication was preferred because of the ability to share documents by using tools like Google Docs. Linq, a chat-based tool, and regular email were also frequently used.

School culture. The school culture was noted to have recently changed and described as one led by the idea of "enable teachers to teach and tell us what you need." She reported that there were still some issues of lower administrators that were not fully onboard with new styles of teaching. Some of the teaching staff were also described as being more resistant to seeing if co-teaching works. It was felt by this participant that leadership is key in supporting co-teaching and that although top administrators were open to ideas, no real understanding of expectations from co-teaching was given.

Successes and failures. A number of student successes have been observed by this participant. She felt a variety of personalities teamed together was an instructional benefit to teachers that can be used to support all students. Students on the autism spectrum were able to connect with at least one of the teaching personalities and the

co-teaching structure, giving them greater success in the class. Presenting a united front also helped this team to support the behavioral needs of the students. She observed that different teaching styles presented different opportunities to participate. An important note she made was the academic growth that "every" student experienced. "It happened because of the co-teaching." When this participant discussed teacher benefits, the opportunity for collective ideas and problem-solving was a positive effect. It was explained that hearing the approaches of someone with special education knowledge allowed a situation to be looked at differently. She added, "So, it's really nice to be able to pick multiple types of brains who are focused on different aspects of learning, to really kind of bring that in, and it's helped me as well."

Applied imaginative variation. From this primary level general educator's perspective, co-teaching implementation was a school-wide teacher-based initiative specifically directed at students with significant needs and encompassed meeting some servicing needs through the use of an interventionist and a special education co-teacher. Agreement and willingness from those involved came from a sense of collegiality, whereas the general education teacher and interventionist already had a prior teaching relationship. This teacher's mentality toward collaboration, inclusion, and decision likely had a great impact on her choice to co-teach, but would be difficult to measure against other teachers at her school not given a choice to co-teach. Although her impression of training and resources was minimal, it was also possible that someone without prior training might have felt even less prepared by this school.

This partnership was not a general educator and special educator; however, theoretically, the dynamic of a general education teacher paired with someone who had

special education knowledge and hired to intervene with learning issues would give much of the same benefit. Even better benefits might occur with a third, somewhat limited, special education partner who manages the caseload of students with special needs. This might prove to be a more equitable arrangement so that the specialist partner is not pulled away for meetings and duties and can just focus on being a full, collaborative partner. It appears that some of the school policies in place that were fueled by administrative needs and the setup of electronic teacher accounts played a pretty large role in the element of equity. The small amount of input she had on who they partnered with seemed to produce a good trusting partnership where structured time is set aside to plan and look at data.

This participant described a culture that is inconsistent, perhaps due to recent changes and being in transition. She implied that the changes were positive and that the culture of the school was moving to one that was more supportive of teachers doing what they need to do for all students, with or without disabilities.

Data collection was evident in this co-teaching experience. This team used data to help gauge success and documented the growth of every student that they fully attributed to the effects of co-teaching. This participant noted enhancements to the instruction and to the engagement of students brought out by different personalities or styles were impacted by having co-teachers with special education knowledge.

Participant 3. This virtual co-teacher represented general education at the secondary level. Participant 3 reported an above average amount of virtual teaching experience.

Implementation. In addition to the school documents that stated commitment to the full implementation of IDEA and ESSA, this participant's implementation of co-teaching came from the need to support a colleague who was battling a medical issue. Her concern related to the experiences that the students had when their teacher was frequently out, explaining, "Some of them, they become attached to their teachers, and we really wanted it to be seamless for them and her as well." Co-teaching with a special educator as a co-teacher was only permissible at this school in designated state testing courses, so this team was made of two content teachers with the typical support of a special education professional. They co-taught three times per day in a live session, alternating teaching days, and used breakout rooms to instruct students further who are struggling. It was assumed by this participant that because they chose to volunteer to co-teach, that training and resources were not provided and that if they had been in a designated course with a special education co-teacher, that might have happened.

Roles and relationships. This participant described a previous teaching relationship with her partner and knew they already had similar teaching styles and expectations. She elaborated on their current co-teaching relationship as one where "We can give each other criticism and not feel like we are being attacked." Roles were defined as being equally divided, sharing responsibility for lessons, remediation, supporting and encouraging participation, and coordination of testing schedules. Their teaching style of "how we bounce off of each other and interject with one another" was enjoyed by both students and parents. There were scheduled times for collaborative planning within the week for various content teams, which were already built in school

wide. Google Drive was used as a way to share everything, and communications are done with Blackboard Collaborate and other Google tools.

School culture. Administrative support for this co-teaching partnership was very strong, but it was felt that the support was primarily in alleviating the cost for a substitute teacher when the co-teacher was out. Despite that, the participant presented the culture as supportive in numerous ways. The school generally supported special education through their mission and school publications. She reported that many administrators were "in the trenches" as virtual teachers, one specifically, a special education teacher, and in her experience, that equivalated to getting the necessary resources and being open to ideas. She felt former virtual teachers as administrators were important because many administrators have come in wanting to implement brick-and-mortar strategies that didn't always translate to virtual. A new Head of School was promising to her and described him as "passionate" and having "vision" for the future. Another piece of her culture, she explained, is her content team who works very collaboratively. "So as a team over the years, somebody volunteers for something and says ‘I love this, this is my passion,’ and we say, ‘go for it.’ And they'll really do the meat of the lesson and then send it to us, and we'll put our own spin on it and what not."

Successes and failures. Different perspectives and areas of strengths have improved the process for targeting instruction to different students. Several successes that pertained to the element of instructional skill and delivery were shared. This participant stated, "It's really interesting because we have been able to really work with those students that are falling below [benchmark].” She continued, “We can help each other." Having the opportunity to try new teaching strategies that she might not have

tried being in a classroom on her own was positive. Moderating breakout rooms or facilitating activities like a debate are more feasible with two teachers. She also reflected on assisting individuals as, "So it's much easier to get these kids in class and pull them aside while they're already there to tell them 'Look, you are missing these assignments,' or 'Do you need help with something? We can go over it.' That's actually gone over really well for us."

Having a similar vision was stated as an important factor.

> This is our vision. This is where we want to go. This is what the students need to learn out of this lesson and then make variations within those lessons together. We needed to have that same end goal. Otherwise, it would be a complete failure.

She noted that teaching within a virtual school is a process of trial and error and it has been a learning experience for both her and her administration. It is her goal to use the co-teaching experience in her evaluation process and analyze the benefits.

Applied imaginative variation. This secondary general education content teacher volunteered for co-teaching in a school that already implemented co-teaching, but they were not included due to their content area. The reasoning behind their request was to help a colleague, but recognized the bigger picture was the benefit to all students. From the perspective of a special education student, we can suppose that the frequent presence of a substitute teacher would be disconcerting to him/her. From the perspective of the consulting special education teacher, or a prospective substitute teacher, provision of accommodations and modifications might be inconsistent, if given at all. The familiarity with the students and consistency in staffing would likely have a positive impact on students with special needs. When both co-teachers are present, other benefits may occur, but a lack of training may not provide enough necessary tools.

Initiating a voluntary, general education co-teaching arrangement enabled this team to develop an effective, trusting, equitable, partnership. The limitation they faced was the lack of representation of specialized knowledge within the co-teachers, although they still consulted with a special education teacher. Co-teaching in this circumstance did not directly aid in the servicing of special education students, but we can surmise from this teacher's input that it provided for more differentiated instruction, better teacher-to-student relationships and ratios within a live class (overall teacher-student ratios do not change in this circumstance), provision of accommodations and modifications, and more equitable balance creating an enhanced style that promotes student engagement. These elements helped to meet the needs of all students who struggle in this course.

This teacher continued to emphasize collaboration in an overall school context. Although many of her experiences related to collaboration within the content, she did indicate that one of her key administrators had a special education background. This promoted the idea that the needs of students are being considered and that, as stated, the administration is open to ideas and needs for resources. However, this idea of the needs of the students coming first was contradicted when they stated resources for co-teaching were limited. Looking at it from different standpoints, perhaps there was a gap between the resources provided for the required partnerships and this general education partnership because of the differences in model or implementation. Budgetary allocation also might have been a consideration when an administratively unplanned co-teaching arrangement was established.

This co-teacher's perspective was that they could most certainly reach students in a way they could not without co-teaching, but it would be difficult if they did not have

the same vision. Some might argue with some credibility that they lack specialty knowledge that would more specifically target not only academic needs, but individual student goals. It is not known how the collaborative relationship with the special education caseload manager aided these areas, or whether the co-teaching enhances that relationship. A supposition can be made from this participant's comments that co-teaching provides a consistent teacher to work within the medical absence of the other and improves instruction for all students every day.

Participant 4. This virtual co-teacher represented general education at the secondary level. Participant 4 reported a minimal amount of virtual teaching experience, although she has an above average history of teaching in the brick-and-mortar setting.

Implementation. The rationale for this co-teacher's experience came from the need to orient a new staff member to the virtual setting. It was requested that experienced teachers co-teach with the newer staff. Despite being hired for some content teaching, her new co-teaching partner also had a special education background. "I wanted her to be part of the class, and I was like, I don't want to just show her. I want her do to it. The kids would get more out of it that way anyway." In addition, it was noted that the school is a designated alternative school serving the at-risk populations.

According to this participant, co-teaching came as a last-minute request by the school. There was a professional development (PD) session offered that explained different ways of co-teaching to her. Numerous scheduling and personnel changes during the year impacted the model and frequency of co-teaching. She elaborated, "True co-teaching is what we wanted to go to which didn't end up happening." This participant

reported that an "adapt as you go" mentality was needed to help find out how co-teaching with a special educator worked in a virtual model.

Roles and relationships. She described the establishment of responsibilities as a "slow progression" as her co-teacher was from a different content area and was new to the virtual environment. The relationship began with monitoring during live sessions and then took on the instruction of some lesson pieces when her partner was comfortable. Once comfortable with the technological systems, her partner became more involved with the students, and the students saw her as more of an equal. Her co-teaching partner was very excited and willing to co-teach, which this participant felt was a big positive. A problem with communication over a lesson and how to communicate expectations put some strain on the relationship, but once resolved, the partnership improved. This participant noted the impact of communication stating, "weekly meetings were extremely important." Co-planning meetings were executed by using SharePoint that allowed the general education teacher to share the lesson in advance of the meeting and then use a breakout room in a designated Blackboard space to discuss it. The pair also used Linq and a messaging system throughout the week as well as email, but shared her learning experience as "The miscommunications happen more when communication is mainly email or texting." She offered the perspective that virtual can be difficult in the way of scheduling time to talk. "You can't just walk down the hall and talk to somebody." She continued by saying that it was difficult to know when someone was free to meet. In addition, special education meetings would sometimes disrupt the scheduled co-teaching days. This particular co-teaching circumstance ended abruptly due to administrative and

scheduling issues. Before that occurred, she felt that the partnership was moving toward a more equitable balance.

School culture. The culture of this participant's school was characterized as very collaborative. This participant related that it felt very much like a family who was linked in many ways. The school, as a whole, was described as very student focused in ways that encouraged growth, which was led by an administrator with a special education background. Data from school documents implied that leadership also recognized strengths and encouraged collaboration. This teacher's impression of her school culture was very positive, despite the difficulties she had with a last-minute co-teaching assignment with minimal professional development. Frequent staff and scheduling changes also impacted the effective implementation of the co-teaching strategy.

Successes and failures. One large success for co-teaching that this participant felt was the level of anonymity for students who had IEPs. She described the use of breakout rooms to be frequent and for varied reasons (such as academic help, leadership skills, behavioral needs, etc.), which appeared random to the students. Co-teaching concealed a student's special education identity from being known to the rest of the students. She explained, "It's a really unique way for that [special education] teacher to really help that SpEd student, and any student struggling, without that stigma that you might get in a brick-and-mortar classroom." Another benefit she attributed to co-teaching was that it brought a different, more novice, approach of the concept to the students who were struggling to understand. In addition, having another teacher produced engagement. She described her co-teacher, "She had some really good comments and brought out a lot of conversation from the kids that helped me get some more information to direct the

class in a certain way or another way that would interest them, but it'd still be on topic." Other suggestions her co-teacher had about graphics and presentation were acknowledged by stating, "It really did help me to make the lesson better." School-wide, this organization was discussing matters of what worked and what didn't. Communication was the major area this co-teaching partner found that hampered their effectiveness. She detailed the problems created by her partner's lack of content understanding as, "Because we were giving different instructions, and the different instructions confused the students, and the students are our priority." Despite the content issues, this participant also stated that she could not imagine success being partnered with someone who did not want to co-teach.

***Applied imaginative variation*.** This teacher was asked to mentor a new virtual teacher through the use of co-teaching. Although student support did not appear as the catalyst for co-teaching, it may be an unintended consequence in this scenario for classrooms inundated with students with needs. No pre-planning and limited initial professional development initiated a quest to find out how virtual co-teaching with special education worked, which infers the participants meaning of "true co-teaching." Administrative changes ended their co-teaching partnership, and they did not have the opportunity to make that "true co-teaching" happen. We might suppose that administration had priorities on the initial rationale of mentorship and may not have recognized or valued the impact of their changes on students or teachers.

This co-teaching pair did not originally have set co-planning meetings, which proved to be a problem as the assigned special education teacher was not of the same content background. Initiation of the co-planning solved many of their issues. Only one

professional development in co-teaching occurred, yet co-planning is a key element in the success of co-teaching. It allowed for the special education teacher to use her specialty in planning for the needs of students with accommodations and modifications. More emphasis was put on content knowledge in this relationship, which was assisted by going over the content in the co-planning meetings. The implied perspective of the special educator in this scenario was that she was not effectively used; however, the administrative motivation for co-teaching was mentorship, not service. The co-teaching strategy designed in the brick-and-mortar world for special education was not evidenced as effective for mentoring in this situation, which was shown by their slow progression toward minimal equality and the unexpected changes in co-teaching staff. School support was initiated, but the infrastructure that the virtual model provided at that time did not support the implementation of co-teaching. An improper understanding of the scope and support needs of this strategy at the school level was implied.

Once this partnership was able to co-plan and prepare for content, there were some strong benefits experienced. One related to students with IEPs experiencing more anonymity as it became more difficult to tell who was in which group and for what reason. It was implied that both teachers worked with all students, making it difficult to tell one's designation when broken out into smaller groups. The second factor was the impact that co-teaching had on instruction. The instruction became better because of the expert knowledge of the special education instructor on needs of certain learners, but also because she possessed some of the same naivety that the students did when presented with the content. Her non-expert understandings produced a different perspective about the concept and helped engage the students. This opportunity allowed the special

education teacher more purpose and value in the relationship, despite her lack of content knowledge. The relationship continued to improve before it was abruptly ended through administrative changes.

Participant 5. This virtual co-teacher represented general education at the secondary level. Participant 5 reported an average amount of virtual teaching experience, although she has an above average history of teaching in the brick-and-mortar setting.

Implementation. This participant perceived the implementation of school-wide co-teaching was driven by several factors, foremost was a majority population of students with special needs. She stated, "With our high percentage of students who need assistance, it did come from our administration." The school had an inclusive model, even including students with severe disabilities in regular education classrooms, particularly because of parent request. This was the first year of co-teaching implementation for this secondary level, with full implementation in middle school, but limited to English and math courses and at the high school level. This participant's special education co-teacher joined each of the content areas one day per week. She reported the school's attempt to pair special education teachers with general education teachers was based on whatever content was in their background; however, this was not always possible. This participant was paired with someone who had a different background, which led her to reflect often during her interviews on a prior co-teaching experience with another general education teacher. At her current position, she and her special education partner were trained on five different models of co-teaching and asked to find one that worked for them. She explained, "Yeah, we had a lot of meetings together with our administration and a group of people who were going to be co-teaching,

and almost everybody in our school, except for a few people teaching electives, has a co-teacher."

Roles and relationships. The special education participant described her co-teacher as providing support, largely because of her lack of content knowledge. She further defined her role, "If she sees students struggling, we have what we call little tutorial rooms. She'll take them down to a tutorial room and work with them one on one and stuff like that." Although this general education participant did not describe her current relationship as equivalent, when compared to her past experience with another content teacher, there were things she added to the partnership. This participant also rationalized the inequity due to differences in positions. She spoke about her consideration of workload stating, "I told [my co-teacher], 'Look, don't worry about prepping the lesson,' because I know how much work [special education teachers] have." She reported feeling like a mentor because her co-teacher was not only new to the content, but was experiencing her first year of being a virtual teacher. There were scheduled weekly meetings in which they met together to discuss the next week's plans. The partners also used Skype, embedded in their Linq system, as well as teacher-designated space on Blackboard Collaborate.

School culture. This teacher spoke to the struggle that her school was having not only adjusting to co-teaching, but specifically, co-teaching between general education and special education. She described her perception that after teaching by herself, it would be difficult to partner with another teacher, especially if they did not match her instructional style. She described her partner, “She can be a little bit more flamboyant than me, but the kids do enjoy her quite a bit.” Despite this struggle between

departments, the school culture was focused on students and a mentality of "will that benefit the students?" The culture supported special education and high expectations for teachers to close gaps. She attributed some of this culture to having a leader with a background in special education. The culture was also impacted by general school issues of teacher pay, bureaucracy, class size, etc.

Successes and failures. This participant noted several positive points in her co-teaching arrangement. One was getting immediate help to a student that does not seem to understand the concept. She elaborated, "[Her partner] can take that student down and check and make sure. That's huge to have someone there to be able to do that." The virtual classroom still allowed for anonymity in a class where a majority of students have special needs. She described the experience as “In our world, kids have no idea who's on an IEP and who isn't. They just don't." A co-teacher who was not familiar with the content was something that gave her some anxiety; however, her partner’s specialization in autism spectrum disorder helped her to figure out how to reach students. She described a high enrollment of students who are autistic or on the autism spectrum, "It's nice to have somebody who's a specialist in that area, where you can go to them." In her previous virtual co-teaching assignment, she had a partner who was a newer-generation teacher who taught her to relax and enjoy the students more. Many times, this teacher referenced her preference for the partnership she experienced when paired with another teacher in her content. She shared a final sentiment of "I would honestly like to see more support for our kids that need it with the co-teaching model."

Applied imaginative variation. This general educator co-taught with a special education teacher who was partnered with three other teachers, all teaching a different

core content area. It was not reported whether the special education teacher followed the same grouping of students to different content, which would imply that the emphasis is on the special education teacher/student relationship and IEP services more than the general education/special education relationship. This general education participant brought prior experience and a positive attitude to her context of co-teaching once per week, which she implied was helpful. Some larger scale "teaming" was implied by her report of the many training meetings of all people co-teaching that occurred. This particular co-teacher admitted the disability-based knowledge that her co-teacher brought was very valuable to the class. Beyond that, she made statements of wanting to accommodate her partner and accept the inequality, but implied her assumption that she could not contribute much beyond that. This participant did not speak to any unintentional damage to the relationship by having limited expectations of her partner or minimizing collaboration. It was not reported how well her co-teaching partner managed to try to develop a relationship with four partners separately and simultaneously, which could have had an effect on building a strong partnership with each other.

Again, this participant's commentary reflected on the intention of co-teaching being what was best for the students with needs, which aligned with the stated school culture. However, it also supported that the implementation had been done in a way that was not an effective match for this school model. This participant reported multiple factors that impacted co-teaching: a struggle between general educators and special educators, a lack of ongoing training, and the arrangement of four-to-one co-teaching pairings. All of these factors were likely barriers to relationship building.

Although this co-teacher presented some positive factors, they were limited to factors that came from having extra help in the classroom and not necessarily co-teaching. However, some good things happened for students as opposed to not co-teaching. The participant's final statement was impactful in that she wanted to get a lot more out of co-teaching and implied that it could be accomplished with improvement in the school supports.

Participant 6. This virtual co-teacher represented special education at the primary level. Participant 6 reported a minimal amount of virtual teaching experience, although she had an average history of teaching in the brick-and-mortar setting.

Implementation. This special education participant noted that the model of pulling students out for services was not leading to growth. "We knew they needed more." She continued, "We needed kids with IEPs to have access to general education instruction and help them engage in the curriculum more." Co-teaching was seen as an attempt to address these issues, and this was the first year of full implementation. This participant explained the progression, "Last year we had started it kind of as a pilot program, and it was voluntary, but this year it was more everybody on board, 'let's give it a try.'" Despite being fully implemented, co-teaching did not occur every day. She detailed the scheduling as "The time when we can co-teach is just two half-hour blocks per grade level. One-half hour for ELA, one-half hour for math. I feel like that's a little bit limiting for us." This school's virtual model historically placed students in the curriculum that was indicated by the data and the parent input. Attendance in the general curriculum was optional, but students were required to attend special classes. She elaborated,

> With moving to co-teaching and inclusion, our push was to put these kids in grade level curriculum and say, 'Yeah, no kidding they're at a third-grade level. They have an IEP for reading.' We don't expect them to be working at grade level independently, but we're going to scaffold and support.

This special education teacher was paired with two general education teachers who all taught simultaneously. Relationships were not taken into consideration when pairing teachers, but this co-teacher was trying to promote the importance of relationships making future assignments in co-teaching. She defined the process as "Special ed staff were assigned to grades based on their preferences for what grades they've taught in the past and what they would be good at currently and based on caseload numbers." Training for teachers was offered in the form of professional development (PD) that utilized resources by Marilyn Friend. This particular co-teacher also had the experience of co-teaching during most of the years of her teaching career.

Roles and relationships. This teacher's perception was that her co-teaching team was quite equitable. They met regularly to do an overview plan for the week, and then each was in charge of one of the three courses including preparation for a particular lesson. They also worked on assessment together each week. She detailed their data process as "we keep a Google doc running of the kids' skills, what they were supposed to be doing that week, and who was proficient and who wasn't, that kind of thing." In addition to using Blackboard or Google Hangouts to co-plan lessons, this team used Jing for screen-capturing and sharing images. Google Docs was also used to store and organize information. Relationship building in the virtual world was described as needing time. Reflecting on what affected their relationships she offered, "We didn't get to do a lot of face-to-face professional development this year, and so building relationships between gen ed and special ed teachers has been a little bit slower, I think,

for us as a result." In addition to time, she stated, "I think it takes a more concerted effort to build a relationship or to make a schedule work and those sorts of things." This particular co-teacher felt lucky to have had a previous relationship with her two co-teachers. She characterized their partnership as supportive with good communication. She explained that communication can be difficult in the virtual world because you often have to send out a request or an email and wait for that person to respond.

School culture. The culture surrounding aspects of co-teaching were described by this participant in numerous ways. She felt general education administrators were helpful in supporting the initiative, but stated, “Some general education teachers are being paired with teachers that they are not familiar with or comfortable with.” She perceived this added to a negative culture related to co-teaching. She also offered that general school issues (such as salaries and teacher ratios) have also negatively impacted the culture. However, she stated, "The teachers who want to do it and the teachers who are excited about it are willing and exciting, regardless of the things going on in the periphery with the school at large." The most difficult element she reported about this new strategy was "Just selling that idea that we can scaffold instruction to their level and that we can scaffold and accommodate for different learning styles or different learning abilities at that point." Overall, this participant’s data presented that school promotes student engagement.

Successes and failures. One huge measure of success for this teacher was just knowing that at the end of the year, other teachers throughout the school wanted to continue to co-teach the next school year. She also recognized a huge positive in lessening the gap between special education and general education in order to "build that

relationship and trust and communication." She reported that the partnership increased her proficiency with the content at that level and "opened my eyes to new ways to do things online." As part of the co-teaching strategy, small instructional groups were data-based, open to all students, and taught by general education or special education teachers. She related that a few of her students were able to get help and catch up to avoid being referred to special education and that general education teachers were working with students with IEPs more than they ever had. Her personal observation was that students were more engaged and, therefore, making more connections. No major differences in the implementation were foreseen for the next year as she explained, "That's sometimes a hurdle to progress and change because when systems are constantly changing or practices are constantly changing, people don't get on board with an idea so for us. I think we're just going to keep it." Because this teacher's virtual school had not yet mandated inclusion through co-teaching, she experiences a struggle of what to do when things were not working out. At the point of her interviews, there were no procedures in place to help struggling teachers, resolve issues, or require the implementation.

Applied imaginative variation. Initiated by special education personnel, this co-teaching circumstance evolved from service delivery needs and the needs of students with IEPs, which provided access to the general education curriculum, to a team-based or triad approach that was put in place. The previous pilot year results encouraged the continuation of the strategy, but as this teacher pointed out, the scope was still limited to twice per week in just the math and ELA areas. Her perspective was from a position where co-teaching was common throughout her career. From the perspective of those expected to co-teach twice per week who have never co-taught, it may be more of a

challenge. There was also an absence in the discussion of any on-going training. She understood the need for having teachers paired together who actually got along and not just based on the right credentials, which was implied as a broader reflection of this participant's personal experiences and observations over many years of co-teaching.

This participant presented her team as very well-functioning. She confirmed they already had a good relationship to build on, but being in a world where virtual relationships take effort, they continued to work at it. In addition to the typical collaborative tools, they also used some more unique web 2.0 tools in their communication with each other, yet were hampered by the fact that effective communication takes a timely response.

The participant's commentary about the school culture presented a much more realistic perspective of the school's milieu surrounding co-teaching. A positive and effective partnership was quite possible within the model; however, her description contained many factors specific to just her team and implied that not all teams were as successful. This participant presented a positive attitude and enthusiasm about co-teaching throughout the study.

Commentary about the successes and failures experienced by this participant was insightful as it looked at a school-wide view from multiple perspectives. She addressed several factors that limited their progress toward school-wide effectiveness. One factor that affected virtual co-teaching was the impact of constant change. This participant stated that even though the model might need some modification, it would not be improved right away to keep negativity down that can come with more changes. Co-teaching is also not mandated or required by her school in all courses, so making changes

could sacrifice critical teacher support in addition to other systematic procedures needed for those who struggle. Influence from this teacher's documentation of data-based student growth increased student engagement, and improved instructional strategies may be useful to encourage others within the school to fully embrace co-teaching.

Participant 7. This virtual co-teacher represented special education at the secondary level. Participant 7 reported an average amount of virtual teaching experience.

Implementation. When asked about the rationale for implementing co-teaching, this special education co-teacher offered,

> We've found that coordinating with gen ed teachers during instruction and in preparation for instruction helps ensure resources are appropriate, accommodations and modifications are honored with fidelity, and that [special education teachers] are better able to respond to questions on the curriculum assignments, assessments, and expectations.

Additional commentary about the efficiency of meeting many students needs at a time and the effectiveness of doing it in the general education context supported the school's overall mission of placing students as close to grade level as possible and offering a full special education program. Her experience in being paired came down to administration placing special education teachers within content areas that they felt comfortable with and had some proficiency. Unfortunately, she found that not all teachers were as "open to collaboration," and administrative options were being discussed regarding how to position those teachers to avoid issues.

The school began with supporting ELA and math, but increased to co-teaching all core classes. She indicated that the sheer size of the school offered the numbers of special education personnel needed to implement in so many classes. She mentioned that the quality of professional development at her school was quite high at the beginning and

the end of the year. The school hired an outside presenter, but the presenter's brick-and-mortar perspective did not always translate to the virtual environment. Training afterward, she reported, became more of a process of training each other, but was still proving effective.

Roles and relationships. Although partner responsibilities varied some, she defined her main focus was on monitoring chat, behavior plans, and pulling out students that needed more assistance. She reported being in the co-taught classroom about 80% of the time, as special education duties and meetings took some time away. She did not see herself as an equal partner, but an intended support role. Within her school, she saw the same type of activities by special education co-teachers, but they varied in how "hands-on" they were with student interaction. She felt there was a direct positive correlation with how strong the co-teaching relationship was and the involvement of the special education co-teacher. General education responsibilities were experienced as "it's still largely in the hands of the general ed teacher because they're the expert in their content. They're designing the course; they're designing the curriculum. They plan what's going to happen next." She described her own transition into more of a significant role as a result of trust from the general education teacher stating, "but that took time to develop. I don't think that comes right away because you don't have that rapport." She explained that there was a positive to the convenience of being able to interact from anywhere, but there was a human factor that she described much like body language that was missing in virtual communication.

Collaborative relationships were emphasized in the school literature and specifically addressed relationships between colleagues. This co-teacher admitted,

however, that teachers successfully "hide" in the virtual world which made it challenging. Twice a week, she and her co-teacher scheduled meetings in Blackboard at the end of class sessions to talk about accommodations, modifications, and resources for the upcoming lessons. They also used Google Docs to support co-teaching.

School culture. This participant felt that many elements of the overall school were supportive of the implementation of the co-teaching strategy. However, she described anxiety by some teachers that related to territorial needs or working with increasing numbers of students with needs. She shared that the school was focused on building hope and encouraging students, which she felt supported the idea of co-teaching.

Successes and failures. Data were being collected by this participant and compared to courses before co-teaching was implemented, and she reported that initial findings are positive, especially related to an increase in passing rates. This participant focused on several instructional factors present in her co-teaching relationship. She stated that she appreciated all of her co-teaching partners and the different strengths and expertise that she learned from, not to mention the perspective she gained in evaluating IEP goals after she saw the students work with content materials. It gave her a feeling of appreciation when her team members asked for assistance or ideas in working with students.

This participant reported that one large benefit she perceived from co-teaching was the information gained from being in the whole class session that alleviated a student's confusion or misrepresentation of what was happening in the course when they attended extra help sessions. This participant highlighted her perceived connection of her attendance in the main class with her ability to promote student attendance and

reinforcement of ideas in her follow-up sessions. She contributed this to her participation in both. She also observed a positive effect of co-teaching on the ability to reach students and further help them to understand concepts. She perceived that her presence in the class provided some consistency and helped students adapt when a change in the general education staff was made, which was evidenced by her ability to support a new mid-year partner with knowledge of all of the special education accommodations and modifications.

Applied imaginative variation. Co-teaching in this secondary school was perpetuated by the needs of students with IEPs and the effectiveness of the special education teachers serving them, which aligned with the fact that it was initiated by their special education department. Placement was made based on content areas that teachers are comfortable with supporting. The high school level presented a challenge in finding those who have the comfort with or are classified as highly qualified teachers (HQT) in secondary content subjects. It was implied that HQT issues were limited to the facilitation of co-teaching and negatively impacted collaborative partnerships. This might be especially true when training that used a traditional model does not quite fit, and teachers resorted to finding answers through the experiences of others. Despite that, this participant valued a perspective that special education co-teachers had insight into the content over those who do not co-teach.

Given this participant's commentary and outline of duties, she implied that the importance of equity in co-teaching was not emphasized. This implementation appeared to acknowledge the likelihood that equitable distribution was not possible and a more subordinate role from special education teachers was expected in the general education

classroom. The perspective of this participant was that a general educator does not anticipate a complete partnership right away, especially between co-teachers that had no collaborative history. Co-planning within this team was described in much the same way as consultative special education services, although done with purpose and consistency that was perceived as a continuous use of the One Lead, One Support co-teaching style. Virtual collaboration provided many tools to enhance communication, but was ultimately up to the user's capacity, or willingness, to be present.

This participant acknowledged that she perceived the support for co-teaching in her school exists. Despite that, she commented on several points where general education showed weaknesses of territorial behavior and the instruction of students with needs. This participant's commentary implied that transitioning into co-teaching, from the perspective of a general education teacher, took relationship building not only with colleagues, but also with students. Building trust with a co-teaching partner and gaining experience in working directly with students who need more support both take time.

Through the collection of data, this co-teaching team was able to observe positive academic changes from their co-teaching. This may be the most valuable aspect in helping others within the school gain the perspective that co-teaching is effective. Both a positive and negative effect related to change seems present in this participant's co-teaching. When a change occurs (e.g., a teacher leaves), the collaborative relationship building must begin again, yet this participant described an immediate support for both her students and her new co-teacher. There were also noted benefits for this special education teacher related to her ability to better support and assess her students both during the class and outside of class.

Participant 8. This virtual co-teacher represented general education at the secondary level. Participant 8 reported an average amount of virtual teaching experience.

Implementation. This participant's virtual school made an administrative decision to implement a co-teaching classroom at each grade level. Teachers were surveyed about their interest in co-teaching, and this participant felt compelled to agree because she was new. Reflecting back, she concluded that the intention of trying to serve a large population of students with special education needs within their virtual school was a positive one by the administration, but more care needed to be taken in how teachers were chosen. She also described that the rationale was not directly presented to aid in getting any buy-in from the teaching staff. She didn't really feel that there was any sort of co-teaching model to follow and it was just for the two of them to figure out. Her classroom, that was chosen specifically by the administration, had a mixture of general education students with moderate IEP intervention needs and a group of students with significant IEP intervention needs who were pulled out of the classroom during co-teaching because they were assigned a different curriculum. A special education teacher was assigned to her by the administration about a month before school started. From this participant's perspective, there was a lot of excitement from the administration about co-teaching and the training to follow. She reflected, "We were given a booklet that said, 'This is what co-teaching is, and some of you are going to be co-teachers this year. It's so exciting, and we're going to give you a lot of training,' and then there wasn't any training."

Roles and relationships. This participant reported that determining effective co-teaching roles between herself and her special education co-teacher was a real challenge.

Initially, she described that she continued to teach and the co-teacher "was just there." That attempt was followed by a model where each co-teacher tried to take turns with the instruction, which the co-teachers also determined was not a viable solution. In a final attempt, this participant started the lesson, and then each co-teacher separated students into rooms and did some scaffolding for the students. Several times during the interview she referred back to training and stated that they really needed more understanding of what it was really like to co-teach. It was felt that her co-teacher never really wanted to co-teach in the first place and seemed very overwhelmed by it all. There was a lack of equity felt by this general education teacher in working with her special education co-teacher because she was preparing all of the instruction. She acknowledged her co-teacher's perspective and stated, "I also saw her point of view because not only was she co-teaching with me, but those kids still had goals. She still had to do pull out with them as well. Sometimes, for her, it wasn't very fair because she was teaching even more than the hours that I was." She described that the collaboration did not go very well. She characterized it as a personality conflict where there was a lot of negativity. Reflecting back, she did not feel that the partnership would have worked any better in a face-to-face environment. Other than using the Blackboard Collaborate feature, most of their communication was over the phone. She elaborated, "She and I would call each other quite frequently."

School culture. The school culture in general was, in this participant's perception, very driven by the need to retain student enrollment. There was an element of "keep our families happy" that trumped over the effective use of strategies. Documents analyzed from the school emphasized collaboration between teacher and

parent and seemed less focused on collegial collaboration, supporting her perception. Where co-teaching was concerned, she felt that it was not really understood and more training needed to happen. She reported that administration discontinued co-teaching before training was addressed, but she felt her school may return to co-teaching at some point and she remains vocal about the need for co-teaching training. She also mentioned some dissent among the grade-level teams between those who were co-teaching and those who were not, given only one classroom per grade level was chosen. Grade level teammates she viewed as supportive, but she implied they felt a bit helpless to assist her in the co-teaching struggle.

Successes and failures. One of this participant's personal successes in co-teaching was building relationships with special education families. She did not fully co-teach with the additional special education teacher that pulled out special education students, but wished that she would have as she felt it was a far more collaborative relationship. In addition to the positive attitude she brought to co-teaching, key elements she identified to make co-teaching effective were training, in order to better understand the roles of co-teaching, and time for co-planning. She elaborated, "We needed a little more time to co-plan and not just co-teach because I was very independent. I wanted to create the lessons. It was okay with me that she just showed up, which that's really not okay, but that was okay with me."

Applied imaginative variation. Although this general education co-teacher indicated that she was willing to co-teach when surveyed by her administration, it was a circumstance in which "willing" was not necessarily "enthusiastically seeking the opportunity," but was just wanting to have job security. She implied that the school did

little to gain her buy-in. It is not known how administration analyzed her indication of willingness, but may have been perceived as enthusiasm and buy-in was assumed. It was also this participant's perception that her co-teaching partner was not properly recruited either. This teacher felt that the lack of training also contributed to lack of understanding of what needed to be done and how it should be done. Regardless, the administration's overall intention of improving education for students with needs was positively received, and this teacher attempted to execute co-teaching.

The perspective of this co-teacher was clear in that she did not know what co-teaching was supposed to be like; there was no model presented to her that defined roles. A description of the possible models they could use to co-teach was not enough to carry them into implementation and immediately begin, what she described as, a system of trial and error. This participant expressed being hampered by poor relationship building and a perceived lack of commitment by her co-teacher, which added to the lack of equality. There was some acknowledgment of additional, job-specific duties in which she implied that knowledge of appropriate roles would have helped determine how those other duties factor into equality in co-teaching. This pair of co-teachers tended to collaborate less through technology and more with traditional phone calls, yet it was not shared if that impacted the relationship or was a result of their unproductive collaboration.

This participant discussed some conflicting dynamics that played a negative role in her experience related to support. Working with a grade-level team who was not experiencing co-teaching could not provide support or help with problem-solving. This participant did not mention the opportunity to meet with other co-teachers across grade levels. Her reality of being paired with someone she did not effectively work with and no

support provided on the teacher level created a negative climate that added to the problem. In addition, she did not perceive the administrative focus to be in alignment with co-teaching. It could be argued that co-teaching fosters the administration's focus of connection and enrollment, but the fact that is was abandoned does not support that administration had that in mind.

The one success factor, perceived by this participant, of developing better relationships with special education families had more to do with the opportunity to have special education students in her classroom than to have a collaborative co-teaching strategy being in place. She was able to gain a perspective that a different individual, other than the one she was paired with, might have made a significant difference in the ability to make co-teaching work. The need for training, however, was paramount in her view and was frequently emphasized throughout her participation in this study. It is important to note that her perception of training went beyond just passing on conceptual knowledge to more of an active and practical understanding of co-teaching.

Participant 9. This virtual co-teacher represented special education at the secondary level. Participant 9 reported an above-average amount of virtual teaching experience.

Implementation. In this participant's virtual school, students with significant disabilities were placed in general education classrooms. She described the difficulty general education teachers had making such significant modifications. Inappropriate modifications and accommodations led them to implement co-teaching as a support. She stated, "the gen ed teachers really needed a lot of collaboration with the special ed teachers, and they were able to deliver that better to the population that we were trying to

serve." The last-minute administrative decision that general education content teachers would teach content courses provided to students with severe special education needs led her to join forces with one of the general education teachers. She said, "[Administration] created that section and just kind of plopped it on her without her saying it was okay, or anything. We had to scramble to plan for that and find a way to make that work." In addition, she felt that such decisions had a big impact on co-teaching and stated,

> If we would've had more opportunity to work together and plan, we could've planned probably a full year course, we probably could've had more classes or given the kids more opportunities to do projects and things like that, but there just wasn't enough time.

When asked about training for co-teaching, she acknowledged that there was none. She continued with a certain lack of expectation stating, "And I mean that's kinda the nature of working in something that's experimental like that." Although the recollection of training on technology systems or new curriculum came to mind, she reflected, “I can't think of any time in the six years that I taught in virtual teaching that there was professional development specifically for how to teach in a virtual environment, you know what I mean?"

Roles and relationships. In handling the effects of the school culture on her co-teaching relationship, she explained, "Once I talked to her about who my students were and about the ideas that I had. Once she realized that I had some kind of plan that there was a way to resolve what she felt like was happening and causing issues for her, then our relationship got a little bit better." She described her partner's change in commitment as "She definitely wanted to be a part of it, which was nice, also because she didn't want to just be another thing on my plate, she was willing to share that responsibility with me." In defining the roles that each of them had she offered, "Well really, it was moreso like

we did a lot of the planning together and as far as like our co-teaching went, we just kind of met in the lesson together and it was almost like a One Teach, One Support atmosphere." She shared that a lack of training could have impacted their roles as it was somewhat unclear what their roles should be and how collaboration should happen. Her thoughts on equitability came from multiple considerations. She clarified, "We were listed together on the section, so we both have access to being able to add or remove assignments or grade assignments, things like that." Grading was an element that she said impacted equitability. She explained the dynamic as,

> It wasn't really her being negligent, I think it was more so me being controlling because I know my kids, and I know what their work looks like, and I know when they put forth their best effort and when I feel like they could work harder, so I think I wanted to be able to look at it.

She described her ability to communicate with her co-teacher face-to-face as important. She explained,

> So [in virtual education] you're not always working with a person face-to-face and able to get a hold of them and see them and actually have a conversation about something. I feel like sometimes things escalate really quickly. I think in our case, it was nice because we were able to make a time to meet with each other and actually speak to each other face-to-face and there wasn't anything lost in the translation of email or something like that.

She summarized her ideas of co-teaching relationships as "they always say co-teaching is like a marriage, it can be really great, and it is a lot of hard work, but it can also go really bad."

School culture. When asked about her school culture, this participant highlighted a point in time where she felt there was a decline in culture supporting students with special needs to the extent that enrollment of those students declined. She identified a conflict between administrative expectations and the special education need to service

their students stating, "They just didn't want to give that kind of freedom because they wanted everything to be so cookie cutter, and I think that really impacted our diversity." She discussed the impact on new teachers who resisted making bold teaching decisions. She also remarked on the impact it had on special educators who wanted to collaborate, but were told their modifications and ideas were not allowed. As a summary thought she stated, "So, I think that really impacted the way people taught and what they were willing to do." In addition, she reflected on how her co-teacher's expectation that she would handle all things related to the student's disability needs initially impacted her co-teaching relationship and stated, "I think she definitely fell into that category of 'I think that you need to fix it.' And that was the big part that I think you saw across gen ed teachers; they wanted the special ed teachers to fix it." She stated that the impact also stretched to her co-teacher's interaction with families. Her co-teacher's initial teaching of this population without co-teaching support led to communication problems, further initiating the need for co-teaching in that class.

Successes and failures. This participant reflected in several ways about her own growth as a teacher and stated,

> I think a large part of co-teaching is being able to pull back and not dominate the teaching environment, and I guess co-teaching gave me that opportunity to sit back a little bit and let somebody else take the lead when they needed to or answer some important content area questions and things like that.

She continued her thoughts about observing other teachers stating, "It helps me to see what somebody else's strengths are. I feel like a lot of times when we're just teaching by ourselves we're in charge, we're operating everything and I think we don't get a whole lot of opportunity to see what other teachers are doing." When asked about the benefit to students, it was mentioned that her students often worked with the same group of

teachers, which had benefits but lacks the abilities to practice social skills. She reflected, "So I guess in the end, it was really a positive experience for them to be able to work towards that and then get to work with somebody new." Her thoughts continued around collaboration as one of the significant benefits in this unique situation and shared, "At that school the special ed teachers had a lot more access to supplemental programs and things where they could find lower instructional level materials that were age appropriate."

Applied imaginative variation. The circumstance of this co-teaching arrangement was unique in several ways. This scenario involved a general educator being placed in the special education world to teach content to students with significant needs, a somewhat opposite dynamic for the special education co-teacher who was unexpectedly in their own territory. This participant, the special education case manager, saw the desperate need for assistance and resources that could be met through co-teaching. Co-teaching was a solution that was implemented without much warning; however, lack of training gave it an “experimental” feel for this participant, that seemed rather commonplace to this teacher. She implied that she had come to expect virtual teaching was not learned, just figured out.

Roles and responsibilities also have unique features in this circumstance. The typical general education aspect of being territorial was flipped on end to find the general education teacher on the unfamiliar instructional ground and the special education teacher on her own turf. An entire class of students with significant needs allowed this participant more input as a special education co-teacher. By her own admission, she had some territorial issues surrounding grading that might mirror struggles generally seen

from the general education side of typical co-teaching circumstances. However, both teachers on record as the teacher gave both access to the LMS course and was, to her, a worthy mention. This teacher also implied that co-teaching relationships take concerted effort to build.

School culture, in this case, was very affected by the curricular controls exercised by the administrative bodies. Those teachers, as our participant reported, were not empowered to help the students in meeting their individual needs. Although improved, this aspect affected the co-teaching partnership, which needs an effective special educator. Challenges in this school culture impeded the implementation of effective co-teaching.

This participant's discussion of her own growth was insightful in several ways. Given a unique context, her reflection and growth were unique as well. She experienced feelings, territorial in nature, that give her perspective in what general educators sometimes feel. Although co-teaching in this scenario was not used as an inclusive service delivery strategy, but instead provided access to the general education curriculum, her students still had some social growth effects prompted by a new teaching personality in the mix. Despite her general education partner beginning the class alone, this special education participant discovered, through co-teaching, that she could offer her knowledge, resources, and previously built relationships with students and families to support her colleague and the growth of students in the general education curriculum.

Participant 10. This virtual co-teacher represented special education at the primary level. Participant 10 reported a below-average amount of virtual teaching experience.

Implementation. Co-teaching was implemented school-wide and was an expectation for this newly hired teacher. It was the first year that co-teaching was fully implemented in this virtual school. As a special education teacher, she works with two assigned grade levels, each with teams of multiple teachers. Her caseload was used to determine the teams she was paired with. Most of the preparation came in the fall; however, much of the training took place with just the special education team. She elaborated, "It's not like we've sat down with the gen-ed and had a big, 'Hey, guys, here's some strategies. And, then you guys talk about it together.'" This teacher did not voice any particular concern with that circumstance, but acknowledged quite a bit of separateness between general education and special education departments.

Roles and relationships. This special education teacher had different experiences with each team she was assigned to within her school. On one team, they each took turns planning and leading the lessons. Otherwise, they provided general support through opportunities of monitoring chat and small-group instruction. They also shared lesson plans through Google Docs to review and consult with each other. She conveyed the idea that planning her share of the content made her feel more equitable than her other team with no content responsibility. When she reflected about her overall participation in co-teaching and facilitation of additional independent sessions for special education students, she shared, "I feel they probably think that I should be doing more, and I would like to be doing more. I'm not sure exactly how to bridge it." She described her comfort level not only with her team, but with the curriculum, played a part in the equality of the workload, yet she still felt it was equitable. Her comfort in contributing her ideas is fostered more with one team than the other. When asked about her virtual co-teaching

relationships, she stated, "The relationship building is slow." She further explained the relationship with one team as "Not that they're resistant, but it's just harder for me to feel" and unable to define her feelings, she explained the context stating, "They don't see me. They don't know me." She shared that weekly team meetings were held, but that she felt like it had not provided enough time to figure things out. She elaborated, "It's not a long amount of time, and it's a challenge online, for sure." She described that this impacted roles and responsibilities for one team in that limited time for collaboration caused them all to fall back on just taking turns.

School culture. The participant's school documents outlined its goals as having programs that fostered student engagement and teacher experience and support. Despite that, this participant definitely felt hesitation from some of her colleagues about her involvement with their team. She also felt hesitation from herself, as a special education teacher, in not wanting to disrupt their dynamic. She reiterated that there was some feeling of disconnect between the general education and special education departments and she, in particular, was trying to get an understanding of what co-teaching meant at this school.

Successes and failures. One positive observation this teacher had was that co-teaching presented a better sense of culture and community, especially when parents and students saw teachers all in the session together. Co-teaching also allowed the team to be on the same page with academic language and vocabulary. She described observing a student with needs react positively to another teacher, and it clarified for her what style worked best to meet his needs. She added that the observations of students in a general education context also helped her to see what the students expected from their teachers.

She felt that more interaction between the two departments would be very beneficial to co-teaching. She also acknowledged that based on the students' needs, co-teaching might have to look different for different grade levels.

Applied imaginative variation. Being new to the school, this teacher's perspective encompassed her experience in being asked to participate in co-teaching without the benefit of being a part of any piloting or discussions. She was the special education teacher assigned to general education teams at two different grade levels, which gave her two altering perspectives within the same general model. She stated a feeling of separateness between the special and general education departments, which was dynamically opposite of the co-teaching ideals. We might suppose that there were general education and special education relationships formed before her arrival, or that there was actually some separateness present that co-teaching had not effectively bridged. Given her reports that training was held departmentally and not with co-teaching partners, the latter was indicated.

This special education participant had the ability to perceive the impact that the level of collaboration in relationships had on co-teaching through the comparison of the two different teams that she was assigned to. Having open and receptive colleagues changed the dynamic of her contributions and allowed her to feel more a part of the team. In her scenario, the time that it took to build relationships in a virtual environment directly impacted her ability to participate in a more meaningful way. She also implied that to see her, is to know her, and that was not happening during a collaboration where no video was used. We can suppose that given no changes, a collaborative, working relationship would develop with both teams over time. The role of minimal planning

time hampered the already slow process of developing virtual relationships, but also limited co-teaching to an unintended, and less collaborative style of "taking turns."

Implementation of a collaborative, inclusive strategy like co-teaching, brought divisions between the two departments to the forefront. The perception of this special education teacher on trying to build collaboration between departments who were not used to working together implied some qualities of being unwelcomed or not needed. General educators were not perceived as valuing a special educator's contribution. The two dynamics of the grade-level teams seemed contradictory in upholding what co-teaching looks like, which made it even more difficult for a teacher, who is attached to both teams, to have confidence in implementing the strategy.

It is an interesting perspective, that merely having students involved in an environment where the teachers are all present would give the perception of a sense of community. One supposition would be that, over time, cracks in the pavement would begin to show unless there was a true sense of collaboration, although in the virtual world, little nuances of teacher disconnect might be easier to hide. It stands to reason that the mere differences in developmental levels and context in each class would impact details of co-teaching at each grade level, although administration might perceive that co-teaching needed to be implemented school-wide from the same basic framework.

Participant 11. This virtual co-teacher represented special education at the secondary level. Participant 11 reported a below-average amount of virtual teaching experience.

Implementation. This participant taught at a school where co-teaching was fully implemented. The co-teaching partnership was usually one-to-one at her school, but

when she, as the special education teacher, approached her assigned content team, they were uncomfortable with that arrangement. She stated that she took it upon herself to adjust to working with the entire team, attending each class once per week. Students with IEPs were dispersed throughout the four classes. She felt that one of the reasons that the arrangement worked was because the daily lesson was the same across teachers. It also eliminated the circumstance of having all special education students placed in one class and only one content teacher to rely on for IEP meeting attendance.

Roles and responsibilities. This co-teaching participant stated the following about her co-teaching relationships,

> Obviously, there's better collaboration with some than others, but overall, I think it's worked out and the teachers are happy, which I think is important because then they're just naturally going to have a better relationship with the special ed teacher, which is going to be better for the students.

She defined her role as one who advised (during the team lesson planning) and had a weekly expectation to modify the content test each week. She made it a point to state that she did not plan or teach lessons. Despite that, she still felt equitable in what she does because teaching, in addition, would be overwhelming stating, "For example, if I have to lead in every class once a week, then I would be leading every single day." This special educator did not view the workload within her team as inequitable and stated, "I think I do different work than what they're doing, so I don't want to say [it is not equal]. I guess it's probably equal it's just different." She described the relationship with her teammates as "mutually respectful," and they encouraged the students to work with her outside of class as well.

School culture. This participant described her school as a place that is very supportive of diversity. She felt that supports were effectively in place for both teachers

and students. The organizational structure was what she feels is difficult for students who are sitting home in front of the computer, "I do think that piece is overwhelming for students, especially special ed students and teachers alike." She continued to relate the organization to the effect on culture as “if the overall organization of what you're looking at through a screen has you feeling scattered, then that can be overwhelming for a job and also for learning purposes, too.”

Successes and failures. This participant related to several positive factors brought about by co-teaching. Her own teacher growth was one factor she expressed as “Being able to watch four different teachers and how they interact with students and how they present themselves has given me confidence to be myself.” She saw success in her relationship building through her ability to communicate with general education teachers. She offered insight and stated, "For me, that's a win because they're coming to me, and I feel like that means they respect my opinion and they respect, or they value, or they think that I know the kids well enough."

This participant saw the benefit in that she provided extra help, open to all students, to boost academic growth. She stated, “I invite all of the students because I have found that sometimes there are kids that don't have an IEP that benefit from an extra person.” She commented on student growth, specifically student passing rates, throughout the school where co-teaching is happening. This participant also related her need to offer extra sessions as a downside for special education students in her school model. She explained,

> I think that I would be great if I were able to be in the class so that I didn't have to offer a separate session. That I could just be in the class and the session could just be led by me one day a week. They didn't have to be invited to a separate class because I was just in there.

She expressed this situation, caused by only being in a teachers' classroom once per week, as a bit of a trade-off to the benefits of working with the whole team.

Applied imaginative variation. This implementation of co-teaching can be a challenge, as this teacher determined for a number of reasons. Ultimately, she discovered that the working relationships and what was best for the students were worth the sacrifice of having a more connected one-to-one co-teaching partnership. From the perspective of the general education teacher, it was implied as a matter of distributing the special education students and the commitment to special education responsibilities. Because there were not four special education staff to fulfill a partnership with each member of the team, she chose to do what was better for students and teachers and not necessarily for her or for strong relationship building. Again, this arrangement did have some drawbacks in the division of responsibilities, yet it allowed for working with the whole team. This participant described her experience with her teams as collegial and respectful, but insinuated that if paired with certain individuals over others, it would not have made an effective team. She found a way to feel positive about the co-teaching strategy despite the needs for some give and take. A less direct teaming approach had the potential for a positive effect on those teachers less keen on the traditional method of co-teaching, which some see as invasive.

This participant had an interesting perspective that directly related the technological elements to the school culture and not the people, but perhaps valid as the technological foundations are what the school environment was built on. Without the technology, the structure of how those within the school communicated and interacted was not there.

This participant's scenario does not provide all of the benefits that she envisioned a single classroom pairing would provide. However, she made the case that it needs to be this way in order to work and it is worth the trade-off, which minimized the complexity for the general education teachers and students.

Participant 12. This virtual co-teacher represented special education at the significant level. Participant 12 reported an above-average amount of virtual teaching experience.

Implementation. Co-teaching in this participant's school was an administrative decision. This participant explained that the implementation of co-teaching school-wide kept the students with IEPs from having to attend both regular courses and special education sessions. He stated, "We decided to make co-teaching more prevalent because it would cut down on the number of classes per day that the student had to attend." This strategy helped to further satisfy the commitments set forth in the school literature that assured general education and special education would work together to identify and serve students with disabilities. This co-teacher was involved in a team with two content teachers who all taught together five days a week. The decision of what content team this special education teacher was assigned to was based partly on highly qualified teacher (HQT) status and partly on what personalities worked together. This teacher recalled that preparation for co-teaching was just handed to them and up to them to figure it out using a trial-and-error process. He elaborated, "It was literally like, let's try it. Okay, this didn't work, let's try this. This didn't work, let's try this." He confirmed, "We're still at that point."

Roles and relationships. Generally, this teacher reported a partnership where each team member's strengths were considered in what they would contribute that best meets the needs of the students to get them engaged. He explained that his responsibilities partnered with two content teachers was different than just one; specifically, he was not relied on as much for the instruction. The other two teachers traded off more to instruct and left him with all content group reviews and support pieces, in addition to sessions for special education students that he would invite all students to. He emphasized that he contributed in unique ways which helped all students better understand the concepts. When asked about his feeling of equity he stated,

> If I was to give a percentage, I would say it's more 60/40 [general education] towards [special education], but again we're there for the support, we're really not there to truly teach. We're there to focus on the special needs kids in general and try to monitor how they're doing in the course.

Although he had witnessed bad relationships in co-teaching and saw the situation drastically improve when a better match was made, he reported a positive, friendly relationship with his team that has only been hampered by the continuous buildup of school responsibilities. They used the classroom space, email, and an instant messaging system for collaborating. Team meetings usually occurred after class and during a scheduled meeting every other week.

School culture. This participant shared that school culture was very much about the students and stated, "When it comes to the school culture, we're the champions to the student as best we could say." He admitted that there were still some who resisted collaboration with special education and stated, "Teachers with an old-school mentality and not into sharing seem to fight the co-teaching strategy." When this participant reflected on co-teaching, he stated, "We're in year four now of the co-teaching

environment. I think we're finally getting it." He admitted that it was not perfect and they must deal with changes that happen within the school. He explained, “Most often times [co-teaching has] changed within the school year, so one way we're finally learning how to do it, and then we're told, oh, it's got to be this, so we got to adjust.”

Successes and failures. This participant attributed a lot of the success of co-teaching to sheer ratios and specified that not only were there more people to monitor progress, but also more ideas and strategies to suggest. Student engagement and passing rates are strong, which he credited to the fact that "we have a pretty good rapport with them." Despite some pushback from a few, he reflected, “I think people are slowly coming around to that idea that co-teaching is actually beneficial because, again, it's supporting the students, it's not hindering the teacher.”

Applied imaginative variation. According to this participant’s data, the ability to service students existed; however, it meant that the students had to attend general education courses and special education courses. Using the co-teaching strategy allowed for more effective classroom time that included the special education teacher. This multi-teacher, co-teaching situation matched the general education/special education collaboration commitment to provide services to students with needs. This participant had the content expertise, in addition to special education, that enabled him to provide full support to the students. The trial and error helps to illuminate that no one model was used within the teams of this participant’s school, but he had a positive attitude about paving the way.

This teacher’s perspective was that in co-teaching, special education teachers were not to teach and that his job focused on the needs of the special education students.

This was true especially when teamed with two content teachers. It was uncertain if that is a personal interpretation of co-teaching or one provided to him by his school or team. Despite his comments, he also conveyed his preference to instruct, so he had to find ways to feel that he was contributing more substantially to the learning of all students. He stated that his support was open to all students, yet it was not implied if the perspective of the general education teachers he was teamed with have the "our students" mentality.

This teacher's commentary implied that their culture was about the needs of the individual student and that special education teachers were critical to that process. He presented that colleagues in his school were still reluctant to this style of collaboration. Adding to other comments he made about the continued trial-and-error process, the supposition might be that "finally getting it" after four years of adjustment implied that getting to a place they perceived as successful took not only being adept at handling changes, but time and concerted effort.

This co-teacher felt very strongly about the efforts that he and his team made. However, as a school, they have been in the process of finding what works for years. He, and likely his whole team, found a way to navigate through the constant changes to provide successful opportunities for students. His last statement implied that teams with the right focus and a positive attitude created an example that could spread throughout a school.

Participant 13. This virtual co-teacher represented special education at the primary level. Participant 13 reported a below-average amount of virtual teaching experience, although she had a significant history of teaching in the brick-and-mortar setting.

Implementation. When asked about the rationale for implementing co-teaching, this participant stated, "The virtual school I work for implemented co-teaching strategies to provide interventions to students in ELA and math who are identified at high risk through curriculum-based assessments." Although co-teaching was implemented as a school-wide strategy, this special education teacher stated,

> I really wanted to do co-teaching to develop relationships with the general education teachers and to find out exactly what they're teaching, so that I could model the same concepts for them in pre-teaching strategies and in supporting students in special education.

Her partnership with a general education grade-level team focused on the ELA and math content in which they planned together and taught the same lesson to small groups. She emphasized that data played a large part in their co-teaching and described it as having some parallels to response to intervention (RtI) models. She co-taught students once per week who were below benchmark or had an IEP with academic goals for those two content areas. Special education teachers were not assigned to grade-level teams until after the start of the year, so she joined an already established team. Preparation mostly came, she said, from her own experience of supporting special education students in the regular classroom. In her school, efforts were being made to train the general education teachers about co-teaching, but they were not really meeting together with their special education partners for training.

Roles and relationships. She described that the teachers had more of the role of planning the lessons and then they discussed it as a team. She elaborated, "I really try to make things, suggestions, ‘What do you think about this?’ instead of telling them what I think that they should do and how they do it." Sharing plans with each other was also an important factor to her so that "if I'm going to teach a concept, I can look and see how

they're teaching it so I can use the same vocabulary." When asked about workload, she felt things within the team were pretty equitable. Related to some of the collaborative nuances between special education and general education, she stated, “And the special ed teachers, you know, we kind of tippy-toe around because it's your class, and it's difficult to go in and just start pulling kids out.” Her past experiences gave her insight as to what approach to take in collaborating with special educators. She shared, "I really try to make things, suggestions, 'What do you think about this?' instead of telling them what I think that they should do and how they do it." Elaborating on the collaboration she had with her team, she commented, "We meet for a half an hour once a week, and that's really not enough, but it's certainly better than nothing.” She felt that technology, specifically using SharePoint, was a help in knowing what lessons were going to be taught before that day, recalling that in the brick-and-mortar setting, there seemed to be less preplanning of the presentation of a lesson and more falling back on a section of the curriculum.

School culture. When asked to describe her impression of the school culture, she admitted that not being in a physical building made it hard to figure out. One big factor that she felt impacted school culture was the amount of turn-over that had recently happened. She described the school as being in "transition" this year. When asked how she perceived this as impacting co-teaching, her impression was that there was no firm directive with support in the way of professional development for staff. Dealing with changes was something that she had to face, especially in the virtual world. "It's like, okay, we're going to start this on Monday, and it's like, what are you talking about? I don't even know how to start." She continued on, reflecting that sitting down and just focusing on the action she needed to take helped her move forward with what needed to

be done. She added, "We're just continuing to try to make [co-teaching] work, and it's better than it would be if we weren't doing it, I think. I think the kids are really benefiting from it."

Successes and failures. This participant acknowledged that co-teaching "gives me the opportunity to make suggestions on how to scaffold instruction and include visual accommodations in order to best meet the needs of at-risk students." She continued on about her impressions of co-teaching and said, "It's not perfect, nobody has enough time for collaboration and meeting, but we do our best. [Co-teaching has] really increased communication with general education which is what I really like the best." Outside of the effects on her own teaching, she was able to observe the impact on the instruction within her team. She stated, "The general education teachers are welcoming of suggestions and implement them into the [co-taught] classes, and I have noticed that they often implement them into their general education classroom instruction as well." In addition, she stated that co-teaching was less isolating and that it was nice to work with others. When asked about co-teaching failures, this participant emphasized communication and elaborated, "If teachers aren't willing to do that or if it's all pushed on one person and there's not a sharing, if it's not collaborative, then it's not going to help."

Applied imaginative variation. This primary level special education co-teacher conveyed the administrative rationale of supporting all students with needs, yet focused more on her personal rationale for wanting to participate. Although she was only co-teaching once per week, her perception was that even once per week would promote a better collaboration to learn more about the curriculum being used for the special education students for whom she provides additional support. She mentioned that she

was not trained like her general education partners. It was not discussed how well prepared her partners felt she was, or if they supposed she was already equipped to co-teach even though they have had no joint training. Being added to the team after the beginning of the year also created unknown and unintended consequences in the relationship building.

This participant experienced a very limited co-teaching experience that can be surmised as a result of overall scheduling and the virtual school model that she worked within. It is difficult to determine, given her initial commentary about rationale being about her individual needs, to make any supposition about the school's administrative rationale, but with the limited scope, it may not have been to support a highly inclusive model. Nonetheless, this participant made strategic suggestions and had access to curriculum and lesson plans which aligned with her own professional needs in servicing students.

The culture of this school was difficult for this participant to harness. From school publications, the emphasis on student engagement and achievement was stated, but failed to really resonate with this teacher through their culture of change. Co-teaching was perceived by this participant as lacking the support of a formal initiative with sufficient training, which put it at risk of losing teacher support. Despite that, it seems that she and her team were moving in a direction that was aligned with the administrative goals.

Although this co-teacher has a somewhat limited day-to-day co-teaching experience, she had observed many benefits to staff and students. It is implied from her commentary that she felt much more equipped to help students with needs through the

collaboration with others and it enhanced her overall effectiveness. The sense of community for this teacher also increased and, theoretically, had a positive impact on relationships.

Participant 14. This virtual co-teacher represented general education at the secondary level. Participant 14 reported a below-average amount of virtual teaching experience.

Implementation. This participant's experience with co-teaching was initiated when her school implemented the strategy to help manage large class sizes. This style of instruction was not posed as an option to her by her school. Co-teachers of varied roles were placed in all ELA and math classrooms because the school was trying to better support at-risk students in these areas. Although licensed as a content teacher, this participant's focus was on supporting students in a core content classroom taught by another teacher. Administrators made the decision on who she would be paired with, and she was not familiar with the teacher she would have as a co-teaching partner. As part of this co-teaching role, this participant was part of a grade-level team who worked together with data for the needs of all students. She co-taught in the same class every day. She reported having a little bit of professional development on the expectations, but overall felt "just thrown in" where the aspect of co-teaching was concerned.

Roles and relationships. Generally, this middle-school co-teacher described her role specifically as "support" and saw her primary responsibility as anything that allowed the other teacher to perform her role of just teaching the lesson. Other descriptors of her role that surfaced were "classroom management" and "reteaching." She also noted that she would occasionally assist the instructor with conceptional explanations or other

clarifications. This particular teacher did not focus on any issues of inequity as the content teacher's responsibility for the lesson itself seemed, to her, to be taking a lot of responsibility. Individual student issues were addressed at the grade-level team meeting. She described her co-teaching relationship to be friendly and a partnership where "we support one another" and "we work well together." It was mentioned that the initial phase of working together was somewhat difficult, but being virtual, helped to disguise the awkwardness for the students that might have been more obvious in the face-to-face environment. She summarized the building of a relationship as "I thought, 'Oh, my gosh,' when we started working together, that this is not going to work, but it did. It did. It just took a little time." Reflecting on a previous experience with co-teaching, one communication issue she felt affected her role was not sharing lesson plans prior to the lesson. She described being left not always knowing how her role related to the content of the structure of the lesson. She reflected positively on a previous co-teaching relationship where she previewed the lessons, which helped her to determine what the students would need. Time for planning together with her co-teacher was not a regularly scheduled event, but there was a regular grade-level team meeting. Blackboard was stated as a primary mode of collaboration as well as Linq, which was a messaging system within their school.

School culture. School culture was identified by this participant as "sensitive to the needs of the student." This was also supported with school documents which made statements of supporting students and a goal of at-risk students reaching grade-level performance. The school supported collaboration as the model was already structured

into teams who worked with the same students. This teacher added, "I think it fits in very well, the co-teaching, because it's just a deeper partnership."

Successes and failures. One of the successes of co-teaching this teacher observed was that the students had "one more person to go to." She mentioned that it gave students another resource for assistance on their classwork. She also felt that co-teaching solidified the lesson and the class climate. A success of co-teaching was the ability to have more eyes to get students the help they needed during the lesson. She reflected personally on her instruction and felt co-teaching provided an opportunity to watch another teacher and learn from them. Because it was not her role to give instruction, she-she was able to better observe the students and their reaction to the instruction, which helped her with her approaches. Although co-teaching was viewed as useful in managing so many students, too many students in the co-teaching classroom was mentioned several times as a challenge. It was also reiterated that a lack of partners communicating expectations to each other translated into a co-teaching failure.

Applied imaginative variation. This participant's placement had the original intent of being in a class with significant numbers of students with IEPs, but when a team was already assigned, she was placed in a large classroom of mostly typical learners as a support for a general education teacher she did not know. Despite that, she maintained a disposition that she would be helping the students in a number of ways. She implied that she felt connected to the grade-level team who looked at data and discussed individual needs of students.

This particular co-teaching partnership was described in a way that did not necessarily depict the common elements of co-teaching between two licensed teachers. It

is most certainly presented as a One Lead, One Support situation for this participant within the classroom, yet was a team effort outside of the classroom. She had a limited co-teaching capacity; however, with the exception of not being able to preview the lessons to feel prepared for the day, she alluded to having comfort with the well-defined duties. Students and parents had two content teachers available to answer questions or reteach confusing content, yet a lack of significant partner collaboration might not convey the same sense of community, and this co-teacher may continue to experience awkward circumstances.

This participant conveyed a perspective that co-teaching assisted the teachers, school, and students to realize their goals. This version of co-teaching, although it excluded regular partner planning for more of a big-picture team planning, still provided this supportive co-teacher with a strong sense of partnership. Effects of a unified content-based team may be what the focus of the larger administrative body perceived, missing fine details of the particular co-teaching partnerships.

The context of this circumstance is unique in several ways. The first being the rationale for co-teaching, which was more for management purposes than for developing inclusive services. Even though the class had more typical learners, there were many relevant benefits of co-teaching related to instruction; however, this content-based co-teacher takes on a support role of one who does not make primary instructional decisions. It is not known what the distribution of students within the school was like, with exception that students with more significant needs were in another class where there were many special education co-teachers, which opens the possibility of a more inclusive distribution using co-teaching. Despite that, she reports it as a very functional

partnership that does, in fact, support the needs of the students and allowed her to learn not only from the instruction of others, but through the more detailed observations of student response.

Participant 15. This virtual co-teacher represented general education at the secondary level. Participant 15 reported a below-average amount of virtual teaching experience, although she has a significant history of teaching in the brick-and-mortar setting.

Implementation. In this virtual school setting, this participant clarified that except for students with severe needs who were taught separately, students with disabilities were all enrolled in general education courses. Her school had already implemented the strategy prior to her being hired, and she was assigned to one specific teacher after the start of the school year in a manner that she described as "luck of the draw." This participant did not have the opportunity to participate in any school-based training, but happened to have met co-teaching researcher and author, Marilyn Friend, who gave her information about co-teaching prior to interviewing for the virtual co-teaching position.

Roles and relationships. This special education teacher advocated rather strongly when it came to her co-teaching role and explained to her partner that she wanted more of a role than just a disciplinarian. She defended her need to advocate for herself and stated, "Because we've all seen that no matter where we've been. Either you're the disciplinarian, or you're used as a paraprofessional. I said, 'I've got a degree. You've got a degree. How can we work this out?'" Even though the grading defaulted to the "Teacher of Record," who was the general education partner, they planned lessons

jointly, and she felt a strong sense of equity. She noted that on PowerPoint presentations used for the lessons that both teachers' names were listed and that the students were accepting of her as a teacher of the class. One drawback was that the teacher accounts did not allow her access to the actual course, but she and her partner found a way to get her access. She characterized her relationship as being very "complimentary" and felt that it helped that she brings an attitude of, "I'm not here to take over your class, I'm here to help you reach any and all students." Their co-teaching went beyond the classroom to collaboration on field trips. "The first time we met face-to-face was during a field trip, and it was quite cool. We met each other and gave each other a big hug like, 'I know that voice!'" The partnering continued during the face-to-face state assessment proctoring. This pair of co-teachers often communicated during class using a simultaneous moderator chat in Blackboard. For collaboration at other times, they used Google Docs, Share Point, and Dropbox. This participant reported that she and her co-teacher had a common planning time.

School culture. When this teacher first joined her school, the director of special education was very vocal in having a culture that included meeting the needs of students with disabilities, which was supported by the school documents coded for this study. This participant perceived the culture as valuing teachers as trusted professionals. She also described it as a culture of doing what was best for kids. This culture seemed suited not only to this participant to do the best she could do for students, but to lay a foundation for co-teaching.

Successes and failures. This participant experienced several positive effects of co-teaching on the area of instruction. She felt that, as a special educator in the general

education classroom, her ability to advocate for the needs of her students became stronger. She perceived some benefit in observing the instruction of others, in being able to discuss ideas with others, and developing consistency of instruction when working with others. She observed that her co-teacher had improved her capacity for considering student needs within the general education curriculum. Overall, her perspective was that having a cohesive partnership "is better for all kids." She also observed several positive factors directly related to students such as the comfort and engagement of students with social needs and a feeling of consistency when one teacher had an extended absence. She also noted that a virtual environment provided the type of anonymity to a student that eliminates limitations. She felt that factors for virtual co-teaching success were administrative support and who you were paired with as a co-teacher.

Applied imaginative variation. This particular co-teacher faced several challenges. Being hired after the beginning of the year, for one, but especially when missing key school-based training related to the co-teaching model. This co-teacher's learning curve and late entrance may have presented its own challenge to her partner, especially when there was no previous relationship between them to support the relationship. However, this participant was not without some co-teaching research to help guide her.

This circumstance was rather unique, given that this participant relied on her own research and expert-based knowledge of co-teaching. Due to her missing the school-based training, it could be assumed that such resources gave her the knowledge needed to better understand the role and equity that she should take to advocate for that equity. She also applied what she knew of general, special education collaboration to build a

relationship with her teacher. It might be considered that in fueling her own interest and doing her own research that she became better prepared in what she needed to know about co-teaching on a conceptual level than the school-based training provided. There is also an indication that her face-to-face interactions with her partner supported the relationship building.

Much of this participant's commentary revolved around the overall effectiveness in meeting the needs of students, which matched her perception of the school's culture. She felt that the culture supported what was best for students, which implied using her abilities in co-teaching to provide added student benefit. She was able to look at all parties (i.e., each co-teacher and all students) and view a benefit from the implementation of co-teaching. Student benefit focused both on a social level and academic levels. Some of her collegial commentary (e.g., discussing ideas with others) supported a feel of collegial community that extended beyond her co-teaching partnership. This implied that the larger team efforts and other partnerships within the school have an important role to play in all students' success.

Participant 16. This virtual co-teacher represented general education at the secondary level. Participant 16 reported an above-average amount of virtual teaching experience.

Implementation. This general education teacher was required to co-teach as part of her virtual school position and stated, "It was just something that was assigned." During her time as a virtual teacher, she described different co-teaching partnerships that included a partnership with a general education teacher with special educator support and one with just a special education teacher. She stated that she was not given any choice in

her co-teaching partner(s). She recounts having some professional development at the all-school level on best practices of co-teaching, but felt that it was geared toward the elementary levels that had a slightly different school model.

Roles and relationships. This participant recalled that there were no defined roles within the co-teaching models; however, she explained that she understood the role that special educators were meant to have within a co-teaching partnership and what expertise special educators brought to the relationship. Her partnership did not work well, but if it had, she anticipated the outcomes for the class would have been better if they had worked together to break down the lessons for students.

Reflecting on a former virtual co-teaching experience with another general education teacher, she felt their responsibilities were very equitable, which she outlined as,

> We planned, we sent to the other one, provided suggestions. We both graded, we both made phone calls, and if the one co-teacher was teaching and I was more of a support, then I might make phone calls during class if a kid didn't show up, or pull a kid into a breakout room and give him more support.

The perception that she had about the relationship with another general education teacher was that they developed a good dynamic and worked very well together, yet she described her experience when paired with a special education teacher as "not very good."

This participant's special education partner was not able to help the students with the content, and it developed into a situation where this participant was teaching content to both the students and her co-teaching partner. She elaborated by stating, "With the special education teacher, most of the responsibility fell on me. I did all the planning, all the prep work. I did all of the grading. I did even the modifications of assignments I

[created]." She spoke about having a good relationship with various co-teachers, but with one, being able to get along well in a social context did not translate into them having the same level of work ethic or style, which impacted equity. "I don't even know if you'd have to have the same personality so that you click. You just have to be able to work well together." In addition to the Blackboard Collaborate classroom, she recalled using Google Hangouts and other chat tools as well as Google Docs for collaboration with her co-teachers.

There was a discrepancy in the planning time that she had with special education teachers as opposed to a general education teacher. When discussing the issue with the research focus group she stated, "And one of the things that I tried to do was to get the special ed teacher more involved in [teaching], and like you said, there's never time to prep, even collaborating with a special ed teacher there's never time to be able to do that." One aspect of communication in a virtual setting brought out by this participant was that it was more difficult to reach out to people, whether it was your partner or other colleagues. She explained, "You can email and email and email or IM or call and try to get ahold of them. But, I guess it's not like you can hound them down face-to-face and say 'Hey, I need an answer now.' They can always try to avoid you on the computer."

School culture. When asked about their culture, this participant had a difficult time defining it. She stated, "We're in kind of a transitional period." She continued to explain that there had been turnover in some of their key administrative positions. Coded documents described this virtual school as being supportive of collaboration among colleagues and showed an interest in giving students the opportunity to reach their potential. However, this participant also mentioned that there had been some question of

some of the school's special education practices, even questioning herself if they did everything they needed to be doing at that time for the betterment of the students, but she admitted that it was getting better. She added her perception that the transitional culture "hurt the students" because they were not able to fully benefit from the co-teaching model due to lack of administrative help. She stated, "I think for co-teaching to work, you have to have a lot of collaboration, and you need the time for the collaboration, but right now I don't think our school is in the place where that collaboration can happen."

Successes and failures. This particular participant noted student growth more in relating to her time teaching with another general education teacher, in which she felt a positive, dynamic collaboration that the students reacted to well. Despite that, she related that her time teaching higher-level courses left her with a minimal toolbox of strategies for helping struggling students. She appreciated having a co-teacher that could assist her in approaches to reach those students and more patience as students worked up to her expectations. She felt that it really helped her to build better relationships with students. She observed that having two teachers also helped to temper a situation when one teacher was feeling frustrated. It was appreciated that students' needs or triggers, not easily recognizable to her as a general education teacher, were supported by a teacher with expertise. A failure that she recognized happens with co-teaching was when one of the co-teachers did not take initiative. She said, "It wasn't conducive to the students achieving." She also felt that a lack of supervision contributed to her ineffective co-teaching partnership and added, "And no one really monitors, even if you said something. No one really helped to remediate it, I guess." She faults a lack of communication for her struggles with co-teaching. Although her co-teacher was not communicating, she also

felt that she did not do enough to ask for support and state expectations. Most importantly, her perception of failure was at the school level in not having a well thought out plan before implementation. She felt this led to stress on the co-teachers in a way that impacted students, which she stated was "the worst outcome you can have." Despite some failure in her experiences, she still shared her overall perspective as "I think that if the co-teaching is done in a way that is going to benefit the students, it definitely can help all of the students."

Applied Imaginative variation. This co-teacher's perspective draws upon multiple and very different co-teaching assignments. The rationale was never presented by this participant as anything other than a requirement and did not speak in any way that shows ownership of the school-wide implementation, which aligned with an absence of her input as a co-teacher and the feel that training was not targeting her needs.

This participant's experience of having multiple partnerships throughout the years gave varied perspectives. Proficiency with the content made a big impact on how a co-teaching partner was perceived by this participant. Differences in job responsibilities and time commitments also played a part in the cohesiveness of the partnering. This participant made a direct statement regarding her preference of co-teaching with a general educator, and a triad where this participant worked with one other general education partner and one special education teacher were perceived favorable as well, which implied that the special educator's knowledge was useful, but not above the application of content knowledge.

This co-teacher's perception that her school represented a culture of change, especially one not yet stable enough to provide a foundation for co-teaching, is an

important one. From the perspective of teachers that question the addition of another strategy or balk at collaboration, forcing it onto a foundation that is unstable may irrevocably damage the potential of co-teaching in that school. However, the administrative position of improving the services given to students with IEPs is paramount, but also leaves the question of how stability is developed.

This participant acknowledged the benefit of having two teachers, no matter their specific expertise, in the room and how that can be of benefit to students and teachers during the actual teaching of the class. Despite that, she noted some very specific drawbacks to the collaboration and relationship building that occurred outside of class that comes from not sharing an equal commitment and effort related to the task of co-teaching. Although her perception may be viewed as favoring the effects of having another content teacher as a partner, it is unknown how she would perceive an effective partnership with a special education professional with full school support for planning time.

Composite Textural and Structural Descriptions

Composite descriptions are intended to identify common elements of a specific phenomenon, in this case, co-teaching. Core themes within individual textural descriptions and synthesized focus-group transcripts were integrated below to provide composite textural descriptions, which describe themes of what occurred in virtual co-teaching. Significant codes from the original coding process were reapplied to the individual textural descriptions and synthesized focus-group transcripts and then reduced to those showing repetition across participants. These core themes related to all four of the research sub-questions.

To adhere to Moustakas' (1994) transcendental phenomenology methodology, shown in Figure 3, Imaginative Variation is applied to "reveal possible meanings through utilizing imagination, varying the frames of reference, employing polarities and reversals, and approaching the phenomenon from divergent perspectives, different positions, roles, or functions," (Lin, 2013, p. 472). The process of Imaginative Variation allows the researcher to use the composite textural descriptions to build from context and develop suppositions to create structural descriptions. These descriptions are synthesized to enhance the flow of ideas and are not intended to replace the researcher's discussion in Chapter V.

Implementation. Core themes related to the implementation of virtual co-teaching were significant in their occurrence across participants. Themes addressed were: (a) virtual co-teaching is a school initiative, (b) co-teaching rationale is student needs focused, (c) teams are important in virtual co-teaching, and (d) training in virtual co-teaching is inadequate.

Virtual co-teaching is a school initiative. All of the participants interviewed taught in schools where co-teaching is a school-based initiative, and all (or systematically selected) teachers participated as part of their job. Schools represented were a mixture of full implementation across all core content areas, limited implementation only in areas of ELA and math (some limited to low-level ability groupings), and one that selected only one class within each content area. Most participants stated that co-teaching was a requirement of their position; however, several participants who took part in their school's decision for the use of co-teaching did not feel that sense of being mandated. One participant was not selected to co-teach within their school, but chose to volunteer

and be approved by the administration. Of the 16 study participants, there were no instances of a virtual teacher randomly co-teaching in a school where co-teaching was not implemented.

Co-Teaching rationale is student needs focused. The rationale to implement co-teaching was not consistent, at least on the surface. A majority of the schools implemented co-teaching to improve instruction of the general education curriculum for students with disabilities and student who were at-risk, yet almost all situations had a secondary rationale for the educational benefit of students across the school. Rationale to implement co-teaching included ways to support a very inclusive school model, increasing special educator time with students, requiring fewer classes for students with special needs, and giving students with special needs general curriculum access. However, reasons of mentoring new teachers, handling staffing fluctuations, and balancing large class sizes were also mentioned in a few instances. These differences of rationale correlated with the role of the person(s) who initiated the implementation of the strategy. Special education personnel were the catalyst for managing issues surrounding special education servicing, whereas other school leadership or individual teachers were more likely to initiate co-teaching from a structural, or organizational, mindset.

Teams are important in virtual co-teaching. Eight of the participants experienced co-teaching in triads or teams of professionals, all of which included a special educator. Although there was no real consistency in the positions of multi-person teams, two styles emerged. The first was the partnering of one special educator with multiple-content or grade-level team teachers, which meant co-teaching was limited to only certain days per week. A more frequent co-teaching style was a special education

teacher paired with two general education teachers for one set of students who co-taught from twice a week to daily. These general education teachers either shared the same role or one might have more of a specialty role. These varied models were reportedly chosen due to staffing and school structure as well as compensating for the conflicting school responsibilities of the special educator. They were often targeting a specific group of ability leveled students. Overall, these teams enjoyed the balance of teaching responsibilities between the general education teachers, which left the special education teacher to collaborate to whatever degree they could. Successful co-teaching pairs were still evident in virtual education; however, some pairs were supported by a larger grade level or content teams, especially when working with data.

Training for virtual co-teaching is inadequate. Statements of insufficient training were made in varying degrees by all participants. Most often, participants recollected having a single, school-based professional development (PD) that focused on different co-teaching styles to use. Contributing factors coded from participant data were a lack of resources, unexplained resources, a lack of modeling, unclear expectations, no training with a co-teaching partner(s), training geared to dissimilar school levels, and not enough training. No experiences of on-going co-teaching training throughout the year were specifically shared and only alluded to by one participant. The topic of co-teaching training and preparedness solicited a very frustrated line of commentary such as, “thrown in,” “by the seat of your pants,” “tossed in my lap,” “baptism by fire,” and more directly, “We really needed training.”

The most frequent training related commentary conveyed having “no model” to follow. Many of the teachers acknowledged a crash course in different co-teaching styles

used out there in the brick-and-mortar classrooms. This was far from sufficient in helping co-teachers navigate the real practices and how they should look in the virtual co-teaching world. This did not necessarily phase these virtual teachers, despite their comments, as there was a sense of being used to an "experimental," as one participant called it, condition. There was an acceptance of this trial-and-error method. Even in the focus groups where it was discussed, it concerned them, yet was very expected as it matched a larger sense of virtual schooling culture. This also rang true with a common mention of last-minute decisions to implement co-teaching, which resulted in limited, if any, preparation.

Many participants were exposed to various styles of co-teaching, specifically referencing Marilyn Friend in several participant interviews. Others stated a familiarity with a six-style model, consistent with Marilyn Friend's work, or a very similar five-style model (although not named, likely Dieker and Murawski or other researchers referenced in Chapter II). Participants also did not report the changing of styles (termed models by most participants) to match the students' changing needs or to enhance the daily lesson. Many participants reported that co-teaching was presented to them as a "choose one" model. Often, the partnership defaulted to a support style or a take-turns style that did not necessarily follow any research-based co-teaching practices. Participants reported that this happened for two reported reasons: a lack of training, or a lack of structural support (e.g., not enough time to plan together).

Roles and relationships. Core themes related to the role of one or both co-teachers as well as the building of relationships between partners. Themes included: (a)

acceptance of inequity, (b) the value of a co-teacher is based heavily on content knowledge, and (c) the process of relationship building in the virtual world is slow.

Acceptance of inequity. Co-teaching relationships in the virtual world tend to be characterized as inequitable between special educators and general educators. This characterization comes from a variety of contexts. However, similarities existed. The most significant factor was the sense that equity was not expected. Special educators and general educators alike had more of an expectation of special education co-teachers fulfilling a supportive role, even when paired one-to-one. There were many excerpts that showed evidence of content teachers being responsible for lesson planning as special education teachers made only suggestions. These suggestions were made at planning meetings, but some as only feedback to a shared lesson plan or PowerPoint. Participants often described the roles as not being equally balanced, but still expressed their perception that they had an equitable co-teaching relationship.

Only three participants reported having access to the learning management system (LMS) for the co-taught course. This structural issue, the course being assigned only one partner defaulted grading to the general education teacher as well as other course responsibilities, often led to inequity. The frequently reported responsibilities of special education co-teacher participants were the monitoring of chat conversations, attending to individual requests, and participating in small groups for teaching/re-teaching after the main lesson was presented. Although some stretched outside of the support role to occasionally teach, and in a few cases, consistently instruct station type groups, equity was still not cited as a goal. Through special educator comments confirming their role as the “support person” and general educator’s combination of their value of content

knowledge and empathy for special educator duties outside of co-teaching, it was evident that full equity in virtual co-teaching was not an expectation of the participants.

The value of a co-teacher is based heavily on content knowledge. Content knowledge of a co-teacher was given importance by both an administration and general education co-teachers. A special education teacher's HQT status was highly relevant in pairing them with a general education teacher or triad, especially at the secondary level. At the primary level, it also had importance and was phrased by some as "proficiency" or "comfort" with the subject matter. Many participants indicated the need for special educators at their school to be highly qualified in the assigned content areas, although it was admitted that it was not always possible to match co-teaching partners that way.

It was acknowledged by general educators that special educators have the specific and useful knowledge to offer, yet their ability to understand and teach the content area was highly valuable. General education teachers spoke about content proficiency negatively if paired with a teacher that did not know the content. One participant related the problem of "confusing" the students over misinformation and having to teach their co-teacher the content along with the students. Some felt regular weekly meetings helped clarify any curriculum. General education participants who also experienced being paired with other general education content teachers reflected more favorably over that partnership.

Relationship building is slow. The theme of time in building collegial relationships in a virtual world was discussed by five participants as well as one focus group. Recurring commentary indicates that relationships are "slow" or "takes time" surfaced. This was especially true of the co-teaching participants who were unfamiliar

with their partner(s) prior to co-teaching. Despite a few participants who recalled the convenience of technology in maintaining connections and relationships, it was also the common factor in making relationship building difficult for many. Different aspect of technology-based communication issues were addressed. A lack of ability to observe a person's body language and facial expressions were problematic as co-teachers did not regularly use web camera applications. When discussed in a focus group, some related to not using video being a blessing to keep those negative expressions to ones-self, but moreover, it was an inability to read expression and truly understand what or how something was being said and understood that was problematic. For a few participants, face-to-face professional development opportunities boosted relationship building. Interestingly, some participants who did not mention this difficulty in relationship building reported prior working relationships with their partners or significant face-to-face contacts.

Participants spoke in interviews and focus groups about another factor hindering relationships. They explained that teachers can "hide" in the virtual world. In virtual education, there is not a way to walk down the hall and address a matter with another teacher. Email after email can be sent requesting help or information with no control over whether or not the receiving person responds.

School culture. Core themes depicting school culture are important to the support of virtual co-teaching. Cultural factors may apply to an individual, school, or the larger virtual school culture. Themes included were: (a) virtual co-teaching is a student-focused mission, (b) virtual school is a culture of change, and (c) the cultural struggle between general education and special education.

Virtual co-teaching is a student focused mission. All participants in this study connected the implementation of co-teaching in the virtual world to a need for improving educational circumstances for students. Most were a direct representation of meeting the needs of students with disabilities. Not all of these instances were specifically related to special education servicing, but they related to meeting individual special education needs within the classroom by helping teachers to target instruction through small groups, monitoring student progress, monitoring session attendance to immediately contact absent students, providing feedback, scaffolding instruction, and providing accommodations and modifications. Participants connected strongly to the idea that an additional person, (i.e., "hands," "eyes," etc.) contributed to their effectiveness as a teacher. One teacher specifically pointed out that with a co-teacher, she was able to implement instructional strategies she might not otherwise try in a virtual setting, like a debate-style activity, which ultimately benefits all of the students.

Virtual school is a culture of change. Throughout numerous individual interviews and three of four participant focus groups, participants spoke about a characteristic of constant change that seemed to be relevant to any model of virtual school. These changes related to many aspects of teaching such as student schedules, turnover of administrative positions, allocation of teaching staff, structural organization, implementation of school initiatives, teaching expectations and duties, and training styles or opportunities.

There was a strong acknowledgment of this culture by participants, but not any specific reasoning, other than a very resounding notion of "trial and error" being the anticipated norm. Within the focus groups, there was almost a sense of camaraderie

around the topic; this mutual understanding was easily communicated among them. It was clear that this culture had an impact on the implementation of co-teaching across their virtual settings. One participant spoke individually and to the group about her school wanting to make improvements to their co-teaching model, but would not do so in the following year for fear of rebuke within the teaching staff. Many participants expressed an undesirable, yet somewhat anticipated, last-minute expectation to implement co-teaching. Others spoke about their co-teaching partnerships being spontaneously changed during the year and having to adjust to new partnerships. Although change of administrative positions was generally viewed as negative, it was positive to some who experienced better support for co-teaching, especially when new administrators had backgrounds in virtual teaching or special education.

The relatively new presence of virtual education along with the continuous evolution of technology and changing student populations would do little to deter a "trial-and-error" or "experimental" way of functioning. Participants were expressing this reality through their discussion of the implementation of co-teaching, realizing there is no paved road. "No model" exists for how things are supposed to work in the virtual world, and brick-and-mortar processes were somewhat lost in translation.

The huge variability in the ways that co-teaching was implemented among the participants was an obvious sign that supported no real existence of a virtual co-teaching model exists. Several even reported the differences in how co-teaching was implemented within the same school at different school levels or even at individual grade levels. This most often happened when there was little guidance on how to implement co-teaching

and procedures were left up to co-teaching pairs or teams. A lack of understanding about what co-teaching should look like in the virtual world was often conveyed by participants.

Cultural struggle between general education and special education. Given the existing co-teaching literature, it is no surprise that there was some conversation generated about difficulties between general education and special education in virtual schools. Organizationally, some schools reported that they have been very separated within the school. Structures for working with students and training between co-teachers has been very departmentalized, and hurdles continue even with the implementation of co-teaching. Many of the special education participants spoke about their need for understanding and having access to what students were doing in their general education classrooms. Despite reports of school cultures that are very collaborative and open to students with disabilities, there appeared a breakdown in the sharing of information. Co-teaching had reportedly begun to open those doors for full special education and general education collaboration between individuals or teams, although it is still uncertain whether overall school structures and practices (such as teacher account access or training opportunities) had sufficiently changed to align with collaboration across departments.

Other study participants related more to individuals and the resistance of some to work with special education staff or students. Despite this fairly consistent mention of resistance, the sentiment was not overly negative and was related to as more of an expected hurdle or process. Within one focus group, it was discussed more thoroughly in a context of weeding out individuals described as veteran or old-school teachers that had a more teacher-centered approach to learning. Participants implied that this needed to

happen in order to make co-teaching effective and avoid the current circumstance of partner "blow-ups" and having to work around using certain teachers for co-teaching. It is worth noting that although participants sometimes arbitrarily portrayed the length of time someone has taught as being "old-school," this mentality was not represented in the participants of this study as several participants with many years of teaching demonstrated very collaborative, student-centered thinking.

Successes and failures. Commentary related to the successes and failures of virtual co-teaching were numerous; however, the core themes that emerged focused heavily on positive outcomes of co-teaching. Themes relating to the successes of virtual co-teaching included: (a) student growth, (b) co-teaching yields an improvement in instruction, and (c) co-teaching improves special education effectiveness.

Student growth. Many of the participants of this study focused on the aspect of student growth when asked about co-teaching successes. Several participants expressed that data were being collected on their student outcomes, specifically course passing rates and benchmark assessments, to be discussed within teams and schools. One specified that passing rates were better by 20% in comparison to previous classes that were not co-taught. She attributed that to improvements in attendance. Another participant shared her perspectives on benchmark data being collected that showed more than a year's growth in a year's time of every single student, closing some significant gaps for some. She was adamant that having additional teachers made it possible to use instructional strategies that worked and summarized, "It happened because of the co-teaching." Other participants could not quantify the data, but had observations of things like improved student attendance (for the co-taught class and the special education help sessions) and

student engagement during class time. The improvement in attendance deserves some explanation as it might be assumed that students attend more because they enjoy the class more. Although that might be true for some, there is a virtual-specific practice of taking attendance and at that moment, physically calling a student to remind or perhaps persuade students to get online and get to class. That being said, it is not very practical for a teacher who is doing instruction to make that phone call, but a co-teacher who is equally connected to the class and the student has the ability to reach out.

Co-teaching yields an improvement in instruction. Special education and general education participants, alike, shared during the individual interviews about the impact co-teaching has had on their instructional abilities. As a whole, participants remarked about the opportunity to watch other teachers teach and what was gained from seeing new styles or strategies. Many implied that there were no other teaching contexts in which that they had opportunities to observe. Special education teachers often stated that they had an improved understanding of the curriculum by observing the general educators, as experts in the content, provide instruction to the students.

General education teachers remarked about their ability to gain understandings and help from special education teachers. Due to either the nature of the disabilities that a general education teacher was presented within her classroom or the lack of experience with working with students with disabilities, general education teachers acknowledged their appreciation of someone to turn to for assistance. One teacher commonly taught very high-level courses and admitted that her ”toolbox” of strategies for teaching an inclusive course was rather sparse. Other teachers wanted support in how to best support students with a particular disability needs, such as autism spectrum disorder (ASD).

Even general education teachers with rather strained co-teaching relationships tended to see the value of gaining regular suggestions and input from their special education co-teachers, although it did not necessarily outweigh the value put on content knowledge.

Co-teaching improves special education effectiveness. Although nearly all participants remarked about their growth as co-teaching educators, special education co-teachers had more comments related to their ability to extend that knowledge to working with students outside of class. An understanding of the curriculum and the ability to be instructionally consistent with the general educator(s) was very beneficial when working with students with special needs. Within one focus group, discussion participants equated teaching students one-on-one or in small groups without knowing what they experienced in the general education class to trying to teach students about a novel that they have never read. This often tied to issues of cultural separateness between special and general education departments. Special educators commented about their need for greater knowledge about general education expectations of their students. Even those participants in schools without this cultural issue made comments about their improved ability to really stay consistent with the general education content and providing better help to students they were servicing.

Special education teachers also shared aspects to co-teaching that helped with servicing students' IEP goals. Most of these comments related to the observance of students on their caseload in the general education setting. Specific elements included that it was a much more authentic way of observing progress toward goals, provided the

ability to observe social behavior, allowed observation of how students reacted to different teaching styles or approaches, and helped gain an understanding of student's expectations of their teachers.

Meeting the needs of students with IEPs was implied as justification for the effectiveness of co-teaching, even with a lack of equity between co-teaching partners. This data provided insight that any involvement in the general education virtual classroom should not be underrated. It is unclear if this impact is specific to the context of virtual education; however, it can be determined from the data collected that special educator access to general education classrooms in a virtual school is different and co-teaching has facilitated access that traditional schools may have without co-teaching. Equity provides many other benefits that should not be overlooked, but improvement in special education servicing was the desired outcome for some participant schools.

Failures across research questions. Three core themes relating to failures were not as evident just within the questions specifically designed for the fourth research question, but were evident when looking across all data. The failures mentioned were often theoretical in nature and too few to emerge as a theme, yet three items are significant because of their appearance across research questions. The effect of change, style and personality, and content knowledge were discussed as failures by participants as well as other ways connected to the effectiveness of virtual co-teaching.

As already discussed, the culture of change in the virtual schools makes a significant impact on everything related to virtual learning, including co-teaching. The disruption of co-teaching partnerships and the lack of school planning for co-teaching directly impedes the preparation, training, and relationship building, creating a critical

problem with the effectiveness of co-teaching. For one participant, change ended her co-teaching experience without warning. Despite the failures, there were several situations recounted by participants in which the existence of co-teaching was a factor providing stability for students when losing a teacher (temporarily or permanently) for any particular reason as the remaining co-teacher provided familiarity and structure through the change.

Similarities in style and personality were mentioned in several ways. Most reflected on the *what if* scenario of being paired or teamed with an unsuitable match and all of the problematic issues that would arise. Some based this on other pairs within their school who were very challenged in this way. Others had past experiences with poor matches, and although resolution only happened for some through communication and relationship building, several cited that they were just too different in style or work ethic to really make co-teaching functional. Personality was mentioned mostly by those considering the hypothetical situations, which was notable as one participant found that even a social friend did not make an effective co-teaching partner. She felt that having work styles in common were far more important than social personality.

Although previously discussed, content knowledge played a part not only in the pairing of co-teachers and delegation of role and responsibilities, but it also represented a failure for several participants. Lacking content knowledge did not present itself across the majority of participants as a failure of co-teaching, yet the degree that it was mentioned across research questions as a factor in virtual co-teaching and the potential it had for limiting co-teaching relationships signified its importance. Statements of failure provided by participants related to the effect on students. Co-teachers without content

knowledge presented a risk of confusing students on concepts and limited the content teacher's instructional effectiveness. It also was perceived as an undue burden on the content teachers to prepare the co-teacher, which ultimately strained the relationship.

Table 6 summarizes the core themes that emerged through composite descriptions discussed in this section. Core themes were analyzed using the four research questions. Together, they provided an understanding of the experience of virtual co-teaching across participants, and allowed the Essence of virtual co-teaching to emerge.

Table 6

Summary of Core Themes Emerging from Composite Descriptions

Research Question	Core Theme
Q1 How do virtual co-teachers describe their experiences related to implementation of the co-teaching strategy	• Virtual co-teaching is a school initiative • Co-teaching rationale is student needs focuse. • Teams are important in virtual co-teaching • Training in virtual co-teaching is inadequate
Q2 How do virtual co-teachers describe their co-teaching roles and relationships?	• Acceptance of inequity • The value of a co-teacher is based heavily on content knowledge • The process of relationship building in the virtual world is slow
Q3 How do virtual co-teachers describe their experiences involving school culture (e.g., school values and organizational structures)?	• Virtual co-teaching is a student-focused mission • Virtual school is a culture of change • The cultural struggle between general education and special education
Q4 How do virtual teachers describe their experiences related to feelings of success or failure in co-teaching?	• Student growth • Co-teaching yields an improvement in instruction • Co-teaching improves special education effectiveness • The effect of change, style and personality, and content knowledge all effected success

Essence of Virtual Co-Teaching

The essence of a phenomenon is captured through conceptualizing the composite descriptions of participants into the experience one would have as a virtual co-teacher. The essence of virtual co-teaching, or a collective vision of what and how a virtual co-teacher would experience, is one with many characteristics. This study examined the phenomenon through four different research sub-questions. The essence of virtual co-teaching serves to answer each of the following questions.

Research Question 1

Q1 How do virtual co-teachers describe their experiences related to implementation of the co-teaching strategy?

Implementation is inspired by the collective school group, many times to meet the direct needs of students with disabilities or the needs of all students, but structural school model needs often serve as secondary influences. The partnership is one that is "assigned" to a special educator and one or two general educators. In a triad, one general educator might have a more specialized role. The special educator's assignment is selected to meet requirements of having content proficiency whenever possible, even at the primary level. Special educator skill sets are highly acknowledged, but seen as inferior in co-teaching value to content knowledge. Co-teachers are often not previously known to their virtual co-teaching partner, and if they are, it has typically developed through technology. Co-teaching partners do well to establish a partnership if they have a former working relationship, but without that, the relationship takes time to cultivate. Virtual co-teachers often have one learning opportunity in the form of professional development(PD) that is more informational and less collaboratively based. Co-teaching

partners are then sent to determine what style (model, as referred to by many participants) of co-teaching will work for them in a synchronous setting.

Research Question 2

Q2 How do virtual co-teachers describe their co-teaching roles and relationships?

The process of collaboration between virtual co-teachers requires many rounds of trial and error in an attempt to find a model of making it work in a virtual world when no model was given. The co-teachers continue adapting their roles as other school changes impact their strategy. There are instances of teachers using station or parallel group formats, but most pairs or teams will use a method where one teacher is in control of the whole group instruction and one or two teachers support the instruction by monitoring, answering questions, interacting with small groups during breakout room times, or even reteaching. Although some do plan lessons together, most use a designated co-teaching planning time to share and discuss pre-written plans relating to the needs of the students. They often take time after their synchronous class to stay and have co-teaching discussions.

There is some sense of acceptance in the lack of equity felt in virtual co-teaching partnerships that is an understanding of each person having their job-related responsibilities that are different from their co-teacher, usually extending outside of the co-teaching class. Most virtual co-teaching relationships are not a share-everything relationship, but the balance of equity is still fragile and uncertain, especially between co-teachers where one is not content proficient. Creating time for consistent communication helps the co-teaching strategy be effective in the virtual setting.

Virtual co-teachers attempt to have collaboration meetings, and if at all possible, a weekly set time in which communication happens through time within the virtual classroom environment. Virtual co-teachers also enhance collaboration through document-sharing tools such as SharePoint or Google Docs. Communication also regularly happens through the use of chat tools like Linq, which is a built-in feature or Google Hangouts.

Research Question 3

Q3 How do virtual co-teachers describe their experiences involving school culture (e.g., school values and organizational structures)?

Virtual co-teachers experience their schools as a culture of change. Frequent changes of leadership, initiatives, procedures, and schedules affect the implementation of and partnership within co-teaching. Overall, virtual schools are positively perceived by co-teachers as very supportive of the needs of all students, specifically identifying those who are at-risk and with disabilities. Mid-level and top-level school administrators, especially those with previous virtual teaching backgrounds and specialty knowledge areas, who are placed in key leadership positions make positive impacts on the use of co-teaching in their schools. Despite this, unexpected and untimely changes in administration, staffing, or schedules present a challenge to co-teaching that means continuous adjustment. Virtual teachers are willing to continue using the strategy, yet needed adjustments of how it is implemented are viewed as one more change impacting the overall climate.

Research Question 4

Q4 How do virtual teachers describe their experiences related to feelings of success or failure in co-teaching?

Virtual co-teaching produces positive effects for teachers and students alike, even when the co-teaching is not ideal. Teachers make enhancements to their teaching by watching others instruct. Special education teachers benefit from seeing their students in a general setting to better understand the content and instructional strategies that general education teachers are providing, which is most advantageous when working with students in small groups outside of class. General education teachers benefit from gaining better understandings about student needs related to disability, the ability to use strategies too difficult to manage with only one teacher, and providing students a different perspective on the concept.

Students also benefit by having another teacher in the virtual classroom to assist them, having more than one teaching style or personality in the classroom to connect to, feeling a sense of community, and having continuity between teachers that carries into individual help sessions. Virtual co-teachers who track data show benefits to student academic growth, and others perceive growth through an increase in attendance and engagement of all students.

According to this data, many factors can impact the effectiveness of co-teaching; this study found the failure of co-teaching results from one of several issues that have a more pervasive effect. This first is when one teacher, typically the special education partner, does not have the right content knowledge proficiency, which impacts both relationship building and instructional effectiveness within the partnership. The second is a difference in style or personality of co-teachers, which inhibits the ability to improve equity and to focus on student needs. Third, administrative or staff changes can dismantle the support or the partnership altogether. As discussed by a few participants,

co-teaching may or may not continue under these circumstances, but co-teachers often look for corrective measures.

Summary

Through the compiled units of meaning into individual textural descriptions, we gained insight into the many different experiences that participants in this study had as individual virtual co-teachers. However, using reduction and imaginative variation, the themes that help to define what universal experiences are present in virtual co-teaching emerged.

Virtual co-teaching is a school-based initiative focused on meeting students' needs. Virtual co-teachers usually work in teams of more than two teachers, but they often feel unprepared due to insufficient training and, at times, neglect to use best practices. Co-teachers don't have an expectation of equity between partners in their classroom responsibilities; however, lacking content knowledge is problematic to a relationship and changes the value of that individual as a co-teacher. Building a co-teaching relationship is very important to the process, but it takes time and effort in a virtual world without significant face-to-face time. Adequate time to plan together or prior working relationships can help bridge the gap for both of these issues.

The culture within the school can also play an important part in support, but virtual schools are often faced with a culture of change, giving less stability to the strategy of co-teaching. Some balance can be found through the intended mission of schools to use co-teaching as a way to improve instruction and to do what is needed to help students. The separation between special education and general education

departments still exists in varying degrees, although it is improving as co-teaching is opening doors for more collaboration.

Despite some failures noted as a result of the constant change, struggle with content knowledge, or issues with differing styles or personalities, overall benefits were emphasized by participants. Co-teachers reported improved academic achievement and course passing rates attributed to increased attendance. They also perceived an improvement in general instruction from the sharing of ideas and having more help in the classroom to attend to individual needs and implement more dynamic learning activities. Special educators reported an improved ability to service students by observing students working with the general education curriculum in a typical environment. They also emphasized the benefit of learning more about the curriculum, strategies, and expectations general education teachers use in those classrooms.

CHAPTER V

DISCUSSION AND CONCLUSIONS

Discussion of the Core Themes

The following discussion ties important findings in the composite textural and structural description, exemplified within the essence of co-teaching in virtual education, to the body of literature represented in Chapter II. Through this discussion, we can begin to see the general understanding of benefits, challenges, and effects of virtual co-teaching and how it aligns with these well-researched elements in the traditional, brick-and-mortar setting. These discussions are organized in relation to sub-question topics, while overlap between the topics is becoming more apparent. Although this transcendental phenomenology focuses on the essence derived from composite experiences, there is also time spent discussing some unique findings that offer a potential for implications and future research. Core themes in the areas of implementation, roles and relationships, school culture, and success and failures are discussed in how they impact the success of virtual co-teaching.

Implementation

A systematic push for virtual co-teaching represents acknowledgments by participants teaching in virtual environments where this inclusive strategy was implemented school-wide. In data produced by a pilot study (Ridings, 2016), virtual teachers rated their frequency of use of various strategies in which co-teaching was

indicated as used the least, yet positively mentioned in the open-ended commentary. An initial evaluation might consider these findings in opposition, yet perhaps a better supposition is that taken a year before, the pilot data (Ridings, 2016) showed the initial emergence of virtual co-teaching. This possibility is further supported by many co-teaching participants reporting this as their first year of virtual teaching. It was not anticipated that virtual schools would be so systematic in the use of this strategy and as a result, more importance is placed on the continued research of virtual co-teaching.

Virtual schools are progressing to implement co-teaching as a method of inclusion. Despite literature, such as Rhim and Kowal (2008) stating that students with special needs would be difficult to service in the virtual classroom, virtual schools are applying inclusive strategies. Participants, in almost all circumstances, spoke about reaching the needs of their students, especially those whose students were inclusively placed without an effective method to assist them with accessing the content. State-based data presented in Chapter II (GaDOE, 2015; OHE, 2015) confirmed enrollment of those with low-incidence disabilities. Although not all of the participants mentioned this population, some noted enrollment in co-teaching classrooms to give students access to the general education curriculum to enable receipt of a diploma over a completion certificate. Regardless of the level of disability, virtual schools are using co-teaching to increase inclusion. All participants implied that they would continue virtual co-teaching as a viable option for students, especially if their virtual school was able to increase the support for the strategy.

The other core theme related to implementation and highlighted the need for effective training on the use of co-teaching in the virtual environment. Reflecting on the

meta-analysis by Scruggs et al. (2007), training was identified in a significant number of studies as a key component of successful co-teaching. In general, training for educating students with disabilities in virtual education is not occurring (Repetto et al., 2010), and participants in this study emphasized the need for co-teaching training. Participants felt they received very little, if any, preparation for their co-teaching experience. Those that had some training reported no opportunities to continue training, and many were not training with their co-teaching partner. The data from this study identified three major issues: (a) a lack of appropriate training is available for virtual schools, (b) training needs to include advance preparation and continuous development, and (c) co-teaching partner(s) need to train together.

What an appropriate training looks like for virtual education is still a bit vague. However, two points seem to make a difference. The first is the research expertise of the trainer. Taking practitioner materials and applying them to a different context would need an extensive knowledge, not of the practitioner information, but of the research base itself. Trainers need a thorough understanding of the research-based strategy to know what elements are fundamental to co-teaching and evaluate what might translate to a virtual environment. The other point needed is a trainer's ability to explain the strategy in context by having a working understanding of the school's climate and structure including model, staffing arrangements, administration's commitment to co-teaching, scheduling requirements, and rationale. Rice and Dawley (2009) made the point that co-teaching is dependent on the unique contexts of its environment. It is clear that a direct application of brick-and-mortar co-teaching would not be effective and a trainer would need to know how the research can be better applied to the context of virtual schools.

One example combining both points is that numerous participants mentioned practitioner-based materials used in training within their schools. Not much of the training content or resources could be recalled by participants, but often what was remembered was the five-style or six-style models for implementing co-teaching. A participant's aforementioned directive of just "pick-one" that works for you does not align with the research of any of the most popular materials. Research by Marilyn Friend (Cook & Friend, 1995) emphasized that the choice in style is not just for the sake of the co-teachers, but chosen to support the needs of the students and the content. This is consistent with any teaching strategy we use in education. As lessons change, altering individual student needs with them, the style should be matched to align. Research supports that co-teaching will fail with the consistent use of One Leads, One Supports. There was no evidence within this study that virtual education was unique in this factor of needing this versatility of style. However, participant commentary implicates that co-teachers would need clear examples of exactly what each looked like in a virtual synchronous setting like Blackboard.

Successful training on the strategy of co-teaching is not a single professional development session, but training that cultivates co-teaching planning and relationships prior to and during the co-teaching experience. Literature supports the structure of co-teaching training to include advanced preparation. Tremblay (2013) noted this as an important factor in building a learning community, which we can also apply to building partnerships. Co-teaching models, represented in Figure 2, also emphasize the need for preparation in advance of training for reasons connected with goal setting with co-teaching partners and global planning for differentiated learning. The continued "last-

minute" application of co-teaching, recounted by participants, will impact effectiveness and the ability to withstand time and changes within the model.

Last, it is imperative that co-teaching partners train together. Results of a study by Damore and Murray (2008) gave strong implications that teaching information and not the application of co-teaching concepts would render the training ineffective. Participants spoke to their lack of understanding of what co-teaching was supposed to look like or that there was "no model" to follow. McKenzie (2009) reminded us that dissemination of information without guided application is ineffective. Without training in strategies that allow participants to explore the application alongside their partner, the ability to establish effective roles and responsibilities will be difficult and jeopardizes a functional partnership.

The essence of virtual co-teaching provides us with a definitive answer to the research question of how virtual co-teachers describe the implementation of co-teaching through the common experiences taken from both the perspective of a special educator and a general educator. This discussion allows an opportunity for examination of those common experiences about what the research base offers and new information learned. This research shows that virtual education is embarking on a systematic exploration of the use of co-teaching to serve the needs of varied students, including those with disabilities. Existing co-teaching research is clear about the need for early, on-going, and collaborative co-teaching training, but the virtual environment must address how this training can be implemented and the need for virtual-specific modeling of styles and structural organizations.

Roles and Relationships

Roles and relationships, which are key to co-teaching, need some careful considerations when planning for implementation of virtual co-teaching. Research defines that there are common pitfalls that apply to the development of roles and relationships between partners, but additional elements of communication can be problematic, even with the convenience of technology. Care must be taken to address well-researched understandings and also to invest in the development of strategies to combat issues experienced in the virtual world. This discussion will focus on core theme related ideas on: (a) the use of triad or team configurations, (b) the importance of content expertise, (c) issues of equitability, and (d) building virtual co-teaching relationships.

Community building could be seen through participant data as something that was being promoted in many virtual schools. Although it could have easily been discussed as an aspect of implementation, the effect of teams in virtual education makes a significant impact on how roles and relationships for virtual co-teaching are impacted. The use of triads or teams in the execution of co-teaching is out of alignment with the whole concept of “co” teaching, yet still maintains a theoretical base explored in Chapter II developed by Lave and Wenger (1991) as community of practice. Pierson and Howell’s (2013) study showed a positive link between this theory and the practice of co-teaching; however, it applied more to the concept of training versus the configuration of classroom teams. Perhaps this factor on its own is not unique to virtual education, yet many virtual schools in this study are determining this to be a more feasible way for them to collaborate. The teaming of two general educators and a special educator still preserves the idea of shared expertise and elements of the definition of co-teaching. The examples

shown by participants in this study draw attention to the balance of equity being different in some of the triads, although it is unclear if it is an effect of other problems and not the triad configuration itself. Time and attention would need to be devoted to consider what equitable roles and what division of responsibilities would be effective. It is worth investigation, given the limitations of staffing, reality of teaching demands, and the very differing workload responsibilities beyond the classroom that special educators have, although these circumstances are present in brick-and-mortar settings as well. An equally shared partnership between two co-teachers may be possible, but potential benefits of a triad or team should be considered.

The factor of content expertise for special education teachers has been represented strongly by virtual co-teaching participants in this study. Content knowledge is so much of consideration that participants often reported their co-teaching relationships being determined largely, if not completely, on the basis of state-approved content proficiency. This might seem reasonable for upper-level high school courses, as participants in a focus group and other interviews noted the struggle of competency there, but highly qualified teacher (HQT) was used to configure partnerships at many levels. Even in primary grades, proficiency, and at the very least, a level of comfort, was the criteria. Criticisms that teaching style was not taken into account to match them with a co-teacher were evident, but comments and speculation from general education teachers in this study were critical when paired with someone that did not know the content. Not only does this create difficulty in fostering relationships, but the intent of co-teaching is for a special education partner to be recognized for their own expertise that they can bring to the classroom.

It is an unrealistic expectation for special educators to have content expertise on top of their own specialized knowledge (Dieker & Murawski, 2003). Given the expectation from virtual leadership as well as teachers, it may maintain as the status-quo; however, efforts should still be made to increase the value of the special education role. Dieker and Murawski (2003) discussed the need to actually train teachers to recognize these strengths and how to apply them to the relationship. Researchers indicated that a lack of content knowledge creates an impact on equity and that special educators are accepted "for as much as they resemble the general educator" (Scruggs et al., 2007). Although the issue of subordination of the special education teacher is not unique to virtual education, the context of HQT as an expectation brings it to a new level in the virtual schools. The commentary by participants acknowledges special knowledge as useful, but values content more.

The reality of a virtual environment may play a factor in this advanced need for content knowledge, but is still largely unknown. A synchronous classroom within a technological platform has both whole-group and small-group potential. However monitoring of groups would be quite different. In addition, special education virtual teachers often deliver additional help outside of class without the content teacher. General education teachers spoke about the impact of being paired with someone without the content knowledge and discussed it as being a burden in both having to simultaneously instruct the co-teacher along with the students and not feeling confident with the instruction that co-teachers were giving to students in groups. They also felt it was an impact on equity because developing lessons and grading had to fall largely on

the general education teacher. The structure of time and space in the virtual world may impact the collaboration time needed, which may not allow for a knowledge gap.

One element of roles and relationships that seems unique to the virtual world is the amount of time needed to develop co-teaching relationships. Specifically, participants have said that relationships take time or are ”slow.” Given that no virtual school-specific research exists on this topic, it can only be surmised from this data that the structure of time and space in a virtual setting also impacts relationship building. Participants talk about technology being convenient, but elements of human communication that involve body language and facial expression are missed. This was actually seen as a benefit in a bad partnership as it could mask the negative facial expressions; but more to the point, it does not tell how clear, or with what demeanor, one’s ideas are received. It ultimately heightens the learning curve of getting to know someone. The idea that a relationship built through technology takes more time was further supported by the fact that many participants who did not mention this problem had previous working relationships with their partner and/or had many more opportunities to see each other face-to-face. This would imply that face-to-face training or working opportunities, communication using more video applications, pairing those who have previously worked together, or providing more time together through training or planning are needed to build co-teaching partnerships in a functional timeframe. Solid co-teaching relationships are foundational to the effectiveness of co-teaching, and strategies to improve the time it takes to build a relationship between virtual co-teachers are needed.

Issues of equity between partners is another highly notable factor for the success of virtual co-teaching. Although discussed in terms of training, styles of co-teaching have an impact on how the workload and responsibilities are distributed. The style of One Lead, One Support is the least favorable to producing partnership equity. Reliance on this style is discussed in the literature as problematic for traditional (Solis et al., 2012). Perhaps this should be even more of a concern for the virtual setting as special education participants voiced more of an acceptance of their role as support. The link between training and equity is strong and suggests equity would improve through a more enhanced application-based training of the co-teaching styles.

The need for regular planning time was evident for many co-teaching participants; without it, special educators relegated to a very subordinate role and some teams defaulted to a take-turns method which does not support partnership at all. Co-teaching literature offers that this supportive style may be used by some as an initial phase of co-teaching; however, its on-going use perpetuates the dominant and supportive roles (Scruggs et al., 2007). In the context of virtual education, there was no discussion of varying styles in the future.

Many participants, even general educators, spoke about the workload of special educators outside of class. General job responsibilities give little opportunity, or sense of obligation, for balance with their partner. Participants spoke about co-teaching roles mirroring their employment roles in the fact that they are very different. That separation of responsibility comes into the co-teaching relationship. A few general education participants empathetically discussed how the outside expectations put on special educators limits their expectations of them as co-teachers. Most special educators

equally limited their role in co-teaching, although it was a mixed sense of wanting to maintain their existing parameters and being open to equitability if workloads were sustainable. Does limited training and understanding of co-teaching limit the strategy to being an enhanced consultative practice that is, at least in part, confined within the space of the virtual classroom? Consulting and occupying the same space does not equate to co-teaching, although discussed within the topic of successes, there may still be a benefit. Regardless, the literature is clear that without equitability, co-teaching will fail.

The essence of virtual co-teaching answers the question of how special education and general education teachers describe their roles and relationships. In this discussion, elements within the essence (such as equity between co-teachers, content valuation, co-planning time, and workload responsibilities of special education teachers) strongly aligned with the existing literature and suggested approaches. Collaborative teaming within co-teaching and slower relationship building were unique issues to virtual co-teaching that will require more intensive collaboration opportunities and more exploration of possible roles.

School Culture

As mentioned in previous sections, participants often described their culture throughout interviews and focus groups as, coined by this researcher, a culture of change. This sense of a culture of change comes from a variety of influences as participants explained many contexts in which this change was observed. Descriptions encompassed turnover in leadership, policies and procedures, scheduling, teaching expectations, and implementation of new strategies or programs. The camaraderie mentioned within the composite structural description surrounding the topic of change was quite interesting,

yet does not prove to be that useful as it does nothing to change the effect, only demonstrate its pervasiveness. Change is an expectation on their part, nothing more. All of these factors impact the implementation of co-teaching and its ability to sustain over time. It is difficult to say whether virtual co-teaching can meet its true potential under such variable conditions.

The effects of a culture of change can be seen on the strategy of virtual co-teaching. All participants in this study reported a range from one to four years since initial co-teaching implementation in their school had taken place, and no one felt that they had a solid model. The phrase "trial and error" resonated through many of the interviews when discussing participant's context of co-teaching. The concept of trying something out to see if it works, and trying again, was very consistent. Virtual school educators are most often relying on each other to find elements that do work and teach each other through professional development. One of the key elements to co-teaching is having a foundation to build on; however, if the foundation is ever-changing, can co-teaching ever be implemented effectively? The very team-oriented approach that many virtual schools are using for co-teaching might indicate a potential for co-teaching to provide a foundation for the virtual school model.

It is difficult to say whether an effective virtual-specific model could be developed that would meet the contexts of such organizationally different schools. One common factor between all of the participants was that co-teaching happens synchronously in a learning management system (LMS) platform, specifically Blackboard, which could provide some basis for modeling styles in pairs or triads, yet other elements of co-teaching would have to be determined.

Another effect of change related to co-teaching is the support co-teaching and co-teachers receive from administration. Administrative support plays a key role in co-teaching by determining partnering, scheduling, available co-planning time, and resources (Friend et al., 2010). Although mentioned by participants, in many cases reported like a contextual detail, the administration did not surface as a significant core theme in the composite and structural descriptions. It was a less-quantified factor of transition that leads to change, perhaps because there were multiple levels of administration that impacted teaching initiatives in different ways. Several participants did mention the enhanced co-teaching support that came from administrators with certain backgrounds, such as special education or classroom-level virtual teaching.

One stabilizing factor of virtual school culture may be that all but one participant described culture as being very student focused. When enhanced with the triangulation of school documents, data painted a foundational idea that student needs are the highest priority. This was not always directed at students with disabilities, but many times that population was addressed specifically. There was also wording that depicted an inclusive feel, mentioning the growth of all students. Virtual schools have historically emphasized their ability to individualize curriculum, although that was not as evident in this data as statements focused more on prioritizing access to grade-level curriculum.

This school-wide inclusive mentality of servicing students with disabilities is met with some continued needs for building collaboration between special education and general education, which is also true of traditional settings. Pierson and Howell (2013) spoke of the impact of individual teachers resistive to this type of collaboration and advises schools to stay the course of co-teaching implementation. Participants reported

being faced with “territorial” and “old-school” thinking and implied that small changes are used to combat those with an uncollaborative stance, but none reported any wavering to the overall plan of using the co-teaching strategy. This disposition that Hudson and Glomb (1997) described as territorial or independent can harm co-teaching if virtual schools do not consider countermeasures. The sharing of power is an element that allows co-teaching to endure (Damore & Murray, 2008), and if virtual schools want to strengthen this possibility, they must safeguard co-teaching by supporting partnerships, providing development, and having a supportive administration. These three elements are what is needed for a community of practice to support co-teaching.

Successes and Failures in Co-Teaching

There are improvements to be made in the implementation of virtual school co-teaching. However, indications of benefit for both students and teachers are still visible. Participants reported an increase in academics for students in co-taught classrooms. A few participants were collecting data to show improvements in pass rates and growth on benchmark assessments. Others reported this data more anecdotally, but felt strongly about the improvements. Many attributed the growth to merely improved attendance. The pilot study also made connections between the improvement of attendance and success in a virtual school (Ridings, 2016). Given the challenges with attendance that virtual education faces, strategies that improve it are valuable.

It is clear that virtual schools are expressing the option to include students with low-incidence disabilities in the general education classroom. Although participants acknowledged many of those decisions being driven by the parents and focused around obtaining a diploma versus completion, there may continue to be growth in this demand.

One participant saw the need to offer support to a self-contained class taught by a general education content teacher who needed help knowing how to navigate appropriate modifications. Co-teaching was implemented to give special education support to the teacher very soon after the beginning of the class. This may have been an example of looking for ways to successfully bridge the gap and may eventually progress to more inclusion classes. Strogilos and Avramidis (2016) showed positive outcomes for students with low-incidence disabilities in co-taught brick-and-mortar classrooms, so there is a potential to continue moving toward inclusive services for these students in the virtual schools.

Solis et al. (2012) defined the success of co-teaching in a traditional setting by the types and amount of instructional changes. The consideration is to what extent the general education teacher makes recommended changes and how collaborative the instruction becomes. Co-teaching participants spoke to the ability to make such recommendations when going over the lesson plans with the general education teachers. How instruction was impacted is a bit difficult to determine, but evidence that we do have is that even in a supportive role, special education co-teachers reported working with varied groups of students and reteaching to any students that needed it. It was implied that general education teachers were also working with groups of students and one participant, in specific, stated using strategies that she could not otherwise use without co-teaching. The use of break-out rooms for small-group activities or instruction, in collaboration with their co-teachers, was common. Hoadley (2012) reminded us that student-directed teaching also supports community of practice, reinforcing the foundation for co-teaching.

In addition to the implication that general education co-teachers are using the knowledge they gain from their co-teaching partner, they spoke of other benefits to their teaching. Participants mentioned various ways of improving their teaching through co-teaching. Being able to watch others teach is a benefit not often found in teaching. Typically, the confines of your own classroom preclude you from observing the teaching of others. Kloo and Zigmond (2008) went as far as to call it "job-embedded professional development for general education teachers" (p.13), and these participants found value for it in the area of learning about special education needs. For some participants, it was a general sense of being able to implement strategies or learning activities too difficult to manage with only one teacher. Although general educators did value all of the benefits that came with an additional person with special knowledge, they still preferred someone with content knowledge, often reflecting on other general educators.

An interesting factor of growth that may be unique to virtual co-teaching was the reported improvements that special educators make as a result of co-teaching. The first is general education knowledge, which is two-fold. One is learning the content itself for some teachers; the other is learning how and what information is being presented to students. Without co-teaching, teachers aim to support the student in stand-alone sessions without much knowledge of what the content teacher is doing. Teachers are not able to walk down a traditional hallway to observe what is happening in a particular classroom, and accounts are varied about how much access general educators have to live classrooms when not co-teaching. Therefore, co-teaching enables the special educator to assist the student in or out of class with the right information, strategies, and terminology. Kloo and Zigmond (2008) questioned special educators making a "unique contribution"

in co-teaching classrooms. Even though there was one mention of a past partner of one of the participants that would come and leave because she did not know how to participate, none of the participants expressed this about their current partnership,

The second improvement was the benefit co-teaching provides to special education servicing. Participants reported the effectiveness of observing students interact with the general education curriculum within a general education curriculum as being more authentic assessment and planning of their special education goals and academic expectations. This information also came from observations of the students reacting to styles and personalities of the various teaching staff. Again, the ability to observe without co-teaching may not be easy or authentic, but as a co-teacher, frequent observation is possible.

Implications and Future Research

A culture of change brings uncertainty about the viability of virtual co-teaching. There is a lack of clarity as to why this change is so prevalent in virtual education, but frequent changes in model and structure are noted. Advancements in technology might be an expected basis for change, but that was not directly represented by these participants. It leaves this researcher to wonder if the strategy of co-teaching could, in fact, act as the solid foundation within the school, providing structure for other school elements. We see a hint of this possibility when participants discussed changes in staffing and the stability that co-teaching provided students and staff through these changes. They described a circumstance that is less impacted by the change. Clearly, some virtual schools are leaning to collaboration through PLCs, yet co-teaching embeds far deeper into the instructional infrastructure and provides direct collaboration processes

when effectively implemented. Over time, the study of co-teaching in virtual schools may yield more indications of this possibility.

This study allowed us to see that the co-teaching research base is still highly relevant and provides prescriptive responses to many issues virtual co-teachers are experiencing. Of the most critical issues to the success of virtual co-teaching, the application of highly specific, collaborative, on-going co-teaching training is paramount. Literature provides some of the most critical best practices of training that emphasizes planning prior to the co-teaching and throughout, valuation of different expertise, and active partner collaboration during training (Keefe & Moore, 2004); however, there are other virtual-specific elements such as research-based trainers with virtual teaching knowledge and the use of video-based training platforms that encourage relationship building. The implication for continued research and the potential for more research-based virtual-specific training materials, showing virtual-specific style and role examples, exists in this data.

In addition to training, the other critical factor in virtual education is an emerging alteration of co-teaching to include teams of professionals that include special education and general education. First and foremost, it must be fully considered whether this adaptation still meets the intentions of the co-teaching strategy. By general research definition, co-teaching is teaching with one special educator and one general educator, yet *co-* means joint or mutual and does not preclude triads. The participants have discussed their use of teams, particularly triads, as what seems to be a potential answer to equitability issues by the redistribution of roles. Viability and shared power of two general educators paired with a specialist in the virtual environment must be further

explored. This would ultimately mean the altering of co-teaching styles presented in research to meet a three-person configuration within the setting of a technological LMS platform.

Although some might leap to the expectation that technology is a huge driving force in the effectiveness of virtual co-teaching, it has only appeared in this study to be a cause for consideration in the aspect of partnerships. Communicating through technology lacks the human factor of body language and facial expression. This factor seems to be relevant in the time that it takes to cultivate a relationship as opposed to more face-to-face circumstances. Teachers need to be trained to capitalize on face-to-face opportunities and video-based collaboration software when working with their partner.

In addition, one issue that was only vaguely mentioned, but prevents a balance of power, was that virtual classes are structured within password-protected software. Co-teachers have access into the classroom of their co-teacher, but have no power other than presence. Co-teachers, as moderators, can give their partners power over the live tools, but the "Teacher of Record" ultimately has full access to the teaching platform where student work, grading, and other teaching and management elements exist. Administrative support to change how teachers are electronically assigned to classes is necessary. Three participants spoke about this need and how they managed to override the policy, but most others that alluded to this factor in describing responsibilities just accepted it as an impossibility or an unwanted capacity. True equitability with shared power and a lack of subordination cannot be realized without this balance in technological access.

One last implication comes from an element that is present in research, but that did not surface with any significance in this study. Evaluation and reflection are important in the process of co-teaching implementation (Cook & Friend, 1995). A few participants mentioned it as an informal "what worked, what didn't" approach with the administration, yet formalized reflection within teaching partners or observation of co-teaching in action was absent from the data. Schools need to have an approach to reflection and evaluation to build stronger and more effective partnerships and to make well-informed decisions about the implementation of co-teaching to support purposeful change. This is another area where further research would be useful to help determine suitable processes in the virtual world.

Strengths and Limitations of the Study

There are various strengths of this study in relation to its participants. Represented within the participants are 10 different schools across seven different states within the continental United States. There was a fairly balanced distribution of special education and general education teachers. Although not an equal representation, both primary grades and secondary grades were present. There was also variance within the total number of teaching years and virtual years taught. The range of virtual experience is balanced in its distribution. Overall, the demographic representation of the 16 participants shows a rounded perspective of virtual co-teachers in full-time, public-school environments across multiple regions of the United States.

It can be defended that this study represents the full-time, public-school, virtual teacher in the United States; however, it has limitations in the generalizability to virtual schools serving part-time or single-course students, virtual schools operating dependently

under a school district, or non-public/charter-based schools. It is also limited in its generalizability to higher education online courses. The number of participants is sufficient for an initial phenomenology, but does not prove sufficient evidence to determine differences within some demographic categories, such as primary vs. secondary. The study was also limited by four participants who, for various reasons, were unable to complete the focus groups. It is not certain, given the richness of data obtained overall, what impact that made on composite findings.

One other limitation might be seen in the criteria of participant selection, as briefly discussed in Chapter III. The criteria used in the participant selection process should have been limited to the participant's general setting and should not have included any elements of traditional co-teaching definition that would place judgment on participants who considered themselves virtual co-teachers. Criteria limiting what positions are considered to be co-teachers impedes the process of determining the essence of virtual co-teaching. Two participants were initially approved for the study based on questionnaire data, but it was later discovered that they did not meet part (d) of the criteria. Upon reflection, during the phase of epoché a potential bias in the criteria was discovered, and the continuation of the participants was allowed. This would not have been an effective measure had other participants been eliminated for not meeting the criteria, but all who were interested did have the ability to participate. It does, however, create a limitation in that all participants were not of a general education and special education pairing; but given the number of teams and alternate groupings, I feel that it did little to impact the data negatively and any themes that arose just added strength to already substantiated composite themes.

Summary of Conclusions

Overall, this study brings more understanding of the overarching question of "What are the experiences of virtual education teachers who co-teach to meet the needs of students with disabilities?" Given no prior research on virtual co-teaching, this transcendental phenomenology offers a broad, first step. However, the experiences of virtual co-teachers and the impacts that they have on students emerge in a way that we can identify several important things.

First, we can identify ways in which virtual co-teaching has similar issues and benefits to co-teaching in a brick-and-mortar classroom. Aspects aligning with the issues presented in traditional, brick-and-mortar schools are: (a) the need for appropriate training before and during co-teaching that incorporates collaborative activities with partners, (b) improving the value of roles and expertise, (c) building support for co-teaching within the school, and (d) incorporating methods of reflection and evaluation needed to maintain and improve virtual co-teaching practices. These key elements relate to the current research base, which offers prescriptive methods to improve virtual co-teaching.

Second, we can identify issues and benefits that are unique to the virtual environment. The configuration of co-teaching teams that consider both content and special expertise and how that can transpire into modeling co-teaching styles in a learning management system is an important step. Improvements in training and support that will foster building stronger relationships between co-teachers will lessen the impact of virtual relationships taking time. In addition to future inquiry to foster these elements, combatting the culture of change by improving the foundation for virtual education that

harnesses the strengths of communities of practice and builds on the instructional and organizational structure that co-teaching provides should be further explored through research.

Finally, we have the knowledge that virtual co-teachers perceive as improving the education for all students, especially students with disabilities. In addition, both general education and special education teachers see benefits to instruction and services through the use of co-teaching and, with improvements in the structures and supports for this strategy, is one they would continue to use. Although the results of this study present a strong case for the continuation of virtual co-teaching and co-teaching research, more importantly, virtual co-teachers were clear in their wish to continue and improve the use of the co-teaching strategy in virtual schools.

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APPENDIX A

INTERVIEW PROTOCOL

Interview Protocol

Thank you for meeting with me. As the consent stated, you are free to decide not to participate in this study and can withdraw at any time.

I want to take a moment to orient you to the Zoom platform. You will be able to adjust the size of my video picture to three different sizes. Please use whatever setting makes you comfortable. You may adjust both your sound and video settings in the bottom left corner. I will be recording the interview for transcription purposes.

(Initiate the Zoom recording.)

Thanks for agreeing to be interviewed for this research project. I'm hopeful that the information gained about the lived experiences of virtual teachers using co-teaching to service students with disabilities will inform other virtual educators. In order to understand your experience as a virtual co-teacher, this interview will include your perspective of the practice that address implementation, strategy, collaboration, school culture, and effects. I have a set of questions to guide our conversation. It is important that all of your experiences shared relate to the question asked through your experience as a co-teacher and not other teaching roles.

Do you have any questions about the purpose or structure of the interview?

(Researcher will begin by sharing contextual information gained from the participant' questionnaire for the purpose of introduction and check for accuracy. A conversational style will be used, leading into the guide questions and sub-questions.)

(1) Describe your experiences related to your implementation of the co-teaching strategy.
    a. What experiences encouraged you to implement virtual co-teaching?
    b. What were your experiences in being matched with a co-teaching partner?
    c. In what ways did you and your co-teaching partner initially prepare for co-teaching?
(2) Describe what activities were part of your role as a co-teacher.
    a. What responsibilities did each co-teacher have?
    b. How equitable do you think the responsibilities were between you and your co-teaching partner(s)?
(3) Describe the relationship with your co-teaching partner.
    a. In what ways did you directly collaborate with your co-teacher?
    b. What were your experiences with that collaboration?

(4) How would you describe your school culture, defined as the ‘values, cultures, and organizational structures in place that affect teaching practices, diversity, and collaboration between teachers and other school staff’?
    a. How would you describe elements of your virtual school culture that affect serving students with disabilities through co-teaching?
    b. What other ways have you experienced your virtual school culture effecting co-teaching?
(5) What successes or failures in students’ learning or social interactions have you experienced during co-teaching? Describe things specific to those with disabilities and those without disabilities.
    a. What experiences have you had during co-teaching that impacted your overall teaching abilities?
    b. What other experiences in virtual co-teaching gave you feeling of success or failure?

(*End Zoom recording)*

Thank you so much for your participation. After this interview is transcripted, I will send you an email with the transcription document attached and a few questions that will let me know about the accuracy of the transcript. You will also receive an email to indicate your availability for one of the small focus groups.

APPENDIX B

FOCUS GROUP PROTOCOL

Focus Group Protocol

Each focus group will be conducted with four to five participants and the researcher. Participants will be welcomed to the group and reminded that they are not obligated to share their name, school, or other identifying information with the group.
The group will be facilitated in a way that encourages conversation, although a suggested topic guide will allow for more congruence between focus groups.

Thank you for meeting with me. As the consent stated, you are free to decide not to participate in this study and can withdraw at any time.

I want to take a moment to orient you to the Zoom platform. You will be able to adjust the size of my video picture to three different sizes. Please use whatever setting makes you comfortable. You may adjust both your sound and video settings in the bottom left corner. I will be recording the interview for transcription purposes.

Thanks for agreeing to be part of a focus group for this research project. I'm hopeful that the information gained about the lived experiences of virtual teachers using co-teaching to service students with disabilities will inform other virtual educators. In order to understand your experiences as a virtual co-teacher, this focus group will include your perspective of the practice that address implementation, strategy, collaboration, school culture, and effects. I have a set of questions to guide our topic of conversation. It is important that all of your experiences shared relate to the question asked through your experience as a co-teacher and not other teaching roles. This focus group is intended to be conversational in nature and include the entire group. Because of the group setting, I will reiterate that individuals, schools, and affiliated for-profit companies would be better unnamed during this discussion. Regardless, transcripts will not be shared beyond the transcriptionist and the myself (researcher) and no identifiable information shall be reported in the research.

Do any you have any questions about the purpose or structure of the interview?
(Initiate the Zoom recording.)

(Researcher will begin by asking participants to share with the group a few minutes each of their context and general perspective. The topic will be guided using the questions below.)

Q1 - Implementation

- How does your virtual school model impact the implementation of co-teaching?
- What resources did you find helpful to implement co-teaching in a virtual environment?
- How well prepared were you for implementing virtual co-teaching?
- What changes do you anticipate making to your implementation of virtual co-teaching?

Q2 - Collaboration

- How did you use technology when collaborating in your virtual schools?
- How have your collaborative relationships been fostered or challenged in your virtual environments?

Q3 - School Culture

- How does co-teaching align with the culture in your virtual schools?

Q4 - Effects

- What experiences have you had that help you to define what success in virtual co-teaching is?
- What experiences have you had that help to define what failure in virtual co-teaching is?

(*Stop the Zoom recording.)*

Thank you so much for your participation. This is the last activity of the research project. I am excited to begin the analysis process. You will receive an e-certificate in your email within the next week as an appreciation for your interest and your time.

APPENDIX C

CONTEXTUAL QUESTIONNAIRE

Contextual Questionnaire

Thank you for consenting to the research study on virtual co-teaching, which will be acknowledged with your submission of this questionnaire. Please answer all questions in this study from your perspective of your role as a virtual co-teacher.

What is the type of school in which you teach virtually:

___ Full-time virtual school (public or charter)

___Virtual course within a public traditional or hybrid school

___ Other _____

What is your co-teaching role:

___ licensed Special Educator ___ licensed General Educator

___ Other_____

What is the role of the teacher you are partnered with to co-teach:

___ licensed Special Educator ___ licensed General Educator

___ Other_____

Explain if you have more than one co-teaching partner:

_____

What course(s) have you co-taught:

_____ Grade level: _____

_____ Grade level: _____

_____ Grade level: _____

Number of years of experience you have in virtual teaching: _____

Total years of teaching experience:_____

Briefly describe what circumstances you encountered that led you to consider co-teaching?

_____

Please provide a short description of your co-teaching situation.: _____

_____

Thank you for participating. In order to facilitate scheduling of a personal interview, please select 2 - 3 options below that match your availability for a 30 - 60 minute interview. Feel free to request a more specific time in the comment section. You will receive a confirmation email containing the video conferencing information.

	1/26	1/27	1/28	1/29	1/30	1/31	2/1	2/2	2/3	2/4	2/5	2/6	2/7	2/8
Morn														
Aft.														
Eve.														

Comments:_____

APPENDIX D

INSTITUTIONL REVIEW BOARD APPROVAL LETTER, HUMAN CONSENT FORM

Institutional Review Board

DATE:	February 24, 2017
TO:	Laura Ridings
FROM:	University of Northern Colorado (UNCO) IRB
PROJECT TITLE:	[993862-2] The Lived Experiences of Educators Using Co-Teaching to Meet the Needs of Students with Disabilities in a Virtual Environment
SUBMISSION TYPE:	Amendment/Modification
ACTION: APROVED	
APPROVAL DATE:	Februa ry 24, 2017
EXPIRATION DATE:	February 24, 2018
REVIEW TYPE:	Expedited Review

Thank you for your submission of Amendment/Modification materials for this project. The University of Northern Colorado (UNCO) IRB has APPROVED your submission. All research must be conducted in accordance with this approved submission.

This submission has received Expedited Review based on applicable federal regulations.

Please remember that informed consent is a process beginning with a description of the project and insurance of participant understanding. Informed consent must continue throughout the project via a dialogue between the researcher and research participant. Federal regulations require that each participant receives a copy of the consent document.

Please note that any revision to previously approved materials must be approved by this committee prior to initiation. Please use the appropriate revision forms for this procedure.

All UNANTICIPATED PROBLEMS involving risks to subjects or others and SERIOUS and UNEXPECTED adverse events must be reported promptly to this office.

All NON-COMPLIANCE issues or COMPLAINTS regarding this project must be reported promptly to this office.

Based on the risks, this project requires continuing review by this committee on an annual basis. Please use the appropriate forms for this procedure. Your documentation for continuing

review must be received with sufficient time for review and continued approval before the expiration date of February 24, 2018.

Please note that all research records must be retained for a minimum of three years after the completion of the project.

If you have any questions, please contact Sherry May at (xxx) xxx-xxxx or Sherry.May@unco.edu. Please include your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within University of Northern Colorado (UNCO) IRB's records.

CONSENT FORM FOR HUMAN PARTICIPANTS IN RESEARCH

UNIVERSITY OF NORTHERN COLORADO

Project Title: The Lived Experiences of Educators Using Co-Teaching to Meet the Needs of Students with Disabilities in a Virtual Environment

Researcher: Laura E. Ridings, Doctoral Learner, University of Northern Colorado

Phone Number: (xxx) xxx-xxxx e-mail: ridi3514@bears.unco.edu

Research Advisor: Dr. Robin Brewer email: robin.brewer@unco.edu

Phone: 970-351-1661

Dear Virtual Teacher,

As part of my doctoral work, I am researching co-teaching experiences of those who instruct virtually. This research is interested in your experiences as a virtual co-teacher and is not specific to any particular school or model, nor will any identifying information be printed. As a participant in this research, you will be asked to complete a short contextual questionnaire, participate in a one to one video conference interview and evaluate the accuracy of the transcript, provide any documents you feel represent your participation in co-teaching (e.g. models, policies, training materials, planning guides, etc.), and participate in a small, video conference focus group with other virtual co-teachers.

The questionnaire is available by an electronic link at the bottom of this consent. The questionnaire will consist of five questions pertaining to the context in which you co-teach. It will not ask you to provide your name or school, or any child or colleague specific information. Only the researcher will have knowledge of your identifiable information, which will not be shared or presented in the reporting of the research.

At the end of the questionnaire, you will have the opportunity to acknowledge your availability for a 30-60 minute virtual interview about your co-teaching experiences. The interview will be recorded in order to facilitate transcription. You will not be asked for any identifiable information during the interview. You will be provided a friendly reminder that providing the names of individuals or schools during the interview is discouraged as the recording will be accessible to an outside company for transcription. Regardless, identifiable information will not be reported in the published study.

Once the interview is complete, you will be given the opportunity to submit any co-teaching documents that you feel are relevant to your experiences as a virtual co-teacher. Examples of these documents will be given and may be visual or descriptive representations of models, policies, training materials, and commercially or teacher-made templates or tools for planning and collaboration. Your documents will be analyzed, but not shared with anyone but the researcher.

The video conference focus group will be comprised of four or five virtual co-teachers from various backgrounds and schools throughout the United States. A set of follow-up questions to the personal interview will be asked to the group and it is expected to last approximately 60 minutes. Again, your name and school name will be kept confidential unless you choose to share it with other participants. No identifying information will be reported in the published research.

A transcription service, REV (www.rev.com) will be used to transcribe both the interviews and the focus groups using audio, and video if necessary. The transcripts will be sent to the company anonymously and returned directly back to the researcher. You will be asked for a response to an email (containing your individual interview transcript) on the accuracy of the transcript. The focus group transcripts will not be shared with participants

In appreciation of your time to participate in these research activities, a thank you gesture of a bookstore electronic gift card will be sent to your preferred email at the conclusion of the research activities. Any risks to you are unforeseeable. Regardless, your participation is voluntary. You may decide not to participate in this study and if you begin participation you may still decide to stop and withdraw at any time. Your decision will be respected. Having read the above and having had an opportunity to ask any questions, please complete the questionnaire and schedule an interview if you would like to participate in this research. By completing the questionnaire, you will give us permission for your participation. You may keep this form for future reference. If you have any concerns about your selection or treatment as a research participant, please contact Laura Ridings at ridi3514@bears.unco.edu or Robin Brewer at robin.brewer@unco.edu. You may access the questionnaire link beginning Jan ___, 2017 at 7 a.m. (EST) and ending Feb ___, 2017 at 11pm (EST).

Survey link: TBD

(You may need to cut and paste this link into your browser.)