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Utilization Efficacy Perceptions of Telepractice for Speech-Language Pathologists and University Faculty and Administrators: A Qualitative Delphi Study

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by
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Approval Page

This applied dissertation was submitted by Cybele Wu under the direction of the persons listed below. It was submitted to the Abraham S. Fischler College of Education and School of Criminal Justice and approved in partial fulfillment of the requirements for the degree of Doctor of Education at Nova Southeastern University.

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Statement of Original Work

I declare the following:

I have read the Code of Student Conduct and Academic Responsibility as described in the *Student Handbook* of Nova Southeastern University. This applied dissertation represents my original work, except where I have acknowledged the ideas, words, or material of other authors.

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Cybele Wu

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Abstract

Utilization Efficacy Perceptions of Telepractice for Speech-Language Pathologists and University Faculty and Administrators: A Qualitative Delphi Study. Cybele Wu, 2019: Applied Dissertation, Nova Southeastern University, Abraham S. Fischler College of Education and School of Criminal Justice. Keywords: Delphi Method, Speech-Language Pathology, telepractice, reimbursement barriers, technology acceptance, licensing barriers, HIPAA compliance, technology use

Telepractice (or telehealth, teletherapy, tele-rehabilitation) is becoming more common. Speech-language pathology entered the world of telemedicine later than other fields of medicine. With the increasing size of the aging population with the baby boomers, the need for speech-language pathology can be achieved through practitioners using telepractice. Despite the need, barriers such as reimbursement, licensing, privacy and confidentiality, technology and technology acceptance are hindering the adoption of telepractice. This study uses the Delphi methodology with qualitative data collection and analysis to come to a consensus on how to best regulate and operate telepractice with speech-language pathology so that it is more readily adopted.

The panel of 11 experts were identified and organized into three groups: 6 speech-language pathologists working with adult and geriatric patients, 2 regulatory experts, and 3 university speech-language pathology program faculty and administrators. The Delphi method was used in multiple rounds to collect data on the barriers to telepractice, as well as potential solutions.

Rounds included: individual semi-structured interviews (barriers, training and curriculum, technology acceptance and use, HIPAA compliance), statements from data collected in previous rounds, where participants made additional comments and voted, and final presentation of results to participants. During this final round results and solutions were presented, , as well as suggestions for technology training options to speech-language pathologists

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Chapter 1: Introduction

Statement of the Problem

Speech-language pathology (SLP) or therapy is a selected treatment for cognitive issues such as aphasia, apraxia, anomia, as well as swallowing issues. Speech-language pathologists, at a distance, and in person, are equipped with tools for diagnosis, assessment, and treatment in their practice. The normal patient therapy involves cuing that may be used for memory, attention, and learning or re-learning new or old concepts. Adults who have had brain-injuries, strokes, or other medical issues related to cognition and speech may find that it is not convenient or easy to commute to outpatient therapy. Depending on their condition, the patient may be unable to go to an outpatient facility or may not have one close by.

Telepractice, a sub-area of telemedicine, is an application where patients are treated at a distance, using speech-language pathology or audiology. In the case of SLP, telepractice occurs, usually with cuing, using telecommunications technology over the Internet, which can be an option for those patients that may not be able to meet in person. The Speech-language pathologists (SLPs), more commonly known as speech therapists, treat patients for a variety of speech impediments, including aphasia related speech problems, swallowing issues, and stuttering, as well as others. In the adult and geriatric age group, the most common condition with this population is aphasia and swallowing issues (Casey, C, personal communications, August 1, 2017).

Currently, the population in the United States, as well as across the world, is aging. There are now more chronic diseases than in years past that are affecting older individuals. “80% of older adults have at least one chronic disease. 70% of Medicare

beneficiaries have two or more" (National Council on Aging, 2018). Diseases such as Lyme disease and a multitude of cancers and other chronic diseases are becoming commonplace. Approximately 30,000 cases of Lyme disease are reported each year (Centers for Disease Control and Prevention, 2015). Due to chronic diseases, such as Lyme disease, more people are restricted to being at home. Difficulty with motor functions, as well as speech issues such as aphasia and swallowing issues, coupled with a shortage of speech pathologists increases the need for telepractice. In addition, availability of speech-pathologists in person is not sufficient in rural areas. Cohn and Cason (2016) relayed ASHA's position paper (2005) that states telepractice should be used when there are patient mobility issues, unavailability of specialists, and where distance from specialists makes regular treatment difficult.

Conducting therapy through telepractice is not without challenges. Technology that is used in telepractice includes videoconferencing (Dudding, 2008) and synchronous and asynchronous technology with the use of Web-ORLA (Cherney, Kaye, Rosalind C, & Hitch, 2011; Cherney & van Vuuren, 2012). In addition to technical issues with technology, therapy through telepractice is also encumbered with regulatory and insurance reimbursement issues. For instance, regulatory issues including reimbursement, privacy and confidentiality, and licensing are hindering implementation of telepractice services (Cherney & van Vuuren, 2012).

The topic. The topic for this study involves SLP therapists and university masters-level speech-language pathology administrators and faculty's efficacy perceptions of telepractice use in private practice, home-based, and outpatient facilities with adult and geriatric patients. Telepractice, a telecommunications application of

telemedicine, uses a variety of applications and techniques, which was explored in this study. This study included individual structured interviews followed by an online Delphi component consisting of three rounds. There were three groups, including regulatory, speech-language pathologists, and educators. The regulatory group included experts in reimbursement, privacy and confidentiality, and licensing policies. These experts were knowledgeable about telepractice or telemedicine and how these services relate to the current policies. Three types of speech-language pathologists were included: home-health, private practice, and outpatient. Although some had experience in using telepractice, an interest in pursuing telepractice work was also acceptable. The final group were university faculty and administrators of Master's level SLP programs. Although some SLP programs already included telepractice coursework in their curriculum, it was not necessary to be telepractice-ready to be included in the study. Faculty and administrators only needed to be knowledgeable about telepractice.

The research problem. The problem was that although there is a demand for telepractice for adult and geriatric patients with communication disorders using online SLP sessions, barriers are hindering the adoption of telepractice in both private practice and other clinical settings.

One such barrier is the issue of licensing. Currently, SLPs are required to be licensed in not only the location of the SLP, but also the state where the client is located (Cherney & van Vuuren, 2012). The issue of licensing could be cost prohibitive for the SLP or audiologist who would need to pay multiple licensing fees as a practitioner in private practice, unless employed a facility that would cover these costs. Another financial burden for both the SLP and the patient is the issue of insurance reimbursement.

Cherney and van Vuuren (2012) state “With regard to reimbursement, Medicare does not reimburse for rehabilitation services delivered through telerehabilitation because speech-language pathologists (SLPs) and audiologists (as well as occupational therapists and physical therapists) are not recognized as telerehabilitation providers (Cherney & van Vuuren, 2012, p. 244). It is unclear at this point what constitutes a telerehabilitation provider. Currently, there is no consistency with reimbursement, as some private insurance providers cover telepractice, where others do not, depending on the state regulations.

Another barrier to telepractice is related to privacy and confidentiality concerns. While the Health Insurance Portability Accountability Act (HIPAA) protects the confidentiality and privacy of health records, the use of telecommunications technologies opens up questions as to ownership and protection of the data obtained through telepractice (Mort, Roberts, Pols, Domenech, & Ingunn, 2013). Unfortunately, due to these regulatory barriers, even though there has been technological progress, telepractice is not readily being adopted.

In addition to regulatory issues, SLPs and academic faculty and administrators are reluctant to embark on the telepractice bandwagon. This is partly due to the fact that very few university programs that offer Speech-language pathology coursework do not offer coursework in telepractice. Radford University, for example, has both an MS and MA degree in Communication and Sciences Disorders. Neither degree offers courses in telepractice (Radford University Waldron College of Health and Human Services, n.d.).

Most likely due to HIPAA regulations, there is not an abundance of technology used in telepractice, nor are there studies using HIPAA compliant technology in

telepractice. The researcher attempted to find out more about telepractice technology by posting on a Facebook private telepractice group, meeting with librarians, and conducting numerous literature searches. Although there were plenty of research using technology in telepractice, most were not HIPAA compliant. Using both Proquest and EbscoHost databases, searches were conducted using different SLP online therapy terms, as well as technology terms, and HIPAA compliance with few results. There is very little research on telepractice technology which is HIPAA compliant. This emphasizes the need to understand the reasons why telepractice has not been readily adopted.

Background and Justification

The current population, not just in the United States, but also internationally, is aging with more health conditions, including chronic diseases with many with communication disorders. The current mode of delivery of speech-language pathology, as well as other treatments, require travel between home and the facility which is difficult not just in remote areas but also those close-by, resulting in inferior results and caretaker burden (Tindall, 2012). Although use of the internet for health information has increased, face-to-face speech language pathology is not as accessible, especially in countries where speech language pathology does not exist (Shprintzen & Golding-Kushner, 2012). Despite these issues, telepractice and telerehabilitation can be used with the patient with cognition deficiencies using two-way video conferencing along with a protocol to practice at home, with feedback provided remotely from the therapist (Caltagirone & Zannino, 2008).

A major issue is that there is no consistency in terms of licensing for telepractice. Each state has their regulations for licensing which may or may not include telepractice.

In addition, the telepractice SLP must be licensed in their home state, as well as the state where their patient resides (Palomares, Bufka, & Baker, 2016). The present difficulty of receiving adequate healthcare, along with the confusing and cumbersome process of SLP licensure for telepractice has made this a very relevant issue for adequate healthcare treatment.

History of Telemedicine

Telepractice is not a new concept. It was started in the 1920s when shore to ship communication was used by physicians to communicate medical information to those on ships (Moore, 1999). Since 1994, telemedicine has grown from 100 projects to more than 2400 all involving telemedicine (Moore, 1999). As Moore (1999) explains, telemedicine has gone through multiple stages and generations of evolution. During stage one, which covers the period prior to 1970, included mainly audio-based and cable television technologies. Included in this stage is shore to ship communication, as well as EKGs, which began in the 1930s. Stage two, in the 1970s included varied technologies using satellite and microwave technologies. These were mainly large government projects. One of the leaders in telemedicine, the Veteran's Administration, began with "30 VA hospitals and eight non-VA hospitals" in 1978 that "provided consultations, physician continuing education, allied health continuing education, hospital administrator conferences, and patient education" (Moore, 1999).

Generation one, also known as stage three was in the early to mid 1980s where telemedicine was simplified. Stage two telemedicine used more expensive technologies which resulted in cutbacks and less expensive and simplified technology used in telemedicine in stage three (M. Moore, 1999).

Generation two, from the early to mid 1990s increased funding and cutbacks resulted in interactive video to address the health care to areas where services were not available. Due to the government's concern to serve underserved areas with medical care, federal funding increased. The technologies in this generation included digital compressed technologies over a high speed network (M. Moore, 1999). "Telemedicine consultations might include document camera, electronic stethoscope, X-ray scanner, a 3-chip camera" (Moore, 1999). Interestingly, just as the Internet began to take off, so did funding for telemedicine, which was followed by locating services that were less expensive.

Generation three is the telemedicine of today, which includes store and forward (asynchronous) technologies. Store and forward has been seen as less expensive, more available than interactive video. Radiology, a specialty that uses primarily asynchronous means was one of the main and early adopters of store and forward technology (M. Moore, 1999).

In some sectors of telemedicine, such as telepractice using speech-language pathology, HIPAA may not allow store and forward technology due to compliance issues (Houston, Stredler-Brown, & Alverson, 2012). In store and forward, medical data is transferred to a retrieval site, such as the cloud, where it can be retrieved at a later time (Pandian, 2016). The store and forward model has been used in various telemedicine areas as a way to cut costs. In telepractice, store and forward could be an effective way to work with aphasia patients (Cherney et al., 2011).

History of Telepractice in Speech-language Pathology

Although telepractice has been used in various other areas including nursing, psychology, and audiology, in this study, the focus will be primarily on speech-language pathology. Telepractice's history, which began with the adoption of the term in 2005 by ASHA, has a much shorter history than telemedicine. Telepractice is inclusive of educational and clinical settings and has a shorter history than telemedicine. Telepractice is a subsector of telemedicine which can be traced back to the telegraph, one of the earliest forms of communication regarding health care. (Houston et al., 2012). Telepractice has been shown to be an effective form of treatment, assessment, and intervention (American Speech-Language-Hearning Association, n.d.). In 200l, ASHA found that telepractice was an area that needed more attention (Cherney & van Vuuren, 2012). Katz (2009) stated that in the area of aphasia, the Virginia Department of Veteran Affairs, was at the forefront for adopting telepractice in speech-language pathology.

Impact of Telepractice on Health Conditions

This section investigates the use of telepractice in speech-language pathology with different health conditions. There are a number of conditions that affect speech production, including brain lesions and diseases such as Parkinson's. AARP (as cited in (Marchibroda, 2015) conducted a survey that indicated that seniors prefer aging in place. Due to this idea, speech-language pathology through telepractice is a way to reach these patients.

Aphasia. Aphasia, an impairment of language which makes it difficult to use verbal or written language, can be caused by conditions such as strokes, brain injuries, or infections. Some of the earliest studies on telepractice were regarding treatment of

aphasia (Hall, Boisvert, & Steele, 2013) which included a combination of auditory and printed stimuli via telephone. A type of aphasia that relates to the inability to come up with the correct term is called anomia. Simic et al. (2016) conducted a study that looked at the usability of telepractice in Internet-based therapy for naming deficits. The study showed that there was an overall success using this type of therapy, whether in person or over telecommunication systems. Goswami, Bhutada, and Jayachandran (2012) studied a patient in India with Broca's aphasia using both face-to-aphasia assessment, as well as intervention using Skype and a web camera. The study used the domains of repetition, expression, lexical naming, and memory, which showed strong improvements across all domains. It also showed less emotional distress on the patient, despite some technical challenges with connectivity. The success in this case study showed the efficacy of the use of telepractice with aphasia patients.

Parkinson's Disease. Parkinson's disease is a neurological disease that is most commonly characterized by motor control problems. According to Hartelius and Svensson (1994); Logemann, Fisher, Boshes, and Blonsky (1978), about 90% of people with Parkinson's disease have communicative disorders. Due to the motor function problems, as well as feasibility issues of transporting the patient from home to therapy, telepractice may be an appropriate option for these patients. Although there are a number of drugs to treat Parkinson's, the most effective treatment for communicative disorders has been behavioral therapy through an application called Lee Silverman Voice Treatment (LSVT Loud) that treats vocal levels (Theodoros, Hill, & Russell, 2016). This application has been used face-to-face with some computer applications but has been used with little in telepractice. Theodoros et al. (2016) showed positive use of this

application with Parkinson's disease patients who were using telepractice indicated by an increase in their loudness level post-treatment, as well as satisfaction with an improvement in quality of life. Constantinescu et al. (2010) also stated that although auditory levels showed improvement, pitch did not. It is suggested that more research be conducted in this area to find technology that may be more effective.

Dysphasia (difficulty swallowing). Dysphasia is difficulty swallowing that could be caused by problems with the esophagus, or a neurological disease such as Parkinson's, Normal Pressure Hydrocephalus (NPH), or caused by another brain injury. Studies have used videofloroscopic swallowing studies (VFSS) to assess swallowing difficulties using telepractice. SLPs skilled in videofloroscopic assessments are few and far between. Therefore, technology research in this area is needed to accommodate the demand. However, most studies did not have quality technology available for live assessments. The assessments use images to make decisions on best practices for those patients with dysphagia (Cassel, 2016). Cassel (2016) used both local and remote technicians to determine the reliability of the live telepractice session. Findings showed positive results in the ratings in both local and remote technicians, as well as satisfaction with the telepractice model (Cassel, 2016). Although this is a positive outcome, more research is needed to improve treatment options for dysphagia.

Deficiencies in the Evidence

There are a few areas where the evidence is lacking. As telepractice is a rather new area, there are few technologies that are being used for telepractice, other than Web-ORLA (Cherney et al., 2011; Cherney & van Vuuren, 2012) and videoconferencing (Dudding, 2008). Web-ORLA is a virtual therapist that has both synchronous and

asynchronous components so that the patient can practice independently (Cherney & van Vuuren, 2012). A reason for this is due to HIPAA requirements on technology, as well as, store and forward technologies being prohibited (Center for Connected Health Policy, n.d.). HIPAA requires health information to be encrypted, unique user identifier, as well as ability to automatically log off of any technology used (The HIPAA Journal, n.d.). As stated earlier, SLPs (as well as physical therapists and occupational therapists) are not recognized as telerehabilitation practitioners (Cherney & van Vuuren, 2012). Interestingly, a document entailing which providers were eligible for reimbursement listed psychologists and not SLPs (Department of Health and Human Services Centers for Medicare and Medicaid Services, 2016). Center for Connected Health Policy (n.d.) stated that although psychologists were eligible, they could not bill for services that include evaluation and management services. The aging population, with increased chronic diseases, has resulted in the need for increased care for those whom distance, resources, and physical attributes make it difficult to meet face-to-face (Theodoros et al., 2016). The problem is evident when individuals who live close to a facility are unable to attend therapy due to physical impediments and other resources. The Department of Health and Human Services Centers for Medicare and Medicaid Services (2016) stated that qualified services by a service provider are needed in rural areas. However, older patients with cognitive and physical disabilities may not be able to get to their therapist's office. There was no mention of the condition of the patient in consideration for Medicaid and Medicare coverage (Department of Health and Human Services Centers for Medicare and Medicaid Services, 2016).

Audience. Speech-language pathology crosses the areas of medicine, education,

and psychology. Many patients who have a need of this service may have experienced a brain injury, stroke, or other medical condition that has affected their speech. This study will affect SLPs, patients, caretakers, medical professionals, university faculty and administrators of speech-language pathology masters programs, insurance companies, and other regulatory administrators who may define whether telepractice is offered as an option to the patient.

Setting of the Study

The setting for the study included local quiet locations to conduct private interviews for local participants. All participants who were not local to the researcher met through recorded private Zoom sessions. A Delphi method was used to complete this study. This method can be quantitative, qualitative, or mixed-method. Individual interviews were conducted with SLPs conducting telepractice, university programs providing speech-language pathology masters programs, and regulatory organizations. The interviews were conducted at a distance using telecommunication technology to collect data from SLPs, and Master's program administrators, as well as regulatory experts in licensing, reimbursement, and privacy and confidentiality regarding the efficacy of using telepractice with SLPs. Using the Delphi method, the groups of regulatory, education, and speech-language pathologists, were used to gain insight into their perceptions of using telepractice with speech-language pathology.

Researcher's Role

The researcher for this study is a daughter and caretaker of a brain-injury/infected patient who has received therapy at an outpatient facility, as well as through home health. Although this patient was not be involved in this study, he has provided a background for

speech therapy conditions and therapy. In addition to the experiences that have been presented though personal caretaking, the researcher also has a background in teaching English to speakers of other languages both in person and at a distance. Although the training is different in each field, the language difficulties are similar with speakers of other languages and those with cognitive speech impairments. Having had this training and experience has provided an understanding and a background of knowledge for those practitioners working with this population in both clinical settings and at a distance.

The researcher used three groups: regulatory, university, and speech-language pathologists. Participants were interviewed individually using the appropriate protocol for the participant being interviewed. The participants went through a number of rounds. The researcher served as a facilitator, collected data from the groups, relayed the data collected, and requested additional data, if needed. The researcher served as an interviewer so that data could be collected for this study.

Purpose of the Study

The purpose of this Delphi study was to understand how barriers such as regulatory, lack of telepractice education, and technology are hindering the adoption of SLP telepractice with adult and geriatric patients. Through a qualitative Delphi method using individual interviews and presentation of statements, private practice, facility clinicians, home-based therapists, university program staff, and policy makers shared their opinions and background related to SLP telepractice.

Theoretical Framework

Unified theory of acceptance and use of technology was used in this study to understand why telepractice is not being adopted by SLPs who work with adult and

geriatric patients. The problem of regulatory barriers hindering the use and adoption of technology in telepractice was grounded in Unified theory of acceptance and use of technology (UTAUT). It was developed by Venkatesh, Morris, Davis, and Davis (2003) and incorporated constructs from eight different separate models to explain the use and acceptance of technology. The model includes four constructs that relate directly to intention to use technology: performance expectancy, effort expectancy, social influence, and facilitating conditions (Venkatesh et al., 2003). A deeper explanation of the theory will be explored in the next chapter.

Definition of Terms

Included in the definition of terms are the major concepts of the study, including various terms for telepractice and speech therapy, as well as certain conditions that SLPs treat.

Speech-Language Pathology is the field that is practiced by a Speech-Language Pathologist for the treatment of speech and language disorders, which can include swallowing disorders, stuttering, and aphasia disorders (Medicine.net, n.d.). Although this particular definition is more of a clinical definition, as it is treated in both schools and in medical settings, SLP also includes learning, such as using cognitive functions, as through word finding exercises with patients with anomia that have lost their ability to find the right word.

Teleheath is includes a broad range of technologies to deliver medical, health, and education services. Telehealth includes both clinical and nonclinical services. (Center for Connected Health Policy, n.d.)

Telemedicine is a subset of telehealth that includes delivery of healthcare services,

including consultations and assessments over a telecommunications network to evaluate, diagnose, and treat patients at a distance (Tech Target, 2016).

Telerehabilitation refers to rehabilitiation that is delivered across telecommunication technology. It can include physical, occupational, or speech therapy, all delivered at a distance. (Department of Communication Sciences and Disorders School of Health and Human Services UNCG, n.d.)

Teletherapy's official definitions do not relate to SLP, as it refers to treatment with gamma rays of diseased tissue (Merriam-Webster.com, n.d.-c). However, informally, teletherapy can also refer to telepractice.

"Telepractice is the application of telecommunications technology to the delivery of speech language pathology and audiology professional services at a distance by linking clinician to client or clinician to clinician for assessment, intervention, and/or consultation." (American Speech-Language-Hearning Association, n.d.). Rather than using the term telemedicine, the American Speech-Language Hearing Association (ASHA) refers to the term telepractice to include both clinical and nonclinical settings (American Speech-Language-Hearning Association, n.d.).

Dysphagia also known as difficulty swallowing is when " it takes more time and effort to move food or liquid from your mouth (Mayo Clinic, 2014). Dysphagia affects all ages and treatment is determined by the severity and cause. SLP services are often used for dysphagia.

"*Aphasia* is an impairment of language affecting the production or comprehension of speech and the ability to read and write. It is always caused by brain injury as a result of stroke, trauma, or infections" (National Aphasia Association, n.d.). Although aphasia

labels are used, they are only used to identify symptoms, not for creating a plan for treatments (Casey, C., personal communications August 1, 2017).

Faculty members include the teaching staff, in this case for SLP programs, in a university setting (Merriam-Webster.com, n.d.-b).

Administrators are those university employees who supervise and manage the operation of the program (Merriam-Webster.com, n.d.-a). In the case of administrators, SLP program administrators manage and supervise the program in which SLPs are trained.

Chronic disease are conditions that require long-term medical attention, limit daily activities and typically last a year or longer. Some examples of chronic diseases include: Lyme disease, cancer, heart disease, and diabetes (National Center for Chronic Disease Prevention and Health Promotion, 2019).

Summary

Telepractice, for the treatment of those with communication disorders is an important area, particularly for the aging population. Telepractice allows for treatment to be conducted at a distance. However, issues such as licensing, privacy issues, reimbursement, as well as lack of prevalent technology for telepractioners are hindering the adoption of telepractice.

Chapter 2: Literature Review

A review of the literature included the impact of telepractice on a variety of health conditions, in-depth explanation of the barriers affecting telepractice, the individual theories that make up UTAUT, and a more in-depth explanation of the theory and why it is important in this study. Finally, the barriers to telepractice and how those barriers impact the adoption of telepractice are also explained. The researcher used EBSCOhost and ERIC Education databases. Although the researcher also used computer-based databases, no new articles were found relevant to the study. The search terms included telepractice or telemedicine or telehealth or telerehabilitation, speech-language pathology, and regulation terms as HIPAA compliance, technology regulation, licensing, and reimbursement. The literature was downloaded into Mendeley database and organized according to heading (Elsevier, n.d.).

UTAUT (Unified Theory and Acceptance of Use of Technology)

Because this study will be using SLPs who treat adult and geriatric patients through telepractice, the Unified Theory of Acceptance and Use of Technology (UTAUT), was identified as a good fit for the use of technology and population. In researching which theories were best adapted to telepractice with adult and geriatric patients, the theories of Posner's attention theory, as well as Bandura's Self-Regulated theory were originally considered. However, they didn't quite match the population or the technology needs of this study. Posner's attention network focused on the different parts of the brain that relate to attention (Posner & Petersen, 1990). Although adult and geriatric patients with brain dysfunctions may have problems with attention, the focus of

this study is not neurological, but rather technical in how telepractice is used with these patients.

For the technology focus of this study, self-regulated theory, which includes the characteristics of standards, willpower, motivation, and monitoring was considered as a possible theory relating to this topic (Baumeister, Vohs, & Tice, 2016). However, this theory did not work with the adult and geriatric patients that had a TBI or other brain dysfunction.

UTAUT is a very unique theory which was based on eight other theories: (theory of reasoned action (TRA), technology acceptance model (TAM), motivation model (MM), theory of planned behavior (TPB), Combined TAM and TPB, model of PC utilization (MPCU), innovation diffusion theory (IDT), and social cognitive theory (SCT). Many of these theories were reevaluated to create new ones or parts of ones. By evaluating the constructs of each theory, a combined, unified theory of Acceptance and Use of Technology (UTAUT) was created (Venkatesh et al., 2003). Through the discovery of core constructs of the individual theories, four direct constructs are discovered in the exploration of the individual theories within UTAUT. They include performance expectancy, effort expectancy, social influence, and facilitating conditions (Venkatesh et al., 2003). Since this study relates to adoption of technology, these four determinants are important to the study, as intention to use technology is a step towards adoption. These determinants are influenced by the moderators of age, gender, experience, and voluntariness of use. It was also agreed by Venkatesh et al. (2003) that attitude toward behavior, self-efficacy, affect toward use, intrinsic motivation, and anxiety did not have a direct link to intention. In the following sections, these theories

and constructs will be individually discussed, indicating which constructs relate to intention to use technology, as well as the components that make them a good match for this topic and population.

Theory of reasoned action (TRA). This theory has its roots in social psychology and has been instrumental in explaining a wide spectrum of behaviors (Venkatesh et al., 2003). The two constructs include attitude toward behavior and subjective norm. Fishbein and Ajzen (1975) define attitude toward behavior as "a general feeling of favorableness or unfavorableness towards the stimulus object" (p. 216). Subjective norm is explained as "the person's perception that most people who are important to him think he should or should not perform the behavior in question", (Fishbein & Ajzen, 1975). The key moderators for TRA include experience and voluntariness (Venkatesh et al., 2003). The core construct is subjective norm, while attitude towards behavior is insignificant, as it does not have a direct effect on intention in UTAUT. TRA has a direct effect on social influence in voluntary settings which influence perceptions regarding technology. In mandatory settings, social influence is only important when the individual is inexperienced with the technology (Venkatesh et al., 2003).

Theory of planned behavior (TPB). As an extension of TRA, TPB was created to counteract the limitations of the original theory with behaviors of people lacking free will over their actions (Ajzen, 1991). The construct of perceived behavioral control was added and it is where the determinant of intention and behavior is theorized. Because the issue of adoption of telepractice is dependent on the acceptance of technology, and "TPB has been successfully applied to the understanding of individual acceptance and usage of many different technologies in terms of predicting intention" (Venkatesh et al., 2003, p.

429), TPB is a component to understanding reasons for and against adoption of telepractice.

The three core constructs of TPB include two adapted from TRA: attitude toward behavior and subjective norm, in addition to the addition of perceived behavioral control. Fishbein and Ajzen (1975) define attitude toward behavior as the feeling, positive or negative towards the behavior in question. Subjective norm is defined as "the perceived social pressure to perform or not to perform the behavior" (Ajzen, 1991, p.188). Perceived behavioral control is defined as "the ease or difficulty of performing the behavior and it is assumed to reflect past experience as well as anticipated impediments and obstacles" (Ajzen, 1991, p. 188).

The moderators that have been shown to affect TPB include experience, voluntariness, age, and gender (Venkatesh et al., 2003). Conducting a study focused on SLPs who work with geriatric patients relates to the key moderator: age. As in TRA, the core construct subjective norm becomes a root construct of social influence. However, attitude toward behavior does not have a direct impact on intention. In the perceived behavioral control, there are three parts as stated: "each control belief, is multiplied by the perceived power, and control factor to facilitate or inhibit the performance of the behavior, and the resulting products are summed across the salient control beliefs to produce the perception of behavioral control (PBC)". (Ajzen, 1991, p. 197). The core construct for perceived behavioral control is a root construct of facilitating conditions in UTAUT (Venkatesh et al., 2003).

Technology acceptance model (TAM). This model was "designed to predict information technology acceptance and usage on the job without the construct of attitude

to better explain intention as it relates to technology use" (Venkatesh et al., 2003, p. 428). The core constructs for TAM include perceived usefulness, perceived ease of use, and subjective norm (Venkatesh et al., 2003). Davis (1989) defines perceived usefulness as "the extent to which they believe it will help them perform their job better" while perceived ease is whether the person believes that using an application would be effortless" (p. 320.) The subjective norm was included as one of the core constructs in both TRA and TPB and is defined as "the perceived social pressure to perform and to not perform a certain behavior" (Ajzen, 1991, p. 188).

The key moderators in TAM include experience, voluntariness, and gender (Venkatesh et al., 2003). As in both TRA and TPB, subjective norm is the root construct of direct determinant social influence for UTAUT (Venkatesh et al., 2003). Perceived usefulness becomes the root construct of performance expectancy, while perceived ease of use is the root construct of effort expectancy in UTAUT (Venkatesh et al., 2003). Although age is not a key moderator in TAM, the cognitive abilities related to age are a predictor with "declines in performance, perceived usefulness, and perceived ease of use" (Marangunic & Granic, 2015, p. 89).

A study using telemonitoring with chronic disease patients used another version of the TAM which includes individual, technological, organizational contexts (Asua, Orruño, Reviriego, & Gagnon, 2012). The model is based on Chau and Hu's model on telemedicine which includes technology acceptance decision factors that physicians have due to their causal relationships which explains physician telemedicine technology acceptance (Chau & Hu, 2002). This model, in addition to the traditional ones for TAM, also included habit, which is when behavior becomes automatic (Asua et al., 2012). In

addition, it included facilitators. The results showed that healthcare professionals in this area have the intention to adopt telemonitoring. Doctors and nurses, as healthcare professionals, are seen as key contacts in telehealth. Therefore, the patients that receive information about telehealth from healthcare professionals are more likely and willing to receive these services via telemonitoring. (Asua et al., 2012). As a result of this study, it may be possible that patients receiving SLP services via telepractice will be willing participants.

Motivation model (MM). Supported by various research in psychology, motivation theory was used in specific contexts to explain behavior (Venkatesh et al., 2003). Motivation theory was used to explain technology adoption through the relationship between usefulness and enjoyment (R. D. Davis, Bagozzi, & Warshaw, 1992). Games have been used in other studies to explain enjoyment and usefulness but, not used in a non-game environment (Davis et al., 1992). The use of games with aphasia patients is a form of socialization (Noël, 2008). As the researcher has observed personally, aphasia causes sufferers to withdraw, with little use of language. Although Noel's study used board games, rather than computer games, the use of games can also be used in telepractice to enhance language and socialization skills (Noël, 2008).

The core constructs that are included in MM include extrinsic and intrinsic motivation. "Extrinsic motivation refers to the performance of an activity because it is perceived to be instrumental in achieving valuable outcomes that are distinct from the activity itself, such as improved job performance, pay or promotions"(Davis et al., 1992, p. 1112). While extrinsic motivation focuses on some type of reward, "intrinsic motivation refers to the performance of an activity for no apparent reinforcement other

than the process of performing the activity per se" (Davis et al., 1992, p. 1112). Therefore, extrinsic focuses on external factors such as rewards, while intrinsic focuses on internal factors such as enjoyment of the activity.

There were no significant key moderators for MM (Venkatesh et al., 2003). Extrinsic motivation is the root construct for the determinant performance expectancy in UTAUT (Venkatesh et al., 2003). Intrinsic motivation is not indicative to behavioral intention in UTAUT (Venkatesh et al., 2003).

Combined TAM/TPB (C-TAM-TPB). This model is a combination of both TAM and TPB, two models that were reviewed above. The four constructs for C-TAM-TPB were adapted from the previous models and include attitude toward behavior, subjective norm, and perceived behavioral control and were adapted from the TRA and TPB models (Venkatesh et al., 2003).

Attitude toward behavior is defined as positive or negative feelings toward performing the target behavior (Fishbein & Ajzen, 1975). Subjective norm is stated as "the perceived social pressure to perform or not to perform the behavior" (Ajzen, 1991, p. 188). Perceived behavioral control is defined as "the ease or difficulty of performing the behavior and it is assumed to reflect past experience as well as anticipated impediments and obstacles"(Ajzen, 1991, p. 188). Adapted from TAM, perceived usefulness is stated as "the extent to which they believe it will help them perform their job better" while perceived ease is "whether the person believes that using an application would be effortless"(F. D. Davis, 1989, p. 320).

The key moderator shown to effect C-TAM-TPB is experience (Venkatesh et al., 2003). As in the previous models, subjective norm is the root construct of social

influence, while perceived behavioral control is the root construct of facilitating conditions in UTAUT (Venkatesh et al., 2003). The core construct for perceived usefulness is the root construct for performance expectancy in UTAUT (Venkatesh et al., 2003). As in both TRA and TPB, attitude towards behavior is not an important aspect in intention due to the false relationships between attitude and intention in regards to behavioral intention in UTAUT (Venkatesh et al., 2003).

Model of PC utilization (MPCU). Based on Triandis'(1977) theory of human behavior MPCU focuses on usage behavior, rather than intentions, as in the previous models. The model has four components including affect, social factors, habits, and facilitating conditions. This theory is a competing theory to TRA and TPB (Venkatesh et al., 2003). Thompson, Higgins, and Howell (1991) modifies this theory to study "the direct effects of social factors, affect, perceived consequences, and facilitating conditions on behavior", p.126. The refinement of MPCU by Thompson, et al. (1991) allows for the model to be "particularly suited to predict individual acceptance and a range of information technologies", p. 430.

The six core constructs for MPCU include job-fit, complexity, long-term consequences, affect toward use, social factors, and facilitating conditions (Venkatesh et al., 2003). Perceived job-fit is "the extent that a person believes that the use of a PC can enhance performance on the job" (Thompson et al., 1991, p. 129). Rogers (2003) states that complexity is "the degree to which an innovation is perceived as relatively difficult to understand and use." (p. 257). Long term consequences is defined as the outcomes that have a future pay-off (Thompson et al., 1991). Triandis (1971) defines attitude as "an idea charged with affect, the predisposes a class of actions to a particular class of actions

to a particular class of social situations" (Thompson et al., 1991, p. 127) and identifies the "feelings of joy, elation, or pleasure, or depression, disgust, displeasure or hate"(Thompson et al., 1991, p. 126) as emotions associated with affect toward use. Triandis (1980) has expanded social norms from previous models to be stated as social factors as " the individual's internalization of the reference groups' subjective culture and specific interpersonal agreements that the individual has made with others in specific social situations" (Thompson et al., 1991, p. 3). Triandis (1980) states that facilitating conditions is defined as "objective factors out there in the environment that several judges or observers can agree make an act easy to do"(Thompson et al., 1991, p. 129).

The key moderator that affects MPCU is experience (Venkatesh et al., 2003). Core construct job has the root construct of performance expectancy, while complexity becomes the root construct of effort expectancy in UTAUT (Venkatesh et al., 2003). In addition, the social factors core construct becomes the root construct of social influence, while facilitating conditions becomes the root construct of facilitating condition in UTAUT. In the area of telepractice/telemedicine MPCU can be used to explain the use of technology to allow for ease in the job for therapists, along with limiting the amount of time and effort it takes to drive or prepare for an SLP session.

Innovation diffusion theory (IDT). "Diffusion of innovations is a social process, even more than a technical matter" (Rogers, 2003, p. 4). The elements of diffusion include four components which are "innovation, communication channels, time and the social system" (Rogers, 2003, p. 11). Innovation is defined as "an idea, practice, or object that is perceived as new by an individual or other unit of adoption"(Rogers, 2003, p. 12). The key point here is *perceived as new*, and not that it is brand new knowledge, as new

technology is not always adopted when it is new. With innovation and adoption of technology, the way in which the technology is communicated from one individual to another is the communication channel (Rogers, 2003). The communication channels can include face to face, as well as through interactive technology. Time is an important component to diffusion innovation as it is used to learn about the innovation which will be used either to reject or adopt it. The rate of the innovation can determine the strength and for how long the innovation will be adopted. Through this process the individual will go through the following steps: "knowledge, persuasion, decision, implementation, and confirmation" (Rogers, 2003, p. 20). "A social system is defined as a set of interrelated units that are engaged in joint problem solving to accomplish a common goal. The members may be individuals, informal groups, organizations, and/or subsystems" (Rogers, 2003, p. 23). In the area of telepractice, the social system would include the SLPs, regulatory agencies, professional associations, and university programs.

The seven constructs included in IDT are relative advantage, ease of use, image, visibility, compatibility, results demonstrability, and voluntariness of use" (Venkatesh et al., 2003). "Relative advantage is the degree to which an innovation is perceived as better than the idea it supersedes" (Rogers, 2003, p. 15). Ease of use, or "complexity is the degree to which an innovation is perceived as difficult to understand and use"(Rogers, 2003, p. 15). Image is defined as "the degree to which use of an innovation is perceived to enhance one's image or status in one's social system." (G. C. Moore & Benbasat, 1991, p. 195). Visibility or "observability is the degree to which results of an innovation are visible to others"(Rogers, 2003, p. 15). When the technology is visible to others, it is more likely that it will be adopted. Results demonstrability is "the degree to which an

innovation is perceived as being consistent with the existing values , needs, and past experiences of potential adopters" (G. C. Moore & Benbasat, 1991, p. 195). The final construct, voluntariness of use is defined as " the degree to which use of the innovation is perceived as being voluntary or of free will." (G. C. Moore & Benbasat, 1991, p. 195).

The moderators that effect IDT include experience and voluntariness (Venkatesh et al., 2003). The construct, relative advantage, becomes the root construct of the direct determinant performance expectancy, while ease of use becomes the root construct of direct determinant effort expectancy in UTAUT(Venkatesh et al., 2003). Image constructs becomes the root construct of social influence in UTAUT(Venkatesh et al., 2003). Compatibility becomes the root construct for facilitating conditions in UTAUT (Venkatesh et al., 2003). Finally, the core constructs for visibility, results demonstrability, and voluntariness of use are not relevant to behavioral intention (Venkatesh et al., 2003).

Social cognitive theory (SCT). Developed by Bandura in 1986, SCT became one of the most influential theories on human behavior (Venkatesh et al., 2003). It is based on the concept of learning which includes personal factors, behavior and the environment where, as Bandura states "people are producers of the environment, not just products of it" and results in triadic reciprocally (Davidson, 2003). Social Cognitive theory includes "a self-theory encompassing self-organizing, proactive, self-reflective and self-regulative mechanisms" (Bandura, 1999, p. 21). As part of their job, SLPs must assess how well the technology works, if the patient is progressing, and what processes they should perform in order for the patient to continue to progress. It is in these assessment tasks that social cognitive theory is tested. Within the context of computer utilization, Compeau and

Higgins applied and extended SCT to create their own model where they "studied computer use but the nature of the model and the underlying theory allow it to be extended to acceptance and use of technology in general" (Venkatesh et al., 2003, p. 432). The five core constructs for SCT include performance outcome expectations, personal outcome expectations, self-efficacy, affect, and anxiety (Venkatesh et al., 2003).

Compeau, Higgins, and Huff (1999) define performance outcome expectations as "the perceived likely consequences of using computers associated with job performance (efficiency and effectiveness)", p. 147. Likewise, they also define personal outcome expectations as "change in image or status to expectations of rewards, such as promotions, raises, or praise" (p.147). Rooted in social psychology, Compeau and Higgins (1995) define self-efficacy as "the belief that one has the capabilities to perform a particular behavior" (p. 189). Venkatesh et al. (2003) define affect as "an individual's liking for a particular behavior" (p. 432). Anxiety is defined as "evoking anxious or emotional reactions when it comes to performing a behavior" (p. 432).

There were no moderators that were used to effect SCT (Venkatesh et al., 2003). In UTAUT, the core constructs for performance and personal outcome expectations became the root constructs for performance expectancy. (Venkatesh et al., 2003). In regards to behavioral intention, self-efficacy, affect, and anxiety were not significant in UTAUT (Venkatesh et al., 2003). Venkatesh et al. (2003) states "previous research has shown self-efficacy and anxiety to be conceptually and empirically distinct from effort expectancy and is modeled as indirect determinants of intention mediated by perceived ease of use" (p. 455).

Although the topic of this study is telepractice, not mobile health or e-health, both areas require the same support and reward system, particularly with older adults. Kampmeijer, Pavlova, Tambor, Golinowska, and Groot (2016) relate the facilitating factors of motivation, support, and feedback in e-health and m-health studies. InterRai is a suite of instruments designed to be integrated, standardized and computerized in a language that is understandable to users (Vanneste, Vermeulen, & Declercq, 2013). BelRai is a Belgium web-based software that supports the use of InterRai (Vanneste et al., 2013). It is used in a variety of settings: home care, nursing homes, and hospitals with elderly people with disabilities (Vanneste et al., 2013). The participants for the BelRai project include nurses, physical therapists, occupational therapists, speech-language therapists, dieticians, podiatrists, social workers, and pharmacists (Vanneste et al., 2013). Using UTAUT with the BelRai application, Vanneste et al. (2013) state that "self-efficacy associated with the possibility to complete a task using the new information system with only the built-in help facility, having the possibility to call someone for help and having enough time to practice, has a significant influence on behavioral intention to use the BelRAI web application" (p.9). With patients, such as those with aphasia, who have cognitive deficiencies, the ability to understand their individual abilities:

> influence the choices they make, their aspirations, how much effort they mobilize in a given endeavor, how much they preserve in the face of difficulties and setbacks, whether their thought patterns are self-hindering or self-aiding, the amount of stress they experience in coping with taxing environmental demands and their vulnerability to depression (Bandura, 1991, p. 257).

This is an important aspect as SLPs facilitate their choices through cueing in their conversations. Bandura (2004) refers to the self-management model as how health habits are changed. They are done with a combination of motivational and self-regulatory skills. This model has been used in health promotion along with disease risk reduction that uses the principles of self-regulation with computer-assistance implementation. Self-management occurs with additional assistance from the SLP and caretaker using telepractice with geriatric patients.

In the beginning of this theory section, four direct determinants that effect behavioral intention were listed. In Figure, these four determinants show which moderators relate to which determinants that affect behavioral intention and use.

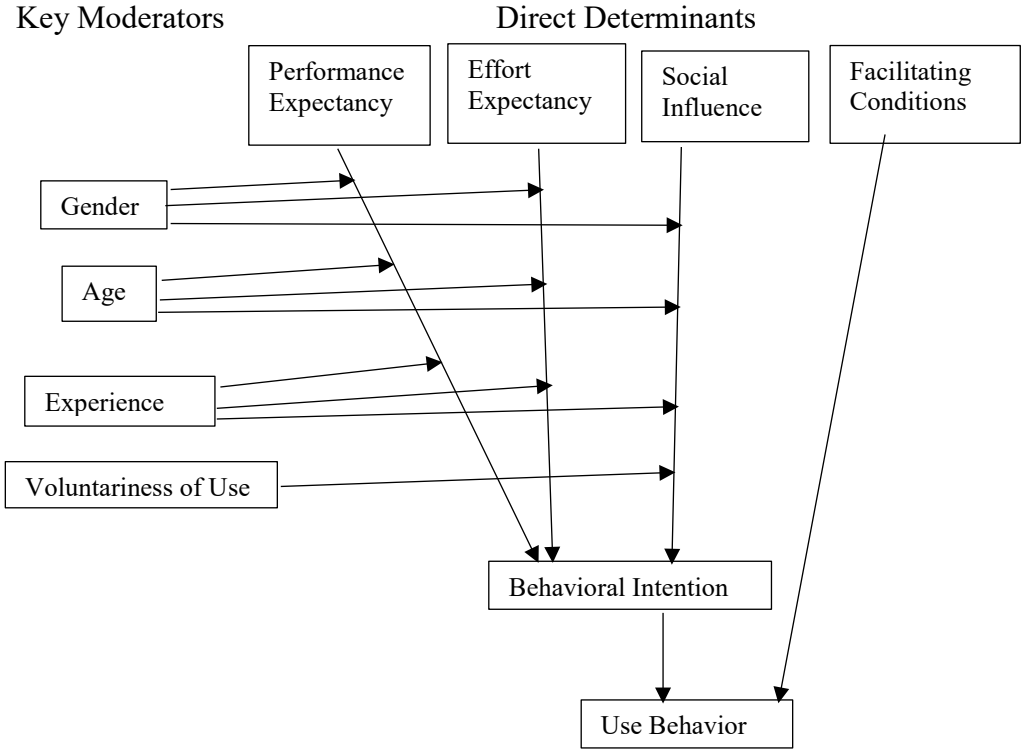

Figure. Unified theory of acceptance and use of technology. Adapted from Venkatesh et al. (2003).

Performance expectancy. Performance expectancy is defined as "the degree to which an individual believes that using the system will help him or her attain gains in job performance" (Venkatesh et al., 2003, p. 447). The five constructs that relate to performance expectancy are perceived usefulness from TAM and C-TAM-TPB, extrinsic motivation from MM, job-fit from MPCU, relative advantage from IDT, and outcome expectations from SCT. Performance expectancy within the telepractice/telehealth sectors suggests that SLPs will observe usefulness and ability to perform job activities more easily and will increase job performance (Venkatesh et al., 2003). Performance expectancy has been shown to be a strong predictor of behavioral intention to use technology (Venkatesh et al., 2003). The key moderators age and gender have the potential to impact performance expectancy on behavioral intention (Marangunic & Granic, 2015; Venkatesh et al., 2003). Gender and age differences have also shown to be a factor in technology adoption (Venkatesh et al., 2003).

Effort expectancy. Effort expectancy is defined as the degree of ease associated with the use of technology (Venkatesh et al., 2003). The constructs from the earlier models that include effort expectancy are perceived ease of use from TAM, complexity from MPCU, and ease of use from IDT. Gender and age, like in performance expectancy, also have a potential impact with effort expectancy on behavioral intention (Venkatesh et al., 2003).

Social Influence. Social influence is defined as "the degree to which an individual perceives that important others believe he or she should use the new system" (Venkatesh et al., 2003, p. 451). Subjective norm in TRA, TAM, TPB/TPB and C-TAM-TPB, social factors in MPCU, and image in IDT impact direct determinant social

influence. In mandatory settings, social influence only has an impact in the early stages of experience (Venkatesh et al., 2003). Therefore, key moderators for age, gender, experience, and voluntariness of use potentially may impact social influence on behavioral intention (Venkatesh et al., 2003).

Facilitating Conditions. Facilitating conditions are defined as "the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system" (Venkatesh et al., 2003, p. 453). The constructs perceived behavioral control from TPB and C-TAM-TPB, facilitating conditions from MPCU, and compatibility in IDT have an impact on direct determinant facilitating conditions. Again, age and experience potentially will impact facilitating conditions in the telepractice sector. Telepractice is a fairly new area of practice. Therefore, the extent to which SLPs and patients are supported may impact the adoption and success rate. Finally, as the baby boomers are increasingly having chronic diseases (Theodoros, 2012), the population that will most be in need of practical healthcare in all areas will be impacted by facilitating conditions.

UTAUT in healthcare/telepractice. In the area of telepractice the four constructs with a direct relationship to intention play a crucial role as to whether or not it is adopted. Vanneste, Vermeulen, and Declercq (2013) explain that as the population continues to age with an influx of chronic diseases, as well as a shift away from institutional caregiving, the need is arising towards telepractice, explained by the UTAUT model. Many of the factors were aligned with the original UTAUT model, However, self-efficacy, a factor not in the original model aligned with time and human resources to enable the task to be completed has significant contribution to the behavioral intentions

(Vanneste et al., 2013). Self-efficacy was added to this modified model to explain the "judgement of one's own ability to use a system"(Vanneste et al., 2013, p. 5). Cimperman, Makovec Brencic, and Trkan (2016) extended the UTAUT with three additional context specific constructs including doctor's opinion, computer anxiety, and perceived security. As doctors are perceived as the expert authorities regarding health, they may have implications toward decision making (Cimperman et al., 2016). Computer anxiety is defined as "evoking anxious or emotional reactions when it comes to performing behavior (using a computer)" (Cimperman et al., 2016, p. 25). Security issues, such as data security and reliability, although not tested properly, have had importance with older users (Cimperman et al., 2016). With these additional constructs, there have been strong predictions of acceptance intention behavior (Cimperman et al., 2016). Performance expectancy and facilitating conditions have been used in studies using UTAUT for predicting adoption to telepractice and other tele-services (Asua et al., 2012; Cranen et al., 2012; Diño & de Guzman, 2015; Hoque & Sorwar, 2017; Lee & Rho, 2013; Radhakrishnan, Jacelon, & Roche, 2012).

Barriers to Telepractice

There are a number of different barriers that impact telepractice. They can include the technology itself, the acceptance of technology, privacy and confidentiality, reimbursement, and licensing.

Technology and technology acceptance. There is not an abundance of literature where technology is being used in telepractice. Telepractice could be used in either synchronous or asynchronous sessions. As speech-language pathology is using patient data, knowing how that data will be HIPAA compliant is essential in knowing what

technology to use and how to use it. There are a number of videoconferencing technologies where telepractice sessions can be conducted over VOIP, such as Skype, Facetime, Zoom, and Oovoo. Not all of these services allow for encryption of the sessions, which is what makes the sessions HIPAA compliant. Fleming, Brown, and Houston (2013) compared a portion of these services on price, type of data, availability of recording, or whether or not security encryption was available. Of those listed, only Adobe Connect, GoToMeeting, Email, and Collaborate are available for encryption. Dudding (2008) explains that digital video conferencing can be used not only in the session, but also as a way to reach colleagues in research interests, business practices and project development.

The researcher reviewed a systematic review of various studies using telehealth in the areas of speech, language, hearing, voice, and swallowing to better understand why there is a lack of evidence in telepractice technology in speech-language pathology. In comparing this review to the researcher's own study both explored the same populations. 54% of the studies related to geriatrics and adults, where 85% focused on advantages over non-telehealth practices (Molini-Avejonas, Rondon-Melo, de La Higuera Amato, & Samelli, 2015). The systematic review also indicated that implementation data is lacking due to so few software being used in telehealth. A potential reason for the lack of evidence regarding technology acceptance in telepractice is store and forward, which is an asynchronous model that is not HIPAA compliant.

Technology applications used in telepractice. Therapy sessions, including treatment, assessment, and evaluation, must include technology that is used in a HIPAA compliant way. This means that the platforms that are used cannot be mainstream

technologies. There have been positive results, for both HIPAA compliant technology and non-compliant technology. The regulations for the United States and other countries are different. While it is a requirement to be HIPAA compliant in the United States, in many other countries, it is not. In international studies, there is more flexibility in the use of technology. One such study was conducted in the United Kingdom, where they compared therapy via telepractice versus in-person therapy for post-stroke aphasia patients (Woolf et al., 2015). The study used Skype and Facetime, two non-compliant technologies. Despite the non-compliant issue, there was evidence that treatment via telepractice showed improvement in targeted skills. This study included a university lab, a clinical site, as well as a remote location. Results showed that there were gains in all settings in word retrieval skills. LSVT Loud (LSVT Global, n.d.), a software application for Parkinson's Disease is used in telepractice and shows an increased quality of life through acoustical changes (Theodoros et al., 2016). The application was used in conjunction with eHAB (Ehab, n.d.), a web-based video conferencing system (Constantinescu et al., 2010). As this was an Australian study, there was no indication as to whether eHAB was HIPAA compliant. LSVT Loud can be used both face-to-face and through telepractice.

Privacy and confidentiality. In the healthcare industry, privacy and confidentiality is of utmost importance. HIPAA protects our healthcare data and information. Because SLPs conduct telepractice over the Internet, how the data will be protected is a concern. In order to comply with HIPAA, the technology that is used must be private and secure and comply with all the rules set forth in HIPAA (Cherney & van Vuuren, 2012). In the effort to protect patients' privacy, HIPAA has implemented

penalties for failure to comply, whether on purpose or not. Due to these penalties and fines that incur with them, many SLPs are reluctant to adopt telepractice through Internet technology for health-related services (Shprintzen & Golding-Kushner, 2012). Protecting the sessions and the data can be an area of unknown territory. However, it can be done in the following ways: strong password protection, authentication of personal access to health data, dedicated use of computer or VoIP for telepractice, virus protection, encryption protocols of audio or video data transmission, and recording protocols of how often data is accessed (Cherney & van Vuuren, 2012). Palomares et al. (2016) explained that when using technology, the informed consent needs to be considered along with the risks of data loss, including other problems related to the use of certain technology.

When choosing technology, it is important to understand that it must be HIPAA compliant. U.S. Department of Health and Human Services (n.d.), which maintains the health information for HIPAA, states that HIPAA compliance includes following the security, privacy, and breach notifications. The security rule requires that a) public health information (PHI) is encrypted; b) all professionals have separate and unique user identifiers, and c) automatic log off to ensure no unauthorized access to PHI (The HIPAA Journal, n.d.). Under the privacy rule, business associates, which are organizations that enter in an agreement with the organization or private practice SLP, must abide by these rules. Facetime and Skype, although they may be encrypted are not compliant, because they have not entered into a business associate agreement (Taylor, 2015). The HIPAA Breach Notification rule requires that notifications include 1) the type and breadth to PHI's are involved, including types of identifiers and the likelihood that they will be identified, 2) the unauthorized person who used PHI or to whom the breach was made, 3)

if the PHI was actually collected or viewed 3) the extent to what kind of risk to the PHI has been alleviated (The HIPAA Journal, n.d.). The CEO of Blink Session stated that software can comply without the company being HIPAA compliant but the therapist using the software, whether compliant or not must use it in a compliant way. He also stated that some do not see software being compliant as an issue, as they don't see a compliance as a serious issue or are lacking training on the issues (DeGrove, E. personal communication, April 22, 2018).

Reimbursement. The problem with reimbursement is that with adult and geriatric patients, it is dictated by either Medicaid or Medicare. For speech-language pathology using telepractice, they either do not reimburse at all, or are very limited in the amount of reimbursement. Although some private insurers are covered, most are not. Coleman, Frymark, Franceschini, and Theodoros (2015) explain that although state laws exist, if the policy excludes services specific to telepractice, reimbursement either will not be covered or will be a lower percentage. U.S. Department of Health and Human Services Centers for Medicare and Medicaid Services (2016) state that the following practitioners are covered for reimbursement: physicians, nurse practitioners, physician assistants, nurse midwives, clinical nurse specialists, clinical registered nurse anesthetists, clinical psychologists and clinical social workers, and registered dietician and nutrition professionals. Although clinical psychologists and clinical social workers are covered, they are not covered for diagnostic interview sessions. Speech-language pathology is not covered at all. The majority of those on this list are medical which is where telemedicine started. However, those outside of the realm, such as psychologists and speech-language pathologists are not, despite that they are diagnosing and treating speech disorders as a

result of serious medical conditions.

Language therapy, used for a variety of language disorders, including aphasia and Parkinson's disease, is intensive and long term. Healthcare spending shortages have caused patients to not receive the necessary amount of treatment to achieve language abilities (Molini-Avejonas et al., 2015).

Licensing. The licensing of speech-language pathologists for telepractice is an important issue with the adoption of telepractice. Currently, states license SLPs individually, as there is no national or international licensing at this time. In addition, practicing SLPs must be licensed in their location, as well as the client's location (Cherney & van Vuuren, 2012). This is a great expense for the SLP, who must be licensed in their state, as well as every state where their clients reside. This is why most practicing speech-language pathologists only practice in the state in which they reside (Connors, W., personal communication, August 27, 2017). The question arises as to how this affects licensing as global lines are redefined. Some countries require licensing, while others do not. There is a need for transparency in credentials, for those providing quality service, across state and international lines. Goldsmith (2002) states that one way of accomplishing this is through licensing agreements where exporting agencies contract with local contacts to manage examination process, review applications, and grant licensing to the exporting agency. Even at this date, more than twenty years after the Goldsmith article was published, the issue seems to be unresolved.

An interstate agreement, similar to a national license, allows for licensed practitioners to practice across state lines. Although ASHA has not implemented an interstate compact for SLPs, one is in development (Alvarez, R., personal

communication, April 15, 2018) and modeled after the interstate compact for physical therapy (American Physical Therapy Association, 2016). The interstate compact does not give automatic licensure to SLPs in multiple states. With the interstate compact, an SLP who is already licensed in a state can pay a fee to a state that is part of the compact to gain licensure (Alvarez, R., personal communication, March 17, 2017). Currently, the SLP interstate compact has not officially been approved. ASHA is currently working on the interstate compact along with other partners with updates on the ASHA website (American Speech-Language-Hearing Association, n.d.).

Delphi Method

Oracles were used in Greek and Roman history for forecasting reasons (von der Gracht, 2012). Delphi methodology was first used in 1948 to better predict horse race winning statistics (Woudenberg, 1991). The Delphi Method is a research method that was started by the Rand Corporation (n.d).. The term was coined by Kaplan, a philosopher who was heading a project for improving predictions in policy-making (Woudenberg, 1991). It is a unique method in that it can be quantitative, qualitative, or mixed methods. Four components are common for the Delphi method, regardless of whether the design is quantitative, qualitative, or mixed method: "anonymity, iteration, controlled feedback, and group response" (von der Gracht, 2012). Due to the group communication structure, the aim of a Delphi study is to come to a consensus. The typical structure for the Delphi is to send out the questionnaires to participants, obtain anonymous responses, reiterate the comments to all participants, and receive feedback in multiple rounds. Consensus is reached when at least 80% of participants agree with the statement (Sekayi & Kennedy, 2017).

The Delphi method has been used in a variety of settings since first introduced by the Rand Corporation. Although a method not commonly used in healthcare, it is becoming more common. Amber and Gregory (2014) used the Delphi method in conjunction with Participatory Action Research (PAR) to facilitate the participation of health system leadership-decision makers in their restructuring initiative. Traditionally, Delphi method is used either quantitatively or as a mixed-method. However, the Delphi method can also be used qualitatively to gain information about experiences of health leaders (Amber & Gregory, 2014). The focus for this study was for SLPs, regulation experts, and university faculty and administrators to come to a consensus on how regulation barriers (such as licensing, reimbursement, privacy and confidentiality) to telepractice can be modified so that technology use can be implemented to include licensing across state lines, a reimbursement fee structure for both in-person and remote therapy.

Summary

Licensing and reimbursement are only covered for speech-language pathology using telepractice in rural areas. Older populations, particularly ones with cognitive or physical disabilities, who are unable to transport themselves to the SLP could also benefit from therapy via telepractice. The barriers include technology and technology acceptance, privacy and confidentiality, reimbursement, and licensing. The focus of this study is on how the barriers affecting SLP telepractice is affecting the acceptance of telepractice.

Research Questions

Central Research Question

How do regulatory and technology barriers affect the use of telepractice by speech-language pathologists?

Research Subquestions

These subquestions were used to answer the central question in this study.

1. How do telepractice regulations limit the use of telepractice by speech-language pathologists in clinical, private practice, and home-health settings?
2. How does the availability of HIPAA compliant technologies limit the use of telepractice by speech-language pathologists in clinical, private practice, and home-health settings with adult and geriatric patients?
3. What do university masters-level speech-language programs teach about the use of telepractice, telepractice regulations, and HIPAA compliant technologies in their curricula?

Chapter 3: Methodology

In this chapter, the methods and procedures used in this research study are described. The chapter includes a discussion of (a) the participants and selection procedures and criteria (b) instruments used to collect the data (c) confidentiality (d) data collection procedures (e) data analysis procedures and (f) limitations of the study. The purpose of this study was to understand how barriers such as regulatory, lack of telepractice education, and technology acceptance are hindering the adoption of SLP telepractice with adult and geriatric patients.

Qualitative Research Approach

The Delphi method (or technique, approach, study, or activity) was developed by the RAND Corporation in the 1950s, originally to forecast technology's impact on warfare (RAND Corporation, n.d.). Due to the nature of the method, by using a variety of experts through multiple rounds, the Delphi method is also used to promote consensus (Hsu & Sandford, 2007). This study used the Delphi to promote consensus regarding the barriers that are impacting telepractice use with speech-language pathologists. The Delphi method uses a group of experts who are given questionnaires to receive group feedback with multiple rounds. Watkins, Meiers, and Visser (2012) explained that there are two phases for the Delphi method which include a) gathering data through opinions of experts and b) coming to a group decision. In this study, the first round included semi-structured interviews of SLPs, regulation experts, and university SLP program faculty regarding the barriers that are impacting the adoption of telepractice. The ultimate goal was to come to a consensus on these barriers that will ideally change current regulations so telepractice in Speech-Language Pathology (SLP) will be adopted more freely.

Choosing an appropriate methodology should match the purpose of the study. Linstone and Turoff (2002a) outlined several reasons for using the Delphi method. Because one of the reasons for conducting a Delphi study includes coming to a consensus, this study investigated the pros and cons of policy decisions and curriculum development, where participants came up with recommendations in these areas. Current regulations include state by state licensing regulations, with no standard for telepractice either at the university or government levels. Although SLPs are providing the same services via telehealth that they would in person, SLPs are not one of the recognized providers approved by Medicare to provide telehealth (Center for Connected Health Policy, n.d.). Therefore, telepractice by SLPs is not reimbursed.

Privacy and confidentiality falls under HIPAA compliance, which requires a business associate agreement and following a security rule that clarifies how Public Health Information (PHI) will be used at rest and in transit (U.S. Department of Health and Human Services, n.d.). These regulations have caused problems with SLPs, regulatory agencies, and university programs as they try to reach an agreement in how telepractice should be conducted. The Delphi method allows for clarification with the intent of reaching consensus. The Delphi method through multiple rounds can help in clarifying what regulations or policies should be in place regarding how telepractice should be regulated.

Because participation is conducted anonymously, there are no dominant players in the Delphi method. In addition, it is relatively inexpensive in comparison to other qualitative methods and allows for flexibility in the design (Iqbal and Pipon-Young, 2009). In the traditional Delphi method, during the first round, participants are

given an open-ended questionnaire. The second round includes a second questionnaire, which summarizes the data from the first round and also requires participants to rank the items in the questionnaire. However, as this study was purely qualitative, questionnaires were not used. Instead, semi-structured interviews were the main instrument in this study, followed by rounds during which participants were asked to agree or disagree with statements that were informed by results of the interviews.

Participants

Because SLPs, regulatory experts, and university administrators and faculty all come with their own sets of skills and expertise, the participants were three different groups: SLPs, regulatory, and university. There were a total number of 11 participants spanning all three groups. The SLP group included SLPs who work with adult and geriatric patients working in home health, private practice, and outpatient facilities. As the researcher was given access to two SLP Telepractice Facebook groups, participants were from this group, as well as local and snowball sampling, where participants recruit other participants to this study.

The regulatory group included experts in licensing, reimbursement, and privacy and confidentiality. Since this is a study revolved around the efficacy of telepactice, it was essential that regulatory experts be well-versed on the regulations of telemedicine, telepractice, or telehealth. These experts included an attorney as well as an SLP who was deeply involved in the policy making for SLPs.

The final group, the university group, included faculty and administrators of speech-language pathology masters programs that are knowledgeable about the curriculum as it relates to the barriers in telepractice. Universities included both those

with established programs with telepractice and those with no telepractice in their curriculum.

Creswell and Poth (2016) explained that in qualitative research, the focus is on the multiple perspectives of the participants on an issue. Regulatory barriers including licensing, reimbursement, and privacy and confidentiality for SLPs using telepractice affect those in private practice, home-health, outpatient facilities, as well as the universities providing the training for future SLPs. Since these barriers affect all of these areas, participant sampling included private practice SLPs, home health SLPs, outpatient SLPs, universities providing SLP masters degrees, and knowledgeable experts on the regulations impacting telepractice, such as attorneys who specialize in telemedicine services.

The recruitment of participants was conducted using social media as well as snowball sampling, whereby participants recruited other participants. Universities and member organizations were also contacted for purposes of recruitment in the study. Inclusive criteria included SLPs in these areas, who work with adult and geriatric patients. SLPs, ideally should have had experience assessing and treating patients through telepractice. However, the SLP group also included participants interested in moving from face-to-face treatments to treatments through telepractice. This was necessary as they were able to discern what regulations are affecting the adoption of telepractice and provide input on those regulations. Access to two Facebook groups of SLPs conducting and interested in telepractice was granted to the researcher. Six SLPs, three SLP Master program university faculty and administrators, and one attorney and one SLP involved in policy making for SLPs in Texas were recruited,

which was within the recommended number of participants (Turoff, 2002).

Data Collection Tools

In a Delphi study, data is collected through multiple rounds of data collection. Data collection could be in the form of questionnaires, interviews, or surveys. Because this study is purely qualitative, the first round was conducted in a series of interviews.

In a qualitative Delphi study (Sekayi & Kennedy, 2017), the first round consists of open-ended brainstorming. This was in the form of semi-structured individual interviews. During the first round, documents and other resources were also requested and collected from all participants which were used to present a more thorough understanding of the regulatory barriers that are hindering the adoption of telepractice. These documents and resources included websites of the participants, as well as the Medicare Telehealth Parity Act, a document from the Texas licensing board versus Teladoc, a document from the Florida house of representatives on telehealth regulations, as well as a report for expanding Florida's use and accessibility of telehealth. The second round was a presentation of the list of statements by the experts. The third round was a continuation of the statements to the panel for endorsement. After all rounds had commenced and there were no additional comments, the findings were submitted to the panel. While the traditional Delphi and the qualitative Delphi are similar, the qualitative Delphi does not rank but analyzes the data through qualitative analysis methods.

A pilot study of the questions to be used in the interviews was conducted to determine the reliability and validity of the questions. Although not normally used in Delphi studies, pilot testing ensures that the questions are extensive and thorough (Avella, 2016). Three interview protocols for each group of participants has been

created. A panel of three experts evaluated the questions in each of the three protocols. These experts reviewed all three protocols according to the audience that will be interviewed. Feedback was received by the researcher and incorporated in multiple rounds. After the feedback was complete and incorporated into the protocols, the pilot testers were used to determine if further changes were needed in the protocol, as well as determining if the questions selected would be appropriate for each group of participants. The pilot testers included 2 SLPs, one SLP who volunteers for ASHA (to test the regulatory protocol), and one university faculty member in the speech-language pathology program. Each interview lasted about an hour. Participants were asked to withhold feedback until the end of the interview to ensure that it did not interrupt the flow of the interview.

The semi-structured interviews for round one focused on brainstorming important areas, such as general experience, licensing, reimbursement, technology, and education. Each protocol used questions specific for that group's experience. For example, questions for the SLP group ranged from problems with technology, regulations, and their own experience with the curriculum of their SLP program. Questions for the regulatory group concentrated on the different regulations that impact telepractice/telemedicine. The university SLP program faculty group received questions regarding regulations and how telepractice is being incorporated into their curriculum.

Prior to on to moving onto round two, documents were collected from government institutions, universities, and attorneys specializing in telemedicine. Documents were related to the barriers of telepractice. Because documents needed to be collected and analyzed along with the data collected from round one interviews prior to

beginning round two, it allowed for synthesizing of the data into statements

The SLP group included six participants who received questions regarding their background, education and experience, licensing, reimbursement, technology and technology acceptance, and future plans and thoughts related to telepractice (Appendix E). These interviews were held through recorded Zoom sessions, except for the two local SLPs, who met at local sites. The interviews ranged from 30 minutes to an hour and a half.

The university group consisted of three SLP faculty administrators who received questions regarding education and experience, licensing, reimbursement, technology and technology acceptance, telepractice curriculums, and final thoughts and plans for telepractice curriculums (Appendix F). All university interviews were conducted through Zoom and lasted about a hour each.

The regulatory group consisted of two participants, including an attorney and an SLP with regulatory experience. They received questions regarding general experience and experience with telepractice/telemedicine, licensing, reimbursement, technology and technology acceptance, and future plans and thoughts about regulations in telepractice with speech-language pathologists (Appendix G). Both interviews were conducted through Zoom and lasted about 40 minutes each.

Round two consisted of compiling a list of statements from round one. These statements were presented through a secure, internet-based survey tool (Survey Monkey, 2019). Participants had one week to make any adjustments to original statements. These statements were created from the data participants produced through their semi-structured interviews during round one. This round included 17 statements that included

naming, reimbursement, licensing, education regarding technology, technology use with geriatrics, telepractice technology training, telepractice curriculums, as well as an open-ended question to elicit any other information.

Round three consisted of statements from rounds one and two, as well as from documents. Participants voted on statements from these rounds. Since one of the purposes of using the Delphi Method was to come to a consensus, it is important to understand that consensus is achieved when there is at least 80% agreement (Sekayi & Kennedy, 2017). Statements with less than 80% agreement were included in next round. As consensus was reached for the majority of items in the third round, it was not necessary to collect further comments from the participants. Participants revised statements and commented for the final time in the third round. The statements from round three included statements from round two that had not reached consensus and statements that needed further clarification. They included naming, Medicare, a request for suggestions for telepractice training, telepractice certification, whether academic preparation institutions should provide telepractice training, and an open-ended question to elicit any final information.

Presentation to participants. Although not really a round, but a presentation of results, participants had spent from an hour to an hour and a half in a semi-structured interview plus two other rounds of reviewing statements, voting, and making comments. During the presentation, participants were thanked and sent a link to the password protected Survey Monkey dashboard where the results of the last round were presented, including all comments, without any identifiers.

The Delphi method is unique in that it can be quantitative, qualitative, or mixed

method. Although surveys exist in telepractice adoption, the results were unfounded. Therefore, this study used purely a qualitative Delphi study.

Procedures

Because the study involved human subjects at a variety of institutions, IRB approval was required for all areas. The most important and difficult part of a Delphi study was recruiting the participants. In addition to recruiting participants, documents that included government reports regarding state telepractice cases, as well as The Florida Telehealth Advisory Council's report on expanding the use and accessibility of telehealth in Florida were also collected and analyzed, as some of the rich data came from these documents, rather than just from the participants interviews. The following three tables: Table 1, the timeline for completion for the SLP group; Table 2, the timeline for the university group, and Table 3 the timeline for the regulatory group illustrate which activity occurs at which time in the study.

Recruitment of university SLP program faculty and administrators. Since universities require IRB authorization prior to conducting the study, universities were contacted to ensure what their IRB procedures were so they could be accurately followed. Due to requirements for IRB, this group was recruited first. Universities with telepractice components were identified through speechpathology.com's webinar series (Houston, 2018).These universities were contacted first. Unfortunately, none of these universities were able to participate. Other universities listed on the ASHA website were contacted after Dr. Houston's list from the speechpathology.com's webinar series (Houston, 2018) had declined to participate. The IRB process for these universities were contacted simultaneously with Nova Southeastern University's IRB application. After all

universities were approved for IRB, recruitment letters were sent out to identify the appropriate contact for the study, as well as the requirements in terms of time and information needed. Internal documents relating to telepractice were requested. After the appropriate contact was identified, the informed consent form was sent using Adobe Acrobat's Fill and Sign feature (Adobe Acrobat, 2019). After participants indicated intent to participate, they were sent an informed consent form explaining the study, requirements, and how the data was be used and protected. Acuity Scheduling, an online scheduling application (Acuity Scheduling, 2019) was used to schedule first round interviews. All data, including consent forms, recruiting letters, identifiers, recordings, and transcripts were stored on two secure external drives and a flash drive in a secure location.

Recruitment of regulatory experts. Regulatory experts were recruited through snowball sampling, as well as through attorney offices specializing in telemedicine. Due to the time constraints of these experts, this group was recruited after IRB approval and prior to the recruitment of the SLPs. Recruitment letters included a) requirements for participation and b) a brief summary of the study, as well as and how the data was used. In addition, the letter also requested additional documentation relating to barriers to telepractice/telemedicine/telehealth that were collected after the informed consent form had been completed and returned. Consent forms were completed and distributed using Adobe Acrobat's Fill and Sign feature. Although both ASHA and The Corporate Speech Network (CORSPAN) were contacted, there was no response. Several attorney offices specializing in telemedicine were contacted, resulting with little response. In addition, a snowball sampling was used to identify the appropriate size of this participant group.

Ideally, between all three groups, there should have been 15 and 20 participants. For this group alone, due to low response rates, only two experts agreed to participate. There were no IRB requirements for this group. However, the letter described above was on Nova Southeastern University letterhead, validating the researcher's position in this study. Once participants indicated intent to participate, they received an informed consent form explaining the study, requirements, and how the data was used and protected. Acuity Scheduling was used to schedule first round interviews. All data, including consent forms, recruiting letters, identifiers, recordings, and transcripts were stored on two secure external drives and a flash drive in a secure location.

Recruitment of SLPs. The participants included SLPs in private practice, outpatient facilities, and home health. All participants were familiar with providing speech language pathology services to adult and geriatric patients with communication disorders, as well as familiarity with telepractice. All participants completed consent forms that explained the purpose of the study, confidentiality, time involved, as well as what was asked of them. Recruitment of SLPs consisted of a mixture of direct contact of local SLPs and snowball recruiting. Two Facebook groups that consisted of SLPs interested in or are currently involved in telepractice were used to identify and recruit SLPs. The recruitment posting on Facebook provided clear information related to the time commitment throughout the entire study, as well as how the researcher was to address confidentiality, and what was required of them in each round. The recruitment posting included the researcher's name, institution, as well as a link to the informed consent form. Although participants were requested to complete, sign, and return the informed consent form in one-week, delays occurred due to their own scheduling issues.

Within two days of receiving the informed consent form, the participants received a link to schedule the interview through Acuity Scheduling. Once participants indicated intent to participate, they received an informed consent form explaining the study, requirements, and how the data was used and protected. Acuity Scheduling was used to schedule first round interviews. All data, including consent forms, recruiting letters, identifiers, recordings, and transcripts was stored on two secure external drives and a flash drive in a secure location.

Delphi Rounds

Round one. In round one, nine semi-structured interviews through Zoom conferencing that includes distant participants in the SLP, regulatory, and university groups (Appendices E-G) were interviewed individually with the appropriate protocol that had been approved in the pilot phase of the study. The remaining two semi-structured interviews were conducted in private local locations. Each protocol was created with the participant type in mind. The SLPs were interviewed with a protocol that included SLP related questions to employment, barriers, telepractice, technology use, as well as future aspirations. The regulatory group were interviewed with a protocol that included questions on experience, barriers, knowledge of telepractice/telemedicine, technology use, and future use. The university group were interviewed with a protocol with questions that included employment and experience, curriculum, barriers, telepractice, technology use, and future goals.

The participants were informed of how their responses to the recorded interviews would be kept confidential and the necessity of the interview recording to analyze the interviews. Anonymity was retained by conducting the interviews in a

private, quiet room with no distractions over Zoom conferencing. Zoom is an online conferencing site that enables recording or audio and video meetings with the ability to record (Zoom Conferencing, 2019). To keep the anonymity as to not influence the response, the Zoom interviews used audio only. Local participants were interviewed through in-person interviews. They were recorded, saved and transcribed verbatim using a combination of Nvivo automated transcription software, No Notes, a paid transcription service (No Notes, 2019) and self-hand transcription. The recording did not include personal information, such as name, phone, or email addresses. Participants were identified by the type of participant and a number, such as SLP015. The interview and transcription, as well as any and all contact information were kept in a secure password protected location. Interviews were analyzed prior to document collection Communication regarding round two was conducted through email.

Participants shared difficulties, as well as successes with the interviewer. In addition, as there were three different groups, suggestions were made as to best practices despite the barriers that were being faced by SLPs using Telepractice, or those interested in embarking in remote therapy. All interviews were recorded and transcribed. The interviews were transcribed through an automated transcription service through Nvivo. All of the interviews required another review of the transcripts due to errors. Two interviews had more errors than time required, so needed a professional transcription. No Notes was used for the two transcripts that were full of errors. Once all of the interviews were transcribed, they were imported into a CASDAQ program. ATLAS.ti was the CASDAQ program used to analyze the data for this study (ATLAS.ti, 2019). ATLAS.ti was used to help analyze the transcripts. They

were coded according to the main areas of concern: reimbursement, licensing, HIPAA, education/training, geriatric. Each one of these areas had a number of codes (i.e. benefits of national licensing, benefit of interstate compact, issues with interstate compact, etc.,). Once coding was completed, networks were created for each of these areas and the codes within the areas. Using the networks and barriers, MS Excel spreadsheet was created to make statements that would be distributed to all participants through Survey Monkey. There was an overlap of comments which was synthesized from over 212 statements to a much more manageable size of just 17, Using the data from the interviews, statements were prepared for creation of the survey in Survey Monkey.

Document collection. As the Delphi study in itself may not answer all the research questions, it was necessary to collect any documents from university programs, government organizations, and SLP networking organizations on policies and regulations on SLP telepractice licensing. Request for documents were included in the recruitment letters. However, the collection and analysis of these documents did not occur until round one. The request was made in the recruitment letter to ensure that participants have ample time to obtain and send the documents to the researcher. Attorneys and government associations were helpful in obtaining these documents. The documents were uploaded to a Computer Assisted Qualitative Data Analysis Software (CAQDAS). The CAQDAS that was used was ATLAS.ti. The researcher analyzed the data using ATLAS.ti CASDAQ software regarding different coding systems. Once they were analyzed, they were stored on two external drives and a flash drive in a secure location.

Round two. Round two consisted of statements collected from the interviews

that were sent to all participants. This was a chance for the participants to comment on the data collected from the other participants, as well as add any additional comments. The data collected from round two determined which questions and statements were necessary to have in the next round. The new comments were further analyzed prior to round three. Statements were obtained through a secure link sent to the participants emails where participants could comment and add additional items.

Round three. Round three included voting of statements from round one and two. Statements where more than 80% of participants had agreed will go to the next round. Because consensus (at least 80% agreement) had been reached with the majority of the statements, there was no need for fourth round. Voting was conducted using Survey Monkey with a link sent to participants emails. Themes emerged in this round of analysis.

Presentation of statements. Since consensus was reached in the majority of the statements, another round was not necessary. Sekayi (2017) states that consensus is reached when 80% of agreements are made. After consensus was reached, participants were presented with the final statements. Presentation of anonymous comments and statements were sent to participants' emails through a password protected Survey Monkey link.

The following three tables: Table 1, the timeline for completion for the SLP group; Table 2, the timeline for the university group, and Table 3 the timeline for the regulatory group illustrate which activity occurred at which time in the study.

Table 1

Timeline for Completion of SLP Group

Activity	Timeline
Make posting to the two Facebook telepractice groups	Within first week after IRB approval
Send out recruitment emails to local and snowball SLPs	Within first week after IRB approval
Receive completed informed consent forms	Within one week of recruitment email or posting
Request documents related to study	After informed consent has been collected
Send out scheduling link	Within two-days of receiving informed consent form
Conduct interviews	Within 3 weeks of scheduling
Collect and analyze documents	Within two weeks after interviews
Analysis of interviews	Within 2 weeks of interviewing
Send out statements from 1st round (2nd round)	After analysis of interviews
Receive feedback from 2nd round	Within 2 weeks of sending out
Analysis of 2nd round	Within 1 week of receiving feedback
Voting of statements from round 1 and 2	After analysis of round 2
If necessary repeated voting	After initial voting
Final analysis	After all participants have completed voting

Table 2

Timeline for Completion of university group

Activity	Timeline
Contact university for IRB requirements and begin IRB Process	While working on Nova Southeastern University's IRB
Send out recruitment letters on NSU letterhead with informed consent form	Within first week after IRB approval
Receive completed informed consent forms	Within one week of recruitment email or posting
Request documents related to study	After informed consent has been collected
Send out scheduling link	Within two-days of receiving informed consent form
Conduct interviews	Within 3 weeks of scheduling
Collect and analyze documents	Within two weeks after interviews
Analysis of interviews	Within 2 weeks of interviewing
Send out statements from 1st round (2nd round)	After analysis of interviews
Receive feedback from 2nd round	Within 2 weeks of sending out
Analysis of 2nd round	Within 1 week of receiving feedback
Voting of statements from round 1 and 2	After analysis of round 2
If necessary repeated voting	After initial voting
Final analysis	After all participants have completed voting

Table 3

Timeline for Completion of regulatory group

Activity	Timeline
Contact ASHA, CORSPAN, and telemedicine specializing attorneys	Within first week after IRB approval
Send out recruitment emails and letters to contacts	Within first week after IRB approval
Send out informed consent forms	Within one week of receiving notification of intent to participate
Receive completed informed consent forms	Within one week of recruitment email or posting
Request documents related to study	After informed consent has been collected
Send out scheduling link	Within two-days of receiving informed consent form
Conduct interviews	Within 3 weeks of scheduling
Collect and analyze documents	Within two weeks after interviews
Analysis of interviews	Within 2 weeks of interviewing
Send out statements from 1st round (2nd round)	After analysis of interviews
Receive feedback from 2nd round	Within 2 weeks of sending out
Analysis of 2nd round	Within 1 week of receiving feedback
Voting of statements from round 1 and 2	After analysis of round 2
If necessary repeated voting	After initial voting
Final analysis	After all participants have completed voting

Data Analysis

One of the purposes of a Delphi method is to come to consensus (Hsu & Sandford, 2007). In many qualitative research methods, such as interpretative

phenomenological analysis, saturation is important. However, the design of Delphi, with multiple rounds, allows for deliberations to occur which answered the research question and accomplished the purpose of the study (Avellla, 2016). Analysis was conducted after round one interviews, as well as between subsequent rounds. Due to lack of literature on analysis of purely qualitative data, initially it was decided to follow a grounded theory, using open and axial coding. The type of data seemed to make sense, except that in Delphi, a theory was not being generated. The researcher used Mendeley, a research organization database to conduct searches and organize the literature. In addition to Mendeley, EBSCOhost was also used to locate sources. Using the phrase "qualitative Delphi Analysis" resulted in an article that stated that qualitative Delphi should follow thematic analysis (Brady, 2015). Most research on thematic analysis does not adapt to the Delphi. However, Bazeley (2009) has created a model that Brady (2015) suggested using with the qualitative Delphi studies. Another resource for thematic analysis, that includes a six-step guide, including coding that also includes an online guide was utilized (Braun & Clarke, 2013).

In the traditional Delphi study, Cross-Impact Analysis is normally used to analyze the decision (Dalkey, 2002). However, this method of analysis is used primarily in quantitative or mixed methods studies using quantitative data, such as ranking statements. This type of analysis uses probability and statistics, which is not used with qualitative data. Since this study was purely qualitative, the researcher used interviews, as well as document analysis and thematic analysis, data from subsequent rounds, data from all three groups**.** By analyzing the SLP, University, and Regulatory groups together, data was richer, allowing for consensus to be reached in telepractice

with speech-language pathology.

Ethical Considerations

When working with human subjects, as was conducted in this study, it was important to make sure they are not being endangered. Although this study was only using adults, the participants were in no way tied to the study. If the participants needed to back out for some reason, or needed to take a break, they had the option to do so. Applications for the university programs, government licensing boards, and SLP organizations for IRB were conducted. Since there were no direct contact with patients, there were no HIPAA infractions. As the interviews were individually conducted, the participants remained anonymous, there was no issues of a member overpowering others (Green, 2014). Interviews were conducted in a quiet, private location without distractions, whether in person or through Zoom conferencing.

Data storage. In this study, there were several different types of data. This includes audio recordings of distance-based participant interviews through Zoom, audio recordings for local participants, documents used in the study, transcriptions, and identifier sheets. Data was stored on two external hard drives, as well as on a jump drive. The external drives were password protected and were located in a secure location. The interviews were transcribed through No Notes and self-transcription. During the interviews, no personal information was revealed. Instead a personal identifier was used for each participant. The personal identifier was stored on an identifier sheet that was kept in a secure space which was password protected.

Data destruction. Protecting the data both during and after the study has commenced is important to both the researcher and the participants. 90 days after the

commencement of the study, all personal information was destroyed. This includes recordings (video and audio), documents used in the study with personal information, transcriptions, and identifier sheets. All data from the two external drives will be deleted. Furthermore, the flash drive was wiped 90 days after the conclusion of the study.

Trustworthiness

The effort to ensure quality through validity and reliability was determined through a pilot study to ensure that the questions that were included were valid in the area of telepractice regulations including reimbursement, licensing, and technology. The Delphi method uses a series of rounds that are justified and edited during each round by the experts to further ensure that it is a reliable and valid study (Linstone & Turoff, 2002b). With the qualitative Delphi method, statements are also endorsed by the expert panel (Sekayi & Kennedy, 2017). Each participant was an expert in their area, whether as an SLP, a university SLP program faculty or administrator, or an expert in regulations for telepractice. The statements were voted on by these experts. Those statements where 80% were agreed upon moved onto the next round. Multiple voting rounds were necessary to reach consensus.

The interview protocols for each set of participants (SLPs, regulatory experts, and faculty and administrative experts of SLP Master programs) were conducted using an expert panel who reviewed each protocol according to the participant requirements. Notes were taken using Growly Notes, a desktop application to take general notes, as well as notes of new changes (Growley Bird, 2019). The combination of the notes taken from Growly Notes, as well as those in the protocols were used in a creation of an audit trail in

the form of notes and changes in protocol versions (Appendix A). Changes were made according to the expert and researcher's agreement of the question. Protocols were used with each pilot tester, according to their background. Interviews were recorded. Notes were taken using Growly Notes to take general notes, as well as notes of new changes. Changes to the protocol were made on the protocols with notes using track changes.

Potential Research Bias

Although the researcher does not have a background in Speech-language pathology, the knowledge in English as a Second Language (ESL) is similar. Both fields work with how language is used. In the case of the English Language Learner (ELL), they have knowledge of their native language and are relating it to English. Cognitively, the learner understands the difference. The ESL instructor teaches the rules of English while the learner relates it to their native language. The speech-language pathologist also works with language and how it is used with the patient. As the patients of the SLP may have a cognitive dysfunction, the patient may or may not be aware of the differences in cognition of the language. Depending on the reasons for the language dysfunction, the SLP facilitates in activities, similar to ESL activities that are directed to certain language problems, such as attention and word recall. Due to this familiarity, the ability to assess the importance of this issue was unfounded. Additionally, as the researcher has a geriatric family member with communication disorders who had accessed home health and outpatient SLP services. Although this family member was not part of this study, the interest in future telepractice services could have become a research bias by allowing the researcher's own interest to guide the study. Instead the study was guided by the data and the research itself.

The only connection that the researcher had with the organizations where participants were selected are ones where the researcher's family member received care in the past. The researcher felt that there is no bias between these organizations, the participants, and herself.

Limitations

As with any research study, there were advantages and disadvantages of using a particular research method. The Delphi method was unusual with the ability for it to be quantitative, qualitative, in addition to mixed methods also had criticisms regarding the limitations.

The nature of the Delphi method, with interviews, feedback, and voting in multiple rounds required ample availability on the part of both the researcher and the participants (Skulmoski, Hartman, & Krahn, 2007). Although one of the major limitations is that participants may not be of been available to participate in all rounds, all participants participated throughout data collection. This might have limited the number of participants in the study. Ideally, the researcher wanted a total of 18-20 participants. However, 11 participants were sufficient to obtain the level of data needed for this study.

Another limitation was the experience as a new researcher. As a new researcher, it was necessary and important to be diligent in the processing of the data. New researchers could have imposed their own ideas, rather than reading the data (Avellla, 2016), One way of ensuring the quality of the study was to consult with peers and experts. Consulting with the dissertation committee helped in ensuring that the researcher was not imposing own ideas, but reading what the data was saying.

Linstone (2002) lists eight basic pitfalls for Delphi: (1) the idea that events too far in the future are discounted, (2) prediction urge where uncertainty masks significance of Delphi results, (3) Simplification urge – seeing the parts, rather than the whole, (4) Illusory expertise – in the area of forecasting experts are not the best in that area since they are an expert in a relatively small area, (5) sloppy execution, either on the part of the researcher in selecting the experts, or in the experts themselves in the information provided (6) Optimism pessimism bias where the researcher is forecasting too far on either end, (7) Overselling – as it is adaptable to a multitude of avenues, as well as quantitative, qualitative, or mixed methods, it may not be appropriate for all studies, and (8) Deception – the tendency to use it to manipulate false information. In reflecting back on the study, the researcher was able to eliminate participants that were not appropriate experts for this type of research. By using the Delphi Method with three rounds, statements were clarified through commenting of statements. Using experts in these areas, it was made clear through each round that the Delphi Method was the appropriate methodology for this study. Hsu and Sandford (2007) suggest that time is also a constraint where it is needed to receive feedback between rounds. It was suggested that the Delphi, like other survey type instruments, have low response rates, as well as feedback that was too general. Although any of these limitations could have hindered the success of this study, the researcher was determined to keep the purpose of this study in mind when collecting the data, analyzing the data, and writing the final report in a way that will forward the progress of telepractice with speech-language pathologists in their treatment of adult and geriatric patients.

Conducting this Delphi study on the efficacy to telepractice with speech-language pathologists analyzed how the barriers to telepractice, including licensing, reimbursement, privacy and confidentiality, and technology and technology acceptance are affecting the adoption of telepractice with speech-language pathology. Through a multi-round discourse, the goal was to come to a consensus by bringing together SLPs, regulatory experts, and university SLP program faculty and administrators to discuss these barriers and future solutions.

Chapter 4: Findings

The purpose of this study was to understand how barriers such as regulatory, lack of telepractice education, and technology acceptance are hindering the adoption of SLP telepractice with adult and geriatric patients. The research questions that guided the study included a central research question and three sub-questions:

Central Research Question

How do regulatory and technology barriers affect the use of telepractice by speech-language pathologists?

Research Subquestions

1. How do telepractice regulations limit the use of telepractice by speech-language pathologists in clinical, private practice, and home-health settings?
2. How does the availability of HIPAA compliant technologies limit the use of telepractice by speech-language pathologists in clinical, private practice, and home-health settings with adult and geriatric patients?
3. What do university masters-level speech-language programs teach about the use of telepractice, telepractice regulations, and HIPAA compliant technologies in their curricula?

The Panel of Experts. During the recruitment stage, the intention was for there to be a total of 18 to 20 participants, with approximately 6 in each group. Unfortunately, some groups of participants were more difficult to form than others. Due to the holiday and exam schedule for universities, as well as medical issues, only three universities agreed to participate.

Obtaining experts in telepractice regulation was the most difficult, as many of the government agencies did not provide access to a person. In this group, there were only 2, one who is an attorney who specializes in telemedicine, and the other who owns her own company but is very knowledgeable on the regulations for speech-language pathologists in telepractice.

The SLP group consisted of six SLPs who work with adult/geriatric patients. Although the study was on telepractice, it wasn't necessary that participants had experience in it, as long as there was interest and knowledge of it.

Demographics. Although the demographics were not an essential area of interest, of the 11 total participants, all were women, except for the attorney. Of the SLPs, all but three had generalized knowledge. Of those that were specialized, one had AAC specialization, and two had LSVT Loud Certification.

Delphi Method Results

During data collection and analysis, statements were created and refined. Due to the nature of the Delphi method, themes were revealed throughout the analysis and collection of the data. The sub-headings include the findings from each round that was discovered through data collection and analysis.

Round one. This round included semi-structured interviews on general experience, education and training on telepractice, and regulations impacting telepractice. Prior to conducting this study, several SLPs not included in this study had stated that the interstate compact would provide reciprocity for licensing which the researcher assumed was correct. However, one of the regulatory experts clarified that reciprocity does not occur in an interstate compact for licensing. This participant explained that reciprocity is

only in the application, much like a college application. Despite a central application, applicants should still follow the licensing requirements for each state being applied for.

Before round one, HIPAA appeared to a problem for SLPs in Medicare reimbursement, technology, and licensing. In actuality, as an SLP participant stated, "HIPAA has affected the cost of doing business". Each web-conferencing tool has different costs associated with it, depending on what version it is: basic, pro, corporation, or HIPAA compliant. For example, Zoom conferencing costs $200 per month for the HIPAA version (Zoom Conferencing, n.d.). SLPs need to continue following the rules of being compliant.

Reimbursement is a major burden for adult and geriatric patients. In addition, as stated another SLP who has Augmentative and Alternative Communication (AAC) certification "…I can't bill Medicare and most of my patients are Medicare. Not only adults are in geriatrics but also if you have ALS and you're quite young, you typically qualify for Medicare." SLPs and university administrators spoke about their difficulties with reimbursement, as well as reimbursement education for new SLPs. Because SLPs are not recognized as telehealth practitioners, they are not reimbursed for services rendered. One university administrator who has had multiple roles as a practitioner and administrator believed that one reason for lack of reimbursement is due to using the term, telepractice which is not recognizable by regulatory agencies such as Medicare. Another regulatory expert explained that because the United States has prohibitive laws, it may be best not to rock the boat in terms of telemedicine, as this may cause more prohibitive laws. Round one clarified the burdens that SLPs experience who are practicing or attempting to embark on therapy through telepractice. For round two the conversations

between the researcher, SLPs, regulatory experts, and university faculty and administrators were synthesized into statements that were sent to all participants to agree, disagree, and comment.

In round one, the SLPs spoke about their education in their Masters Speech-Language Pathology programs. None of the SLPs interviewed received any education on telepractice regulations or the technology used. With those who worked at organizations providing telepractice, most received no training. Those that received training had very limited training that only covered how to use the software. One SLP referred to the shortage of SLPs, especially in specialty areas and believed that this was cause for more training and education in telehealth. Included in this study was a university that used to have a telepractice curriculum. That curriculum was funded by the Department of Medicaid for two years with the Department of Education. The Department of Medicaid with the Department of Education had funded this program with the purpose of training students who would be working with school-based children. Unfortunately, the grant was not renewed, although successful. Other universities provided ethics, information on HIPAA compliance, regulations, and independent studies. One university was being more progressive by developing a graduate certificate in telehealth. Most of these administrators stated that there were problems with funding in providing education on telehealth and that most faculty are not well versed in telemedicine themselves.

Round two. In round two, all participants (SLPs, regulatory experts, and University faculty and administrators) were provided with the same survey (Appendix H). Using the data from round one interviews, the interviews were coded according the important barriers, with a number of codes within those barriers. The codes were then put

into networks so that relationships and commonalities could be more clearly seen. An excel spreadsheet was used with the networks with comments from the participants. It was using these comments that statements for round two survey (Appendix H) were created. Under each statement, participants could also make additional comments. Since there were a number of duplicates, and like statements, the number of statements were condensed to only include a manageable size that were relevant to efficacy of telepractice. The result was 17 statements. Because the surveys was done anonymously, it was impossible to identify which participant made which comment.

In this round, two statements did not achieve consensus. The first statement that did not reach consensus included coming up with a common name for working remotely. The SLPs in this study, although all working with adult/geriatric patients, had varied backgrounds. Therefore, it was difficult to come up with an appropriate term that could be used by all practitioners. The following statement reflects their division on a commonly used term, "For reimbursement a more medical and familiar term like telehealth would be best but in schools a less medical term such as teletherapy would be more appropriate." One of the SLPs also suggested using a more universal name that could be used for all practitioners of telehealth, not a term just for speech-language pathologists.

The other statement that did not achieve consensus was regarding using the Veteran Affairs (VA) model for reimbursement. The problem with this question was that not all SLPs were familiar with this model. Although there were only two statements that had not reached consensus, additional statements were added in round three so that clarity

was made, as well as finding out more about what role technology should play in telepractice adoption.

Licensing consensus was reached in the following areas: regulatory agencies being aware of SLPs' services, interstate compact lessening the financial burden, shortage of SLPs, interstate compact streamlining the process. In round one, SLPs spoke about the difficulties with reimbursement. SLPs believed that regulatory agencies were uninformed of what services SLPs provide. As a result, the statement, "Regulatory agencies need to be aware of services provided by SLPs" was added in round two. Although participants provided no comments to this statement, the majority of responses were agreed upon, resulting in consensus.

Another area of consensus for licensing was regarding the interstate compact. In round one, SLPs spoke about the financial cost of getting licensed in multiple states. Although not all had gone through the process, states required a separate licensing fee, as well as other requirements: i.e. fingerprinting, CEUs, or testing which could also incur a fee. Because there is one licensing fee in the proposed interstate compact, the financial burden of SLPs is alleviated through this streamlined process. The interstate compact streamlines this process where there is one licensing fee which helps alleviate the financial burden of the SLP. In this round, consensus was reached on the interstate compact since more than 80% agreed with this statement. In addition, regarding the interstate compact, participants stated that the compact would allow for specialized services, access to care, as well as technology that could be used remotely. Consensus was also reached on this statement.

Cohn and Cason (2016) explained the shortage of SLPs, especially in rural areas. Likewise, the interviews in round one also referred to the shortage of SLPs. Some even explained that specialties, and general SLPs alike were difficult to find in many rural areas. As a result of these interviews, a statement was included in round two to say allowing SLPs to work remotely would alleviate the shortage of qualified SLPs in remote areas. All participants agreed with this statement.

Despite the shortage of practitioners, Medicare does not allow patients to self-pay a Medicare provider. Although participants reached agreement that Medicare should allow patients to self-pay, they did not believe that Medicare would bend on this rule. This is a statement where it would have been helpful to have a Medicare representative in this study, had they responded to initial recruiting inquiries.

Currently SLPs are not approved telehealth providers (Center for Connected Health Policy, n.d.). Due to this issue, Medicare does not reimburse SLPs for telehealth services. Participants agreed that Medicare should approve SLPs to be telehealth practitioners which led to consensus.

In round one, SLPs stated that there was not enough advocacy for telehealth on the part of ASHA. Since ASHA has not advocated to include SLPs in the telehealth parity act (115th Congress, 2017a), telehealth by SLPs is not reimbursable at the same as in in person services. All participants agreed that the rate of reimbursement should be the same for telehealth and in person services.

In addition to regular speech language pathology services, some SLPs also provide specialty services. These services were explained to the researcher in round one interviews. They include Augmentative Alternative Communication specialists (AAC),

Lee Silverman Voice Treatment Specialists, and Speak out specialists, all of whom use technology to assist the patient in the ability to speak language. Although consensus was made on whether Medicare modifications should be made to allow for these specialists to provide remote therapy, some believed that it shouldn't single out specialists since it is a mode of practice, not a practice in itself.

In round one, interviews included questions on SLPs program curriculum and telepractice education. As a result of these interviews, a statement was included that stated that SLPs interested in working remotely need training and education on technology use, HIPAA requirements, and policies. Although consensus was reached on this statement, a comment was added that the statement was too vague, as it did not include all training/education needed. The commenter suggested training was also needed for working with telepresenter/telefacilitator/eHelper, assessment and treatment practices in telehealth, interpersonal practices.

SLPs relayed in their interviews in round one that training on HIPAA compliance was needed and that it was a complex beast. As a result of their comments, a statement for HIPAA related technology training was added in round two that said training in this area should follow a medical model. Despite some uncertainty in the comments, consensus was reached. Comments included not knowing what the medical model entails and that there is no standard medical model for training since each facility has their own training methods.

Due to the limitation of geriatric telepractice research, investigating training practices was important in understanding best practices for working with this population. In round one, questions were asked as to what technology reluctance and acceptance the

patient, practitioner, and caretaker has, including what technology they have used. SLPs provide service to a variety of patients, with different cognitive abilities and skill levels. As a result of these first-round interviews, a statement in the second round included these aspects, including a strong support system. The participants emphasized these items as important details to consider when using technology with this population. In spite of this, one participant commented that this could also be true of other populations. Despite being told throughout the study that the focus was on the adult and geriatric population, one participant commented about singling out this population. Perhaps this participant had not paid attention to this item in the instructions. Even with these two comments, nine out of 11 participants agreed with the statement, achieving consensus.

The final area of education that was explored was related to the academic preparation institutions. In round one, SLPs were asked questions on what training or education they had received in telepractice. In their master programs, no SLP had received any education or training on telepractice. In addition to SLPs experience and training, the university administrators were asked about their curriculum and what was needed in their programs in terms of telepractice. These university administrators of SLP master programs stated that the curriculum should integrate elements of working remotely that focuses on compliance, reimbursement, licensing, ethics, advocacy, practice settings, and client types. This statement was added in round two. Even though consensus was achieved, a comment was added that if telepractice were to be more widely recognized, it should be introduced prior to entering the career field.

Round three. In this round the 17 statements from round 2 were condensed down to six statements. The statements that had reached consensus were not included in this

round. As a reminder, consensus is achieved when 80% agreement is met (Sekayi & Kennedy, 2017). Of the six statements, two statements reached consensus, two did not, and two were open-ended questions.

Remote-based therapy, whether it be in speech-language pathology, or a more medical model uses a multitude of terms to refer to therapy conducted at a distance. Round two included deciding whether the choice of the term would lessen the burden of access to care and regulation of services. The participants also chose a term that they preferred. Round three, on the other hand, only included the highest chosen terms that participants believed would provide the greatest level of acceptance among practitioners, clients, and regulatory personnel. Those terms included telepractice, telehealth, teletherapy, and telemedicine. Due to a number of factors, which included the comfortableness of using the current name, choosing a name that is more descriptive of what SLPs do in remote-based therapy, and finding a name that is appropriate for both adult/geriatric and school age populations, consensus was not achieved.

The other statement that did not achieve consensus was whether or not ASHA should require certification for speech language pathology services provided remotely. Those that agreed felt that too many SLPs were jumping on the bandwagon of remote therapy. They felt there needed to be a way to regulate and set those with training apart from those without. Those who disagreed felt that requiring an additional certification would be another barrier to telehealth and that it was not needed since telehealth is a modality, not a specialty of service.

One statement that reached consensus was the clarification of the VA model. In round two, several participants were not aware of what this model was. In the VA,

clinicians are able to treat patients in person or remotely at the same rate. The model stipulates that veterans are encouraged to use telehealth services where they will be charged and reimbursed at the same rate as in person. Outside of the VA, Medicare currently does not reimburse for Telehealth. Other payers that cover telehealth services charge different rates from in person. Although all participants agreed that telehealth reimbursement should occur at the same rate as in person, one participant did not believe that there should be one payer, as it puts the power in the federal government, and negates the state's ability to protect their constituents.

The other statement in this round that reached consensus was whether or not academic preparation institutions should provide technology training for speech language pathology services provided remotely. All participants agreed with this statement. There is a feeling that students currently do not understand what is involved in telehealth: ie., regulations, ethics, and technology use. Some currently view telepractice as just a way to work from home, avoid day care, commute, etc., Providing the necessary education on telehealth with research based best practices on the full breadth of telehealth, including technology regulations and use would provide students a more informed and professional understanding of telehealth.

Two open ended questions were also included in this round. The first question requested technology training recommendations for telehealth. Participants recommended that training include knowledge of telehealth regulations, clinical patient knowledge, technology options. In addition, training should include hands-on applications of thee technology used. It was suggested also that this training be included in both the undergraduate and graduate levels, as well as continuing education courses. Training

should also include trial versions of software applications. This could be in applied as in-service, webinars, or conferences.

The other question asked for additional information on regulations, technology, and education via telehealth. It was suggested that there should be an advocacy campaign from ASHA on telehealth. ASHA has been putting efforts into other areas of speech-language pathology with little on telepractice. Having an advocate in ASHA would go a long way in regulating telepractice with SLPs in mind.

Themes

In qualitative research, themes are used to identify important patterns across data sets that are centered around the research questions (Braun & Clarke, 2013). The themes were identified through the analysis of the data in each round of the Delphi method. The research questions helped in interpreting the themes that were relevant to this study. The themes were guided by the sub-question that relates to the theme in question.

Research Subquestions and Themes

1. How do telepractice regulations limit the use of telepractice by speech-language pathologists in clinical, private practice, and home-health settings?

SLPs and university administrators used their experiences as practitioners to relate to barriers that are impeding telepractice use. Regulatory experts correlated the legal regulations that refer to telepractice with speech-language pathologists.

Because there are a multitude of terms for practicing remotely, consensus was not reached on this naming issue. However, it did provide an understanding of why some regulatory agencies provide roadblocks to the use of telepractice.

Theme 1. *The lack of a commonly agreed upon name for remote therapy has caused problems in licensing and reimbursement, particularly for adult and geriatric patients.* ASHA coined the term telepractice in 2005 (American Speech-Language-Hearning Association, n.d.)**.** Although ASHA uses the term, telepractice, other terms currently in use include telemedicine, telehealth, and teletherapy. In the first-round interviews, participants speculated that not using a more medical model term, such as telemedicine or telehealth has hindered their reimbursement rates. The naming issue appeared in all three rounds as it appeared to be a source of contention. Because speech-language pathologists are not approved telehealth providers, perhaps the use of the term is hindering approval by regulatory agencies. Other professions use terms such as telehealth and are more widely accepted than in speech language pathology. The Centers for Medicare and Medicaid Services also used the term telehealth. Since, they are the ones that are writing policy, it makes sense to follow their example. In addition, many state regulators also use the term telehealth. Although this study focused on adult and geriatric patients, it is believed that different populations may need a more age-appropriate term. The participants felt that the term telehealth would be appropriate in medical settings. However, for school-based therapy, it would not be appropriate. Neither is telepractice as it could describe other professions that are not eligible for reimbursement which may be the reason why the current term is not producing results in the area of remote therapy reimbursement.

Theme 2. *SLPs conducting telepractice are not reimbursed at the same rate as therapy provided in person.* The Medicare Telehealth Parity Act is proposed regulation that would allow practitioners to be reimbursed for remote therapy at the same rate as in

person. Unfortunately, SLPs are not included at this time, as they are not recognized as telehealth providers. Currently, Medicare does not cover telehealth for speech-language pathologists. As a result, they are not paid the same for the same services they provide in person. This is a problem with access to care, as many patients who need services, either by a general SLP, or specialists may not reside in area where there are these practitioners.

Theme 3. *Because there is a shortage of SLPs, the lack of multi-state licensing for SLPs caused by licensing boards has restricted patients' access to care.* Another issue with access to care is regarding licensing. Due to the shortage of SLPs, SLPs are applying for licensure in multiple states to provide services to more patients. Unfortunately, currently there is no licensing for SLPs who are looking to work in multiple states. There is also the added hassle of requirements for each licensing board, such as CEUs and fingerprinting, as well as difficulty finding a knowledgeable person to resolve licensing issues.

2. How does the availability of HIPAA compliant technologies limit the use of telepractice by speech-language pathologists in clinical, private practice, and home-health settings with adult and geriatric patients?

Theme 4. *Although technology is readily available, HIPAA has affected the cost of doing business.* Prior to the study, the researcher did not fully understand the requirements for being HIPAA compliant, nor what the financial cost of being complaint was. However, as the research began to shed light on those requirements, enhanced by the interviews from speech pathologists practicing remotely and regulatory experts who emphasized that technology in itself is not HIPAA Compliant, the researcher began to have a greater understanding of what it means to be HIPAA compliant. It is the

practitioner who must be compliant in order to protect patient's Electronic Health Record (EHR). During round one, SLPs and University administrators spoke about the technology that they used in therapy, what they needed to do to be compliant, and what they would like if HIPAA compliance was not the issue. Although the regulation of HIPAA compliance is an area that will continue to be regulated, the purpose of this line of questioning was to see what they were currently using, including options for future technology. Participants stated that they would like to use the iPad with video capabilities. Learning about telepractice involves learning about a new system, such as how to manipulate the patient's camera.

Regulatory experts provided the legal background surrounding HIPAA regulations while university administrators and SLPs relayed their experiences of how HIPAA regulations affect their technology options in relation to telepractice.

HIPAA in essence is there to protect the Electronic Health Records of the patients. HIPAA requires data to be encrypted, including any auditory or video recording. A unique identifier is used by all users that is password protected. In addition, HIPAA requires that all sessions require an automatic log off. These requirements are in place to protect the EHR of the patients. Technology is becoming more advanced and available. Because of the advancement of technology through web-sourced organizations such as Zoom, Web Ex, in addition to many others, HIPAA regulations are easier to follow to protect patients' EHR. Despite the availability of technology, it is cost prohibitive. Different versions of platforms, such as Zoom, Web Ex, etc., are at different cost points. The basic version is the cheapest, followed by pro, and HIPAA compliant. The high-cost of using HIPAA compliant technology is difficult for a single, private practice

practitioner, who may incur other costs including additional technology, licensing fees, and CEUs.

3. What do university masters-level speech-language programs teach about the use of telepractice, telepractice regulations, and HIPAA compliant technologies in their curricula?

Theme 5. *SLP programs are not universal in teaching about telepractice.* University administrators are in charge of running SLP programs and provide future SLPs with the background to work in the field. Because of this, they were able to speak about the current curriculum related to telepractice and what changes they felt were needed to have telepractice more readily adopted. The SLPs came from a variety of backgrounds, some with telepractice experience, and some without. They spoke about their own education and training in speech-language pathology and telepractice and how it related to technology. None of the SLPs interviewed received telepractice related instruction in their curriculum. Some had received minor training from their employers on conducting therapy at a distance and how to use the technology. However, most received no training on basic telepractice or on the technology used in telepractice. The interviews in round one provided a history of the SLP program administrators, their program, and what was lacking. It was clear through these interviews that education in the SLP program on telepactice was needed, not just for the students, but also for the faculty. Many faculty SLP instructors are uninformed about telepractice and the regulations for it. The universities had a range of curriculum elements related to telepractice. One university was primarily focused on training SLPs in preparation for working with school-age students. Despite it being a successful program, Medicaid

dropped the funding for this program. Another program in a different university is more current and up to date since it is an active operational program. currently active in that it is still operational. This program currently has one independent study student in telepractice, as well as workshops and elements on barriers and ethical considerations of practicing this mode of therapy. Although they did have elements of telepractice, they had no training on the technology, and no hands-on experience. The final university had a more diverse program, covering barriers, seminars, and independent hands-on experience. At the time of this study, this program was working on developing a graduate certificate in telepractice. Despite the variety of training and education, there still was very little focus on training in the technology used in telepractice. All three university administrators referred to two major issues. The first is that faculty and some administrators are not well-versed in telepractice themselves. Without this knowledge it is difficult to find instructors to teach and develop these courses. The other issue is regarding financial funding. It costs money to run these programs. One of the university administrators spoke about being funded by the Department of Education on Medicaid. Although it was deemed successful, the funding was dropped. Another university administrator spoke about the difficulty of receiving financial backing for courses, faculty training, technology, and operational costs. Despite the need, it is difficult to secure funding to run these programs. If there is no one to give the financial backing, the program cannot run. If the benefactors do not see telehealth as a program that is feasible, they are likely not willing to invest in these programs.

Summary of Findings

Telepractice for Speech-language pathology is a somewhat new area for SLPs. Although it has been investigated in the school-age population, it had not been explored in the adult/geriatric population using a qualitative Delphi study. In this chapter we explored in each round the barriers of telepractice, include licensing, reimbursement, and privacy and confidentiality. The lack of a universal term for remote therapy has been causing undue difficulties for SLPs and their patients and caretakers. Due to the shortage of SLPs, the ability to practice in multiple states is further hindered by current licensing boards and their laws. Despite the availability of technology, it is hindered by the cost of required HIPAA versions. Finally, education on telepractice is lacking, as most programs have very little at best, or no education or training on telepractice at worst. There were no programs within the study that included experience with particular technology platforms that SLPs could use in their telepractice therapy.

Chapter 5: Discussion

The purpose of this study was to understand how barriers such as regulatory, lack of telepractice education, and technology acceptance are hindering the adoption of SLP telepractice with adult and geriatric patients. Using the Delphi method as the methodology allowed for experts to come to a consensus on different statements in these areas. Consensus is reached when there is at least 80% agreement on a statement (Sekayi & Kennedy, 2017). The research questions and the theoretical framework (UTAUT) helped to make sense of the findings from this study. The technology piece of the study was analyzed through the UTAUT lens. The policy areas were investigated through the current regulation experiences of SLPs and university administrators of SLP programs, as well as from the documents they shared. The regulatory experts in the field of telemedicine helped to explain the policy regulations that are hindering the adoption of telepractice in speech language pathology.

This chapter is organized around the central research question: *How do regulatory and technology barriers affect the use of telepractice by speech-language pathologists?* This question was used for each of the barriers affecting the adoption of telepractice, what the five themes mean to the adoption, and what potential solutions arose as a result of the study for the adoption of telepractice. Each research sub-question is followed by the themes relating to that question.

The following three themes relate to this subquestion:

1. How do telepractice regulations limit the use of telepractice by speech-language pathologists in clinical, private practice, and home-health settings?

Theme one. *The lack of a commonly agreed upon name for remote therapy has caused problems in licensing and reimbursement, particularly for adult and geriatric patients.* Naming has affected almost all of the barriers to the adoption of telepractice. As far as licensing is concerned, the use of the name telepractice has not affected it directly. However, there is a delicate balance between licensing and reimbursement. Some states have no legislation for telepractice and this is most likely due to organizations such as the Centers for Medicaid and Medicare Services not allowing SLPs to be approved telehealth providers. Reimbursement is a major area or concern for SLPs who want to work remotely, especially for those that are working with adult and geriatric patients. Because Medicare currently does not cover SLPs working remotely, it affects this population in a very real way which may be partly due to using a name that is not recognized or universal. Telepractice is a term that is used by both SLPs and psychologists alike.

Because there is no standard, global definition for remote healthcare, with a multitude of terms, such as telepractice, telehealth, telerehabilitation, teletherapy, among many others, practitioners are often excluded for reimbursement or licensing. ASHA is the governing body for speech-language pathologists. Unfortunately, they are not doing enough to promote telepractice, despite the shortage, especially in remote areas. In round one, one of the university administrators who has been a long-standing practitioner in speech-language pathology stated that ASHA used to produce technical papers to guide SLPs on how to conduct themselves as telepractitioners. ASHA has not made a more concertive effort to make telepractice an important initiative. Without a name that is universally recognized, SLPs may find it difficult to make larger strides in the area of remote health, especially with the barriers such as licensing and reimbursement.

Recommendations for naming. Due to the difficulties in the SLPs getting multi-state licensing and reimbursement, it is recommended that ASHA take a more active role in advocating for telepractice. Without a strong, active organization advocating for these professionals, no changes in these areas can be made. Although there was no agreement on a name to replace telepractice, it is equally important to have a name change. It could be using the name, telehealth, or another name. However, it must be recognizable by regulation agencies that legislate for health professionals.

Theme two. *SLPs conducting telepractice are not reimbursed at the same rate as therapy provided in person.* Medicare Telehealth Parity Act allows for Medicare rates to be the same via telehealth as in person (115th Congress, 2017a). This piece of legislature was proposed in 2017. However, at this date, it still has not passed to the agreement of SLPs and ASHA. In addition to the Medicare Telehealth Parity Act, the Connect Act was proposed (115th Congress, 2017b). In the Connect Act, it was proposed to amend title 18 of the social security to include telehealth services. According to the 2019 ASHA President in a letter, although pleased to see telehealth expanding, it is still lacking, by not including other health professionals, such as SLPs and audiologists (Robertson, 2019).

During the first-round interviews, SLPs complained that Medicare did not understand the services that SLPs provide. Due to this, Medicare was frequently declining claims for reimbursement. Medicare needs to understand that the services that they are providing include swallowing and speech impediments for geriatrics who are not able to get to a specialist, either due to lack of specialists in their area, or due to mobility issues. Perhaps another reason for Medicare declining claims is the use of the name, as in

theme one: telepractice where it is used for multiple practitioner types with no clear definition. If Medicare does not understand what telepractice is they are less likely to approve claims. Telepractice is a mode of service, not a separate service. It is because of this misunderstanding by Medicare that reimbursement is the most difficult barrier that SLPs are dealing with.

Recommendations for reimbursement rates for telepractice. Because of the misunderstanding that Medicare has in regards to telehealth parity, it is important that Medicare regulators understand that, the service that an SLP provides, whether in-person or through remote means should be charged the same rate. It is advised that Medicare professionals walk a mile in the SLPs shoes to understand what the SLP does. They can do this by asking questions prior to rejecting or approving claims or observing telepractice sessions. However, due to timing and resources, this may not be possible. It is the responsibility of ASHA to put advocating for telepractice at the forefront. The lobbyist that are lobbying for telepractice also need to be aware of the duties that the SLP performs in telepractice so that they can accurately speak about the advantages of allowing SLPs to be listed on the approved telehealth practitioner list.

Theme three. Because there is a shortage of SLPs, the lack of multi-state licensing for SLPs caused by licensing boards has restricted patients' access to care. A report in 2018 was presented by ASHA on this shortage. In this report, it stated that the Bureau of Labor Statistics would grow faster than average through 2026. An additional 25, 400 SLPs would be needed to fulfill this demand (American Speech-Language-Hearning Association, 2018). The current reports by the Bureau of Labor Statistics has not changed since this report by ASHA. It states that it is projected to grow 18% between

2016 and 2026, due partially to the large aging baby-boomer population with health conditions that are affiliated with language impairment (Bureau of Labor Statistics, 2019).

There is an excess of employment opportunities for SLPs, especially for the geriatric population, as the baby-boomer continues to age with more language impairments associated with health conditions. The Centers for Disease Control and Prevention (CDC) now states that 6 adults in 10 have a chronic disease and 4 in 10 have two or more chronic diseases (Centers for Disease Control and Prevention, 2019). Some chronic diseases include heart disease, cancer, and diabetes, including those that are associated with language problems: stroke, Lyme disease, and dementia.

Although there is a demand for SLPs to practice through telepractice, they are not able to because currently there is no multi-state agreement in place where they could treat patients in other states. However, there is one that is currently in the final draft stage (American Speech and Hearing Association, 2019). Providing access through an interstate compact will go all way in giving access to aging patients in remote areas that require language therapy.

Recommendations for multi-state licensing. Because each state follows different regulations and works at different speeds, it is unlikely that a national license would be approved for SLPs. However, the interstate compact is currently in development. Because the intestate compact is currently in its final stages of approval, the compact would make a faster, easier impact for SLPs and patients alike. It is recommended that attorneys, ASHA, and those that involved in drafting the compact complete it quickly so that patients in remote areas can take advantage of SLPs through

telepractice and the interstate compact. Although the interstate compact is likely to be completed quickly, SLPs also need to be reimbursed for their services. Therefore, it is recommended that ASHA and lobbyist step up their actions to get the Medicare Telehealth Parity Act approved to allow SLPs to be approved telehealth practitioners.

The next theme, theme four is related to technology, including the barriers that govern the technology used in telepractice. The subresearch question that relates to this theme is:

2. How does the availability of HIPAA compliant technologies limit the use of telepractice by speech-language pathologists in clinical, private practice, and home-health settings with adult and geriatric patients?

Theme four. Although technology is readily available, HIPAA has affected the cost of doing business. Technology used in telepractice can be costly, especially when using technology and software that is HIPAA compliant. Prior to conducting this study, the researcher was under the impression that HIPAA technology was (1) limited and (2) was a major barrier to the adoption of telepractice.

Being a remote practicing SLP is not without financial costs. As an SLP that is new telepractice, the practitioner needs to follow certain steps to be compliant, as well as operationally. Operationally, the SLP must make sure that the broadband connection is sufficient to use video conferencing tools. In addition, there may also be other technology that may be needed to facilitate in the language skill improvements. This could include assistive communicative technology (AAC). According to the ASHA Leader Live blog, this technology can cost between $3,000-4,000 (Ortiz, 2010). In addition to AAC technology, broadband connection, there is also computer, security, microphone, and

camera costs. The cost of a video conferencing tool, such as Zoom, for example is not the same for general subscriptions. SLPs need to do their due diligence in researching the appropriate platform for them. The website may claim that it is HIPAA compliant when it has not followed the basic rules for HIPAA compliance. They are required to follow the security rule and privacy rule. As stated earlier, the PHI should only be accessed by authorized users with a secure communication and monitoring system in place (Taylor, 2015). Each one of these tools, and systems may have a separate cost. Depending on the platform, it may also require additional software with an added cost. The platform itself for the conferencing tool can vary in price, depending on what kind of BAA the platform has. For example, VSee has prices from free to up to $500 per month (VSee, n.d.), where Zoom HIPAA compliant plans start at $200 per month (Zoom Conferencing, n.d.).

Although HIPAA regulations have not affected the availability of technology, it has affected the operational costs of conducting a telehealth-based business. A several of the participants stated throughout this study, technology itself is not HIPAA compliant. It is the participant who was be compliant in what he or she does to protect the EHR of the patient. Currently, there are a variety of conferencing tools that are HIPAA compliant with a range of price points. In addition to these tools, other skills and technology could be used in conjunction with the conferencing tools. Although the participants currently weren't using this type of technology in telepractice, they could be used, as long as they follow the privacy rule, security rule, and breach notification rule of HIPAA compliance.

Technology can be a challenging to navigate, especially for individuals who are new to it and have cognitive and motor impairments. Although the majority of the SLPs believed that technology would be difficult for the geriatric population, others felt that

with patience and proper guidance and instruction, they would begin to understand and become comfortable with it. For example, a participant spoke about teaching students, using the technology, and using her 90-year-old parents to test how they adapted to the technology. They felt uncomfortable at first and warmed up with patience, practice, and training, and even were excited to try the new tech tools.

As an English language instructor to adult ELLs, the researcher used a variety of activities that related to the learner to allow greater language understanding and retention. As a caretaker for a geriatric with language impairment, the researcher understands the similarities between speech-language pathology and language learning. The geriatric patient wants to know that they are important, that they matter. Therefore, using technology or activities that could relate to their lives and gamified in a relatable way could make re-learning and activating language more interesting and available to the patient.

Recommendations for technology. Because HIPAA regulations are there to protect the privacy of the patient, the regulations for HIPAA in regards to technology must be followed. However, there are options for the technology and how it can be used with adult and geriatric patients. First, there are many conferencing tools that can be used, such as Zoom, Web-Ex, and many others. New SLPs and SLPs new to telepractice need to trained on different technology options, including compliance. It is recommended that academic preparation institutions provide technology training as a continuing education unit for SLPs new to telepractice. For new SLPs enrolled in master or bachelor degrees in speech-language pathology programs, it is suggested that these programs include technology and privacy training as part of their curriculums.

In addition to the technology itself, recommendations for using technology with adult and geriatric patients include choosing technology and activities that are appropriate for the platform and population. It is recommended that when choosing technology for a geriatric patient that the SLP take in account their technology skill level, as well as any cognitive impairments. Like choosing activities for an ESL classroom that is at a distance, it is recommended that activities are patient appropriate, as well as platform appropriate. Not all activities that are used in-person are appropriate for all patients or all platforms. Therefore, is recommended that SLPs make an assessment of the patient, the technology to be used, as well as the activities so that the patient can make maximum progress through telepractice.

The final theme, theme five, relates to education with the following subresearch question:

3. What do university masters-level speech-language programs teach about the use of telepractice, telepractice regulations, and HIPAA compliant technologies in their curricula?

Theme five. *SLP programs are not universal in teaching about telepractice*

Very little research has been conducted on telepractice education curriculum. However, Overby and Baft-Neff (2017) conducted a quantitative study exploring perceptions of telepractice pedagogy in speech-language pathology. It was discovered that solving problems with the internet was a challenge, In addition, at least two hours was needed for instruction to cover technology, confidentiality, and role-playing. During both the pilot stage and the semi-structured interviews in round one, SLPs stated that they had received very little training and no education in their master program on telepractice and the

regulations impacting telepractice. The training only consisted of informal training on how to use a particular platform. Other than Veteran Affairs (VA) SLPs who have a stronger telehealth program supported by the government in place, most SLPs felt ill-prepared to practice telepractice. Because the majority of the SLPs had no experience or knowledge of telepractice, they needed to conduct their own research on the regulations impacting telepractice: licensing, reimbursement, and privacy and confidentiality. In addition, they also needed to research the different technology options and what they needed to do be HIPAA compliant. The problem was that they often would receive different answers depending on who they spoke to. Because SLPs had not received any education on telepractice, the researcher felt that education was important, especially for educating new SLPs for the future of telepractice adoption. With an aging baby-boomer population, and the lack of trained and licensed SLPs to support this population, telepractice is the option to support these patients. However, without knowledge and education on telepractice, SLPs cannot fully support these patients.

In all of the university programs that had or had had telepractice elements in their curriculum, none of them focused on this aging population in need of SLP and However, they did have some great elements in their curriculum. Some of these included a graduate certificate (in development), independent study on telepractice, professional issues including ethics, best practices, licensing, reimbursement, and HIPAA regulations.

During round two and round three, participants came up with solutions for the education and training elements for telepractice. In round two, participants agreed that SLPs should receive training and education technology use including working with telepresenter or telepresenter or eHelper, HIPAA requirements, licensing, and

reimbursement policies, interpersonal practices and assessment and treatment practices for telepractice. They also agreed that universities should integrate their curriculum with special focuses on compliance, reimbursement, ethics, advocacy, as well as client types and settings.

In round three, these agreements were expanded to include suggestions of training technology for telehealth, as well as how academic preparation institutions should integrate into their curriculum. Suggestions for technology training included hands-on experience, knowledge about policies, regulations, tele-models, assessment, treatment. Also suggested were webinars, workshops, use of technology vendors, familiarity with equipment and options. Many of these options would be very helpful in training on telepractice. Another area of concern are the SLPs who have been practicing in-person but are interested in incorporating telepractice. Because they are not currently enrolled in these programs, they would need training in other venues. Webinars, workshops, and even pre-conference training would be helpful in training these veteran SLPs.

Currently students in SLP programs are not informed about what the tele-model is in speech pathology. There are many who work in-person that think of telepractice as just a way to work from home and save money on child care. However, telepractice is much more involved than that. Students need to be trained on best practices that is research based. Training that is not research based with quality information on ethics, best practices, regulations, technology implementation and strategies would cripple the industry, making it difficult for patients to find quality care.

Upon reviewing an updated Overby-Banft study (2017), another study by Overby (2018) was conducted to discover the qualitative perspectives of effective telepractice

pedagogy in speech-language pathology. The areas that were found to be important include “professional development approaches”, “telepractice clinical skills,” ”technology skills”, “knowledge of legal issues”, and “knowledge of telepractice literature”(Overby, 2018). Although the education section of the researcher’s study relates to Overby’s, they are different, as the participants in the researcher’s study did not speak about selection of materials for telepractice. This is an important aspect because not all materials are appropriate for both in-person and remote therapy. Another area that Overby (2018) spoke about was how the materials need to be interactive so that the client’s attention stays on the task at hand.

It is clear through the current study, as well as these rather recent studies in telepractice pedagogy, including the experiences from the SLPs in this study that more telepractice curriculum development is needed. Because there is a large aging population in need of SLP services that may or may not be in remote areas, SLPs need to be educated on telepractice skills, including the regulations that need to be legally followed.

Recommendations for SLP University programs. Because telepractice training and education ranges from nothing to full-graduate certificates, it is recommended that education in these programs on telepractice have more consistency in what they offer. Students that attend X university should receive the same training and education as a student in Y university. Therefore, it is recommended that universities be accredited by approved telehealth accreditation agencies. According to Wicklund (2018), due to the influx of telepractioners, there will be a time when accreditation for telehealth will determine the quality of care based on this accreditation. As of this article, two accreditation agencies for telehealth, Utilization Review Accreditation Commission

(URUC) and The ClearHealth Quality Institute (CHQI) that are in operation. It is recommended that universities research these accreditation agencies, what is involved in accreditation, and follow their guidelines. ‘

In addition to accreditation, students need hands-on experience with technology. It is recommended that students receive hands on compliance training, coupled with platform and technology training that is appropriate for skill level, cognition level for telehealth.

Limitations of the Study

The biggest challenge with this study was the selection of participants. In the university group, programs were identified though Dr. Houston’s webinars through speechpathology.com (2018).Unfortunately, none of these universities from Dr. Houston’s webinar were able to participate due to medical issues, timing, or the IRB of the university. The universities that were used in this study were identified through snowball sampling techniques and through references in other telepractice related research. With unlimited time and resources, universities with a more robust telepractice curriculum would have given the study a broader understanding of what is possible in telepractice education.

Because most telepractice participants are SLPs working with school-age clients, it was difficult to identify those working with adult and/or geriatric patients. Part of this is also due to Medicare not approving speech-language pathologists as telehealth practitioners. Since there are more school-age practicing SLPs using Telepractice in their practice, the population of SLPs working with geriatrics was much less. Because of the difficulty locating these participants, Facebook Telepractice groups were accessed

identify additional participants in addition to the local VA and outpatient SLPs who participated. Because some could not commit to the timeline and were still recruiting participants, snowball sampling identified another SLP with telepractice knowledge and experience. This study included both SLPs with and without telepractice experience. Even though there was a diverse group of SLPs that participated, had they all been approved telepractitioners, it would have been easier to recruit for this population.

The most difficult group to recruit was the regulatory group. Prior to the IRB process the researcher had inquired about which participants to use. Although the researcher contacted several Centers for Medicare and Medicaid Services, through both phone and email, there was no response. Because attorney offices specializing in telemedicine are involved in cases involving reimbursement, licensing, and privacy issues, they were recruited. However, because of their busy time schedule they were difficult to commit to the timeframe. One attorney in telemedicine and one SLP with knowledge and experience were in this group. Ideally it would have been beneficial to include Medicare, legal experts, and SLPs with regulatory knowledge and experience, as well as those on licensing boards. If the researcher was able to obtain these other participants in this group, it would have given a deeper understanding of the barriers impacting the adoption of telepractice.

The other limitation to the study is regarding time and financial resources. Because the researcher was a single, doctoral candidate, financial resources were limited to Survey Monkey (2019), No notes (n.d,), and Nvivo transcription (2019), Atlas.ti (2019). Time was also a limited resource for both the participants and the researcher.

Suggestions for Telepractice Adoption

Telepractice is a rather new area in speech-language pathology. Barriers such as reimbursement, licensing, and privacy issues can make it difficult for telepractice to be adopted. However, there are some steps that make the transition from in-person to remote therapy smoother for SLPs new to telepractice. Prior to diving into the world of remote therapy, the practitioner needs to be educated on telepractice. This includes understanding the regulations for general telemedicine and those specific to speech-language pathologists for each state that the SLP is practicing or pursuing. Because therapy is conducted over the internet, it is important to follow the regulations for HIPAA to protect the EHR. Also, it is important to realize that not all materials are created equal. Materials for in-person might not work well for an interaction over the internet. The materials should also be age-appropriate, as well as cognition-appropriate. The technology that is used should be appropriate for the patient, the caretaker, and the practitioner. Training is needed that includes the patient, the caretaker and the practitioner. This includes training on materials, activities, and technology use.

In addition to education, reimbursement is an area that needs change. Because Medicare is the primary insurer for geriatrics, and the growing aging population with chronic diseases is developing in a shortage of practitioners, it is essential that ASHA and their lobbyists advocate for SLPs and telepractice. Therapy in-person is as effective as it is remotely. SLPs need to be listed an approved telehealth practitioner in the Medicare Telehealth Parity Act (115th Congress, 2017).

Because there is no multi-state licensing system and SLPs need to be licensed in both the state they reside and the patient's state, an interstate compact is the best option

for SLPs to practice in multiple states. Unfortunately, the interstate compact has not been finalized yet. SLPs need to work with ASHA and advocate for the interstate compact so that SLPs can serve patients that have both mobility issues and are in remote areas in other states.

Suggestions for Further Research

Literature covering telepractice pedagogy is very limited. There is both the clinical side and technical side that is lacking in quality research. Besides investigating the telepractice curriculum, there is also population related areas of research that could be worth investigating. This study covered telepractice regulations, technology, and education. Because regulations are still hindering the adoption of telepractice, it is recommended that further research in all three of these areas be conducted. Regulations are constantly changing, as well as the technology that can be used in telepractice. Research related to education in telepractice is limited due to inconsistencies in format.

Because the curriculum in telepractice is not being regulated by an accreditation agency, there is no consistent format. Research areas in education on telepractice can be expanded on this study, as well as Overby's studies. In addition, clinical treatments appropriate for telepractice are an additional area of education research.

Because of the shortage of practitioners, especially in remote locations, it is important to investigate licensing regulations as they relate to telepractice. This research can include specialist-specific regulations. Although the participants in this study disagreed that a certification for telepractice should be implemented, this area needs further investigation so that more patients, particularly those requiring services of specialists can access these services.

Because caretakers are highly involved in the care of geriatric patients with cognitive and speech impediments, research is needed on the role of the caretaker using telepractice. Being a caretaker for a geriatric patient with limited language skills is a challenging role. Caretakers caring for geriatrics with speech impediments have a high frustration level. The researcher with her current role of being a caretaker of a geriatric family member with aphasia has experienced a range of no response to inappropriate response. Treatments for one patient may not be appropriate for another. Patients with cognitive and speech impediments require different treatments, depending on their condition, age, cognition, and speech issues. Research is needed to investigate different treatments for these patients. Research is also needed in the role of the caretaker in telepractice and treatments for different types of patients.

Because the insurance for geriatrics is through Medicare, the benefits are also limited. Patients like the researcher's family member may hit a plateau in their progress and will be dropped from service. Perhaps other alternative treatments, using a variety of technologies with other specialists skilled in aphasia in geriatric patients is another area or research. Research is needed in which activities are approved and unapproved by Medicare.

Exploring a variety of activities used with geriatric patients with language impairments to see which ones are most appropriate for telemedicine. Geriatric patients are not always tech-savvy and need some hand-holding. In traditional in-person SLP treatments with geriatric patients, a variety of activities are used to promote speaking and swallowing activities. Research is need to understand what activities appropriate for geriatric patients can be used with telehealth and what other activities could be used.

Conclusions

In this qualitative Delphi study, the researcher explored how regulatory barriers such as licensing, reimbursement, and privacy issues were hindering the adoption of telepractice. The study used a total of 11 participants from three groups: SLPs, regulatory, and university facilitators and was conducted in three rounds.

Through the semi-structured interviews in round one, the researcher learned about the participants, what they did, what experience or knowledge they had about telepractice, and what suggestions they had for regulatory agencies and future SLPs. The SLPs spoke about their difficulties with those barriers, the university facilitators spoke about their curriculums, and the regulatory experts explained the regulations and possible solutions to those barriers.

After the interviews, two qualitative surveys using voting and comments were used to expand on the licensing, education, technology, and reimbursement issues. Five themes were discovered: lack of a common name for remote therapy, different reimbursement rates for in-person and remote therapy, lack of multi-state licensing system restricts access to care, HIPAA affects cost of doing business despite availability of technology, and telepractice education is not universal in what they teach. It was also found that geriatrics given a supportive network with training for the patient, caretaker, and therapist can adapt to new technology.

Despite telepractice being a new area with some big hurdles to jump over, there are some steps to telepractice adoption. These include having advocates with ASHA and other SLPs, knowledge, education and experience with technology, and understanding licensing, reimbursement, and HIPAA regulations. It is hope and belief of the researcher

that if these steps are followed that telepractice will be more readily adopted and effectively used with the adult and geriatric population.

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Appendix A

Pilot Study Interview Notes

Pilot Study Interview Notes

10/3/18 1:00PM 1hr.13 min
University protocol

Gave explanation of study to Dr. DiCarlo at his request
Not clear on licensing when in telepractice. Might need to reword to make clearer. However, this might be due to he being new to telepractice

Presenting at ASHA on telesupervising in Boston in November. Possibly next year for presenting.

Ben broke in and started barking so needed to kick him out.

Dr. DiCarlo asked specifics on study

May need to take notification off during interviews

Researcher was not feeling well with a sinus infection so did a lot of coughing and clearing of throat

Dr. DiCarlo implemented program for SLP

Licensing questions were a bit rough do the misunderstanding of licening in relation to telepractice

10:35AM 10/2/18 58min.54 seconds
SLP Protocol

Worked mostly in virtual k-12 schools
received no training with companies that contracted from or in Masters program. Seeked out Tracy Siepl (fellow SLP)

She could not speak on reimbursement since she does not bill medicare
However, in "Best Practices" the pay does not equal the effort

licensed in multiple states

9AM 10/2/18 24 minutes 05 sec
Regulatory Protocol

Director of telepractice research
She had spoken about Net Neutrality and Telehealth Parity Act

Although she is not technicaly an expert in regulations but worked with AshA, she fulfilled the requirements of the pilot. She had said that that the questions were comprehensive but might want to add questions relating to home health since most geriatrics are getting either home health or outpatient.

1:45 AM 10/4/18 57min 03 sec
SLP Protocol
Unfortunately I forgot to start recording right away.

Not currently working in telepractice but is training clinicians who are working in telepractice

Has worked with both adults and children. Now all her telehealth work is with adult and geriatrics. Study involving hyproconnect dysathia.

May need more practice in front of a mirror to ensure it goes through smoother.

7 years ago California required finger-printing in California
|
laws are changing - disconnect between licensing boards and ASHA

never attempted to bill medicare. self pay
must be educated consumer of technology

Suggested contacting lobbyist through ASHA

Appendix B

Changes in Protocols: Pilot Study - SLP

Changes in Protocols: Pilot Study- SLP

Table 4

Pilot Audit Changes in SLP protocols

Section	Change	Reason	Date
Introduction	Changed "we" to "I"	Only one researcher	August 3
Licensing	Added description	Made clear why questions were being asked	September 9
Reimbursement	Added description	Made clear why questions were being asked	September 9
Technology	Added description	Made clear why questions were being asked	September 9
Education	Eliminated this section for this protocol	It was covered in other areas,	August 21
Future Plans	Request for additional participants deleted, specific questions about future plans regarding barriers added	Prolong study, more specific	August 21, August 27

Appendix C

Changes in Protocols: Pilot Study - University

Changes in Protocols: Pilot Study- University

Table 5

Pilot Audit Changes in University protocols

Section	**Change**	**Reason**	**Date**
Introduction	Changed "we" to "I"	Only one researcher	August 3
Licensing	Clarified question on how licensing is addressed in curriculum, Interstate compact question clarified, Added description	Clarified question to relate to telepractice, many not familiar with Interstate compact, Clarified reason for questions	August 10, September 9
Reimbursement	Added descriptive explanation	Clarified reason for questions	September 9
Technology	Eliminated question on types of technology, Descriptive explanation added	Does not change outcome, more explanatory	August 27, September 9
Education	Added longer description and clarified questions to be more descriptive	More explanatory and clear	September 11
Future Plans	Added specific questions about curriculum and preparing students for telepractice, eliminated requests to talk to others, added longer explanatory description, eliminated curriculum question	Original was not specific enough, would prolong study, more explanatory, Redundant question	September 21, September 9, September 11

Appendix D

Changes in Protocols: Pilot Study - Regulatory

Changes in Protocols: Pilot Study- Regulatory

Table 6

Pilot Audit Changes in Regulatory protocols

Section	Change	Reason	*Date*
Introduction	Changed "we" to "I"	Only one researcher	*August 3*
Licensing	Eliminated question regarding which states are most difficult, Added interstate compact familiarity question, Added longer description and asked for suggestions for seamless process	Does not help in overall changing of ideas, not all are familiar with interstate compact, clarified licensing questions for all	*August 21, August 21, September 11*
Reimbursement	Eliminated asking for recommendations for submitting claims, Added longer description	Redundant in first question of section, more explanatory	*August 27, September 9*
Technology	Added a longer description	Needed to explain reasons why there were HIPAA questions	*September 9*
Future Plans	Added 2 questions regarding pertinent information and other ideas in understanding reimbursement, licensing, and technology issues around telepractice	Clarified the need for information	*August 23*

Appendix E

SLP Protocol – Round 1

SLP Protocol – Round 1

Interview Protocol- SLPs

Time of Interview:

Date:

Place/location:

Interviewer (s):

Interviewee:

The purpose of this project is to gain understanding of the regulatory issues that are affecting adoption of telepractice in speech-language pathology in adult and geriatric populations in private practice, home-based therapy and outpatient clinical settings.

Sometimes participating in an interview can produce anxiety or stress. If you are at any time uncomfortable with a question or need a break, please just tell me. I will stop. The content of your responses, as well as your personal contact information will not be shared. In addition, personal information, such as names, email addresses, and phone numbers will be kept private. As such, an alias' will be used. As a reminder, the interview will be recorded and transcribed. If you need to take a break, the recording of the interview will be paused until you are ready to continue.

Before I begin asking questions, let me explain the process that I will use in this interview.

I will give you an introduction to each series of questions that I will ask. Please stop me at any time if you have questions. I am going to ask you related questions under several different topics. If you do not understand the question or need clarification just ask me to stop and I will clarify the question.

1. First, I am interested in learning more about you. I would like to begin by understanding your professional training and responsibilities. I am going to ask you

specific questions so I can really understand the work that you have done using telepractice in speech-language pathology.

1. At what type of institution do you work (private practice, an outpatient facility, a government program, or home-based therapy)?
2. How long have you worked in (private practice, outpatient facility, government program, or home-based therapy)?
3. Please describe your experience or knowledge of telepractice. (If no knowledge or experience, researcher gives definition from ASHA).
4. If you are currently working in telepractice, how long have you been conducting therapy through telepractice?
5. Do you work with adult or geriatric patients?
6. Have you used telepractice with adult or geriatric patients?
7. Did you receive training for telepractice either from a company you have contracted with, or while you were in your SLP Master's program? If so, what did it consist of? If not, how could they have addressed your training needs?

2. The next cluster of questions relate to your general speech-language pathology experience and how they may or may not relate to telepractice. Having learned that telepractice, particularly in speech-language pathology, is a fairly new area for SLPs. Individual SLPs may have a wide range of experiences as it might relate to telepractice. I hope to gain through these interviews a clearer picture of the experience of SLPs with telepractice. Please use examples with detailed descriptions of any experiences that come to mind.

1. What positions have you held in speech-language pathology?
2. What were your responsibilities or duties in these positions?
3. Did any of these positions involve telepractice?
4. Is there anything else I should know about your professional experience?

3. The next cluster of questions refer to licensing regulations and specifically how licensing regulations impact telepractice. I understand that the requirements for licensing is different for every state. There are licensing implications for telepractice, because SLPs who use telepractice methods must be licensed in the

states in which their patients live, as well as the SLP's own state. The answers to these questions will give me a clearer picture of the difficulties of becoming licensed in multiple states and how this might be a barrier to telepractice. Again, please provide any examples with details of the experiences that relate to becoming licensed and how it relates to telepractice.

1. What was the process that you went through in order to become licensed? Were there telepractice specific questions that you had to address in the application?
2. In how many states are you licensed? Do they all have a telepractice policy?
3. What difficulties have you experienced in getting licensed (i.e: fingerprinting, CEUs. Etc.,)?
4. In your opinion why haven't states adopted a national policy for licensing of speech-language pathologists? How would this affect SLPs practicing telepractice?
5. Are you aware of the Interstate Compact currently in development? If so, in your opinion, will the interstate compact that is currently in development solve your licensing problems for telepractice? Why or Why not?

4. The next cluster of questions are related to reimbursement. I understand that telepractice is excluded for reimbursement, particularly for Medicare patients. These questions will help me see a clearer picture of the difficulties that SLPs have in telepractice reimbursement.

1. What obstacles have you encountered in receiving reimbursement for treatment through telepractice?
2. In your experience, how has Medicare impacted the reimbursement of treatment of adult and geriatric patients being treated via telepractice?
3. Since geriatric patients are normally insured by Medicare that currently does not reimburse for telepractice, how do you as an SLP using telepractice discuss reimbursement and the payment options (or lack thereof) to this problem with your adult and geriatric patients (and their caretakers)?
4. What recommendations do you have for regulatory institutions related to receiving reimbursement for telepractice?
5. How has HIPAA affected reimbursement of telepractice?

6. What affect does licensing have on reimbursement related to telehealth, telepractice, or telemedicine?

5. The next cluster of questions are related to technology/technology acceptance by you and your patients. I understand that technology is not normally used in face-to-face SLP therapy sessions, but is being used more as telepractice is now an option to face to face sessions. With the advent of the Internet and telepractice, the utilization of technology must be HIPAA compliant. These questions will give me a broader and clearer understanding of how technology is being utilized in your practice and how it relates to telepractice.

1. How has HIPAA compliance affected the use of technology in telepractice?
2. What types of technology have you used or want to use in telepractice?
3. What reluctance do you or your patients have about using technology through telepractice?
4. What recommendations do you have for new SLPs that work with adult and geriatric patients (and their caretakers) for using telepractice with speech-language pathology?
5. If HIPAA compliance was not an issue, what types of technology would you like to use in telepractice?
6. Are you familiar with the HIPAA compliance regulations in regards to technology? Do you have limited options in technology? If so, what are they?
7. What suggestions do you have for using HIPAA compliant technology?

6. The final questions refer to future plans and thoughts related to telepractice. Telepractice for SLPs is a rather new area for telemedicine. I understand that there are reasons why some SLPs are reluctant to use telepractice, particularly with geriatric patients. Medicare provides services mostly for geriatric patients. As telepractice is not a Medicare only service, and this study includes all adult patients, such as adults who have a cognitive impairment, as well as geriatric patients, the questions that follow relate to all adult patients. These questions will give me a clearer idea of what future steps are necessary for utilization of telepractice for SLPs.

1. If barriers such as licensing, reimbursement, and technology regulations were not an issue, would you be interested in using telepractice in the future? Why or why not?
2. Is there any other pertinent information you would like to share?
3. Do you have other ideas that could help in understanding the licensing, technology, and reimbursement regulations for telepractice?

Thank you for your assistance, time, and expertise in fulfilling the requirements for this project.

As a reminder this interview fulfilled round 1 of the Delphi method. The interview will be transcribed and analyzed. Once all the interviews have been completed, round 2 will consist of statements that will be sent to all participants in written form where you will have the opportunity to add comments.

Appendix F

University Protocol – Round 1

University Protocol – Round 1

Interview Protocol: University

Time of Interview:

Date:

Place/location:

Interviewer (s):

Interviewee:

The purpose of this project is to gain understanding of the regulatory issues that are affecting adoption of telepractice in speech-language pathology in adult and geriatric populations in private practice, home-based therapy and outpatient clinical settings.

Sometimes participating in an interview can produce anxiety or stress. If you are at any time uncomfortable with a question or need a break, please just tell me. I will stop. The content of your responses, as well as your personal contact information will not be shared. In addition, personal information, such as names, email addresses, and phone numbers will be kept private. As such, an alias' will be used. As a reminder, the interview will be recorded and transcribed. If you need to take a break, the recording of the interview will be paused until you are ready to continue.

Before I begin asking questions, let me explain the process that I will use in this interview.

I will give you an introduction to each series of questions that I will ask. Please stop me at any time if you have questions. I am going to ask you related questions under several different topics. If you do not understand the question or need clarification just ask me to stop and I will clarify the question.

1. **First, I am interested in learning more about you. I would like to begin by understanding your professional training and responsibilities. I am going to ask you specific questions so I can really understand the work that you have done using telepractice in speech-language pathology.**

    8. What experience or knowledge do you have regarding telepractice?

9. What positions have you held in speech-language pathology?
10. What were your responsibilities or duties in these positions?
11. Which of these positions involved telepractice?
12. Is there anything else I should know about your professional experience?

2. The next cluster of questions are regarding licensing regulations. Since licensing is required for both the patient's state as well as SLP's, it has become a major barrier. These questions will give me a clearer understanding of how licensing as it relates to telepractice is being addressed in speech-language pathology Master's programs.

6. How is the relationship between licensing and telepractice being addressed in your curriculum? If it is not currently being addressed, how should it be addressed as it relates to telepractice?
7. In your opinion why haven't states adopted a national or international policy for licensing?
8. Are you familiar with the interstate compact that is currently in development? Would you support it? Why or why not?

3. The next cluster of questions are in relation to reimbursement. Another major barrier for SLPs using telepractice is reimbursement, particularly for those treating patients using Medicare. These questions will give me a clearer understanding of the barriers that result from the current reimbursement practices.

7. How is the relationship between reimbursement and telepractice being addressed in your curriculum? If it is not being addressed, how should it be addressed as it relates to telepractice?
8. What recommendations do you have for regulatory institutions regarding reimbursement for telepractice?
9. How has HIPAA affected reimbursement of telepractice?
10. What affect does licensing have on reimbursement of telepractice?

4. The next cluster of questions are in relation to technology and technology acceptance. Although technology is not a major component in face-to-face therapy, it is in telepractice. The purpose of this set of questions is to gain insight in the acceptance of technology, the regulations surrounding technology, and which HIPAA compliant technology applications are most applicable to telepractice.

8. Are you aware of what you must do to be HIPAA compliant in the use of technology?
9. How has HIPAA compliance affected the use of technology in telepractice?
10. What reluctance do you or your patients, or students have about using technology through telepractice?
11. Are there any technological features that you would like to use in telepractice?
12. Are you aware of HIPAA regulations related to technology in telepractice? Does your institution have limited options in technology? If so, what are they?
13. What suggestions do you have for using technology with adult and geriatric patients?

5. The next cluster of questions are in relation to education. I realize that telepractice is a rather new area of speech-language pathology. The purpose of these questions is to understand how the curriculum in SLP programs addresses telepractice.

1. Please tell me about your telepractice curriculum in speech-language pathology.
2. If you currently do not have a telepractice curriculum, how are you preparing your students to work in telepractice?
3. Which courses relating to telepractice are included in your curriculum, if any? Likewise, in what broader courses is telepractice addressed?
4. What practical experience do students receive in telepractice?
5. What telepractice content or experiences do you believe should be covered in the curriculum?
6. As educators, you want to do your best to prepare your students fo r the field they are working in today, and for that in the near future. What do your students need to learn to be prepared for the work in which they will engage in telepractice? I am really interested in what kind of technology training they might need.

6. The final questions refer to future plans and thoughts about telepractice curriculums. Telepractice, being a new area of telemedicine with speech-language pathology may have a bright future. These questions will help me understand what the future of telepractice curriculums should look like.

1. How should university masters' program faculty and administrators prepare future SLPS for regulatory requirements in licensing, reimbursement, and technology related to HIPAA?

2. Is there any other pertinent information you would like to share?
3. Do you have other ideas that could help in understanding licensing, technology, and reimbursement regulations for telepractice?

Thank you for your assistance, time, and expertise in fulfilling the requirements for this project.

As a reminder this interview fulfilled round 1 of the Delphi method. The interview will be transcribed and analyzed. Once all the interviews have been completed, round 2 will consist of statements that will be sent to all participants in written form where you will have the opportunity to add comments.

Appendix G

Regulatory Protocol – Round 1

Regulatory Protocol – Round 1

Interview Protocol - Regulatory

Time of Interview:

Date:

Place/location:

Interviewer (s):

Interviewee:

The purpose of this project is to gain understanding of the regulatory issues that are affecting adoption of telepractice in speech-language pathology in adult and geriatric populations in private practice, home-based therapy and outpatient clinical settings.

Sometimes participating in an interview can produce anxiety or stress. If you are at any time uncomfortable with a question or need a break, please just tell me. I will stop. The content of your responses, as well as your personal contact information will not be shared. In addition, personal information, such as names, email addresses, and phone numbers will be kept private. As such, an alias' will be used. As a reminder, the interview will be recorded and transcribed. If you need to take a break, the recording of the interview will be paused until you are ready to continue.

Before I begin asking questions, let me explain the process that I will use in this interview.

I will give you an introduction to each series of questions that I will ask. Please stop me at any time if you have questions. I am going to ask you related questions under several different topics. If you do not understand the question or need clarification just ask me to stop and I will clarify the question.

First, I am interested in learning more about you. I would like to begin by understanding your professional training and responsibilities. I am going to ask you specific questions so I can really understand the work that you have done using telepractice in speech-language pathology or telemedicine regulations.

1. The first cluster of questions are questions to get to know you and your experience. I realize that not all of your experience relates to speech-language pathology. However, your experience and knowledge of telemedicine regulations relates to this study. These questions give me an idea of your background and expertise in this area.

1. What is your current position?
2. How long have you worked in this position?
3. Are you familiar with telepractice? If so, what is your experience or knowledge of it?
4. Has your agency received requests to formulate regulations related to telepractice, telemedicine, or telehealth for speech language pathologists? (Follow up question if the response is 'yes': Why have those regulations not been approved?

2. The next cluster of questions are regarding licensing. Licensing regulations require that the SLP be licensed in both the state in which the patient resides and the SLP's state. Due to this, it has become a major barrier for speech-language pathologists in telepractice, particularly for those that work with patients in multiple states. These questions will give me a better understanding of these regulations on licensing.

9. Every state has different requirements to become licensed. Speech-language Pathologists (SLPs) who work virtually through telepractice must be licensed in both their home state and the state(s) in which their patients reside. What is the best solution for making the licensing process seamless across state lines for SLPs who work with patients in multiple states?
10. In your opinion why haven't states adopted a national license for speech-language pathologists?
11. Are you familiar with the interstate compact for speech-language pathologists that is currently in development? If yes: In your opinion, will the interstate compact that is currently in development solve licensing problems for speech-language pathologists? Why or Why not? If not, researcher briefly explains the interstate compact's purpose.

12. How do you think the adoption of a national licensing policy or an interstate compact will affect SLPs who work with geriatric and adult patients in home-health or outpatient settings?

3. **The next cluster of questions are in relation to reimbursement. Reimbursement is another major barrier to telepractice for speech-language pathologists, particularly those who work with geriatric patients. These questions will give me a greater understanding of why telepractice for SLPs does not get reimbursed and what should change so that it is. Medicare provides services mostly for geriatric patients. As telepractice is not a Medicare only service, and this study includes all adult patients, such as adults who have a cognitive impairment, as well as geriatric patients, the questions that follow relate to all adult patients.**
    11. What requirements do speech-language pathologists need to follow to be reimbursed for telepractice?
    12. How has HIPAA affected reimbursement of telepractice?
    13. What affect does licensing have on reimbursement of the technology involved in telepractice, telehealth, or telemedicine?
    14. **The next cluster of questions are in relation to technology and technology acceptance. Technology acceptance and being HIPAA compliant is another area of concern for SLPs practicing through telepractice. The answers to these questions will give an indication of which technology applications should be used and why regulations affect technology acceptance for SLPs.**
        14. How has HIPAA compliance affected the use of technology in telepractice?
        15. How is technology being regulated so that telepractice sessions are HIPAA compliant? Are there limited options in technology? If so, what are they?
        16. Since HIPAA comes with its own set of regulations for using technology, what suggestions do you have for using technology in telepractice?

5. The final questions refer to future plans and thoughts about regulations in telepractice with speech-language pathologists. Telepractice is a fairly new area of telemedicine. Being that it is a new area, experts in regulations may or may not understand the needs of the SLPs that are being affected by these regulations. These questions give me an indication of future directions in the regulation of telepractice.

1. How can regulation organizations adapt to the needs of speech-language pathologists in licensing, reimbursement, and technology regulations in telepractice?
2. Is there any other pertinent information you would like to share?
3. Do you have other ideas that could help in understanding the reimbursement, technology regulation, and licensing issues around telepractice?

Thank you for your assistance, time, and expertise in fulfilling the requirements for this project.

As a reminder this interview fulfilled round 1 of the Delphi method. The interview will be transcribed and analyzed. Once all the interviews have been completed, round 2 will consist of statements that will be sent to all participants in written form where you will have the opportunity to add comments.

Appendix H

Round 2 Survey of Statements (Survey Monkey)

Round 2 Survey of Statements (Survey Monkey)

Telepractice Study

Introduction to Round 2: Now that data collection has been completed and round 1 analysis has been completed, it is time to begin round 2. In this round, statements will be presented based on an analysis of round 1 interactions. All responses will be anonymous. All participants are invited to indicate if whether there is agreement or disagreement of the statement as well as commenting on the statement.

1. Using a consistent name (telehealth, telerehabilitation, telepractice, telemedicine, teletherapy) will lessen the burden of access to care to patients and caretakers and allow for SLP licensing and reimbursement policies.
    a. Agree
    b. Disagree

   Comment
2. Of the following terms that refer to speech-language pathology services provided remotely, what is your preferred term?
    a. Telehealth
    b. Telepractice
    c. Telerehabilitation
    d. Telemedicine
    e. Teletherapy

   Comment
3. Medicare should follow the VA model of reimbursement for SLPs when working remotely with patients.
    a. Agree
    b. Disagree

   Comment
4. Medicare should allow for Medicare recipients to be reimbursed for private pay for SLP services that are provided remotely.
    a. Agree
    b. Disagree

   Comment
5. SLPs should be approved by the Center for Connected Health Policy to work remotely with patients.
    a. Agree
    b. Disagree

   Comment
6. ASHA should advocate for SLPs to be included in the Medicare Telehealth Parity Act for purposes of reimbursement.

a. Agree
b. Disagree

Comment

7. Medicare policies should be modified to allow Speech-language pathology specialists (e.g. Augmentative Communication specialists, Lee Silverman Voice Treatment (LSVT) Loud and Speak Out specialists for Parkinson's patients to work remotely.
   a. Agree
   b. Disagree

   Comment
8. Services provided by speech language pathologists may be provided effectively in person and remotely.
   a. Agree
   b. Disagree

   Comment
9. Regulatory agencies need to be aware of services provided by SLPs.
   a. Agree
   b. Disagree

   Comment
10. SLPs interested in working remotely need training and education regarding technology use, HIPAA requirements and policies.
    a. Agree
    b. Disagree

    Comment
11. The interstate Compact will lessen the financial burden on SLPs by providing a single application fee for a license to practice across state lines.
    a. Agree
    b. Disagree

    Comment
12. There is a shortage of specialists and general SLPs in rural areas which could be alleviated by allowing SLPs to work remotely.
    a. Agree
    b. Disagree

    Comment
13. Because the interstate compact should streamline the licensing process, SLP professionals would be able to provide specialized services, give access to care, and take advantage of technology to be used remotely.
    a. Agree
    b. Disagree

    Comment
14. Technology training related to HIPAA compliance should follow the medical model.
    a. Agree
    b. Disagree

    Comment

15. When using technology with geriatric patients, attention should be given to patient skill levels, patient impairments, and provision of a strong support system.
    a. Agree
    b. Disagree

Comment

16. Academic Institutions should integrate curriculum elements related to working remotely that include a focus on compliance, reimbursement, licensing, ethics, need for advocacy, practice settings and client types.
    a. Agree
    b. Disagree

Comment

Is there anything else you would like to add regarding reimbursement, licensing, HIPAA compliance, or technology use regarding speech-language pathology services provided remotely?

Appendix I

Round 3 Statements (Survey Monkey)

Round 3 Statements (Survey Monkey)

1. Currently the term “telepractice" for speech-language pathology services provided remotely hinders policy acceptance (i.e. reimbursement, licensing). In round 2, telehealth, telepractice, and teletherapy were the highest chosen terms. In this round, please choose the term that you believe would provide the greatest level of acceptance by practitioners, clients, reimbursement, and licensing personnel.
    a. Telepractice
    b. Telehealth
    c. Teletherapy
        i. Why?
2. In round 2, the statement, "Medicare should follow the VA model of reimbursement for SLPs when working remotely with patients" caused some confusion, as several participants were unclear as to what the VA model was in relation to reimbursement. The Veterans Administration (VA) allows SLPs to provide speech-language services remotely across state lines. The VA requires only require a single state license and provides a common reimbursement fee structure for face-to-face and telehealth services. Please indicate whether you agree or disagree with the statement: "Medicare should follow the VA model of reimbursement for SLPs when working remotely with patients".
    a. Agree
    b. Disagree
        i. Why?
3. Multiple technologies are available for SLPs to use with patients remotely. How might SLPs be trained to use technology for telehealth? Please provide ideas for training for students of speech-language pathologists as well as licensed SLPs who are entering into speech-language pathology services provided remotely.
4. Should academic preparation institutions provide training in technology options for speech-language pathology services to be provided remotely?
    a. Why or Why not?
5. Should ASHA require certification for SLPs interested in providing speech-language pathology services provided remotely?
    a. Why or Why not?
6. Is there anything else you would like to add regarding reimbursement, licensing, HIPAA compliance, or technology use regarding speech-language pathology services provided remotely?

Appendix J

Round 4 Final Presentation (Survey Monkey)

Round 4 Final Presentation (Survey Monkey)

1. Currently the term “telepractice" for speech-language pathology services provided remotely hinders policy acceptance (i.e. reimbursement, licensing). In round 2, telehealth, telepractice, and teletherapy were the highest chosen terms. In this round, please choose the term that you believe would provide the greatest level of acceptance by practitioners, clients, reimbursement, and licensing personnel.

   Teletherapy 4
   Telehealth 6
   Telepractice 1

2. In round 2, the statement, "Medicare should follow the VA model of reimbursement for SLPs when working remotely with patients" caused some confusion, as several participants were unclear as to what the VA model was in relation to reimbursement. The Veterans Administration (VA) allows SLPs to provide speech-language services remotely across state lines. The VA requires only require a single state license and provides a common reimbursement fee structure for face-to-face and telehealth services. Please indicate whether you agree or disagree with the statement: "Medicare should follow the VA model of reimbursement for SLPs when working remotely with patients".

   Agree 10
   Disagree 1

3. Multiple technologies are available for SLPs to use with patients remotely. How might SLPs be trained to use technology for telehealth? Please provide ideas for training for students of speech-language pathologists as well as licensed SLPs who are entering into speech-language pathology services provided remotely.

The following comments were made as suggestions for training in telehealth where specifications were made in terms of training and technology:

- We provide formal didactic coursework and tele-experiences to our students. The coursework provides knowledge (HIPAA, licensure, tele-models, tele-assessment, tele-treatment) while the tele-clinical provides a forum for application. I don't

believe robust training can occur without both, coursework/seminar and application.

- Hands-on practice with different platforms and hardware. Trials are offered by commercial platforms so this does not have to be an expense to the SLP.
- Multiple options should be made available for SLPs interested in telehealth. They include implementation of a course in graduate school curriculum, continuing education courses, and mentorship/internship opportunities.
- pre-professionals - as part of clinical training, in-service professionals - workshop, conferences, hands-on demos
- Hands/on training. Webinar. Power points, for multiple platform options. Similar to training for different documentation systems.
- Training in the terminology and a standard terminology for selecting HIPAA compliant platforms. Modification of protocols that demonstrate better results with telepractice based on research.
- Perhaps have an optional course (as they had when I attended grad school for TSSLD) that addresses all aspects of delivering teletherapy services.
- This is most easily accomplished by technology vendors.
- Familiarity with equipment options and operations and limitations. Education regarding available, secure applications/programs. Confidentiality and state regulations.
- Teletherapy training should be included in SLP coursework at both graduate and undergraduate level. This could be included as a lab in coursework and as a goal in treatment plans for practicing clients.

4. Should academic preparation institutions provide training in technology options for speech-language pathology services to be provided remotely?
    a. Yes 11
5. Should ASHA require certification for SLPs interested in providing speech-language pathology services provided remotely?
    a. Yes 4
    b. No 7

Appendix K

Data Collection/Analysis Journal

Data Collection/Analysis Journal

ATLAS.ti Report

Telepractice Dissertation

Memos (selection)

Report created by Cybele_Wu on Jun 19, 2019

Research Journal

Created: 3/3/19 by Cybele_Wu, **Modified:** 6/19/19 by Cybele_Wu

Content:

June 5, 2019
Presentation of results to participants

June 4, 2019
Decided though comments and discussion with committee that round 4 of statements is not needed

June 3, 2019
Round 3 closes.
Make notes as to which statements have reached consensus

May 26, 2019
Round 3 begins through survey monkey
Add comments and results in spreadsheet

May 2, 2019
Round 2 closes
Make edits to round 3 statements

April 5, 2019
Round 2 through survey monkey begins
Add data and comments to spreadsheet

April 1, 2019

Completed Geriatrics. Some sections are not relevant.

March 31, 2019
Working on technology barrier. Technology barrier is complete.

March 29, 2019
Completed licensing barrier

March 26, 2019
Spreadsheet has been created for statements for barriers/areas of importance
Completed Reimbursement and Privacy/Confidentiality (HIPAA)

March 16, 2019
Completed SLP2. This SLP works at a skilled nursing outpatient facility. She has no experience and little knowledge of telepractice. However, she has some solid reasons for doing telepractice, as well as experience with Medicare (even though not with telepractice) due to the population she works with. Started final transcript: SLP6.Completed SLP6. Reviewed Final Report of HB 7087 that SLP6 referred to.

March 15, 2019
Completed Reg2. All Reg are now completed. Begin SLP2.

March 14, 2019
Completed UNIV2. Great program at UK. Interesting about young people who seem to be tech savvy but really are in the social sense. All Univ's have been coded. Reg1 complete. Interesting is that she as an SLP has such knowledge on regulations. She has a vested interest, for sure.

March 13, 2019
Completed Univ3. Started Univ2. Univ is not currently using telepractice but had some great knowledge as it related to regulations for Virginia

March 12,2019
The ATLAS.ti webinar for Mac has been cancelled. Watched the rocording and learned how to create networks. Continued work on Univ3.

March 10, 2019
SLP3 also completed. Currently not doing telepractice or working with geriatrics. However she has done geriatrics in the past. SLP4 completed. She has great knowledge on school but not so much in adult/geriatric of about encryption. But she has experienced some major barriers to licensing.

March 9, 2019
Univ1 Completed. Interesting policies connections were made.

March 7, 2019

Working through coding. Have completed SLP3. As I go through them I am understanding better how they should read.
SLP1 complete. I am not sure how much her testimony contibutes to the overall study, other than as a model to follow.

March 6, 2019
SLP5 complete. ACC specialist.
The following are notes on each participant

SLP 1
This participant has the luck of the draw by working for the VA, who is at the cornerstone of telehealth

SLP2
This SLP works for an outpatient facility. She has no telehealth experience but does have an interest in it.

SLP3
This SLP is an SLP obtained though recruiting from Facebook Telepractice group. She does not have telepractice experience as of yet but has experience with adult and geriatric patients.

SLP4
This participant is a fairly new SLP who is licensed in two states and has experienced some of the major problems with multi-state licensing.

SLP5
This participant is a specialist who has unique needs with reimbursement due to the needs of her clients. All of her telepractice experience has been pro bono. Interview conducted in hotel through Zoom on Friday, February 15th @ 1:30pm for 48 minutes.

SLP6
This participant was a replacement for an SLP who dropped out. She came by way of a referral from one of NSU's SLP program directors who attended presentation. This SLP is retired but is very knowledgeable on telepractice.

Univ1
This participant has been well versed in telepractice, having worked with the journal of telerehabilitation and started ASHA SIG18.

UNIV2
This participant works for a university with a strong telepractice presence. She also spoke about potential pitfalls to the interstate compact.

Univ3

This SLP is a Virginia based University program administrator. Unfortunately, there is no telepractice currently in the curriculum due to losing the Medicaid Grant.

Reg1
This participant is an SLP but also is very knowledgeable about regulations in telepractice, especially in Texas.

Reg2
This participant is an attorney that specializes in telehealth/telemedicine regulations. He gave some very clear explanations for what an interstate compact is,