Occupational Therapy Faculty Perspectives On The Use Of Telehealth As A Delivery Method For Healthcare Services

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OCCUPATIONAL THERAPY FACULTY PERSPECTIVES ON THE USE OF
TELEHEALTH AS A DELIVERY METHOD FOR HEALTHCARE SERVICES

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OCCUPATIONAL THERAPY FACULTY PERSPECTIVES ON THE USE OF
TELEHEALTH AS A DELIVERY METHOD FOR HEALTHCARE SERVICES

Abstract

The use of telehealth for healthcare delivery is on the rise and is expected to increase due to the expansion of technological advances and the shortage of healthcare professionals to serve rural and remote communities. The use of telehealth by occupational therapists (OT) is relatively new, and it is unknown whether educational programs are adequately preparing OT students to practice in this context or if OT faculty members are adequately trained to deliver this content to their students. The purpose of this qualitative descriptive case study was to examine how faculty members teaching in a master’s level occupational therapy program in the 2017 academic year perceived the use of telehealth in healthcare delivery and how this impacts their ability to teach this content to their students. Data from eight individual interviews were coded, analyzed and organized into overarching categories, themes, and subthemes. There were three overarching categories: Telehealth-Use in Practice, Telehealth-Experience and Telehealth-Education and eight themes: Telehealth-Perceptions, Telehealth-Barriers, Telehealth-Benefits, Experience as a consumer, Experience as a therapist, Experience as an educator, Barriers to teaching and Facilitators to teaching, that emerged from the data. The findings of this study and the constructs of the Diffusion of Innovations Theory revealed that OT faculty members teaching at this OT program were in the Knowledge Stage of adoption regarding the use of telehealth in healthcare delivery. Faculty members at this program also did not view all the attributes of innovations
(relative advantage, complexity, compatibility, triability, and observability) positively, thus were not fully ready to adopt the topic of telehealth into their program curriculum. This group would benefit from professional development and educational opportunities to learn more about telehealth, and how it works, followed by opportunities to try telehealth to facilitate the acceptance and adoption of this topic in their program curriculum. This study offers recommendations for stakeholders looking to evaluate faculty members’ knowledge and perceptions regarding telehealth to develop professional development opportunities as well as recommendations for future research for OTs and other healthcare professionals to advance student and clinicians education in the use of telehealth in practice.
University of New England

Doctor of Education
Educational Leadership

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# TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION .................................................................................................................. 1

Problem Statement ............................................................................................................................... 3
Purpose of the Study .............................................................................................................................. 4
Research Questions .............................................................................................................................. 5
Conceptual Framework .......................................................................................................................... 5
Assumptions .......................................................................................................................................... 6
Limitations ............................................................................................................................................ 7
Rationale and Significance of the Study ............................................................................................... 7
Definition of Terms .............................................................................................................................. 8
Conclusion ........................................................................................................................................... 8

CHAPTER 2: LITERATURE REVIEW ...................................................................................................... 10

History of Telehealth .......................................................................................................................... 11
Telehealth Terminology and Concepts ................................................................................................. 11
Technology .......................................................................................................................................... 13

Internet ............................................................................................................................................... 14
Mobile Technology ............................................................................................................................. 15
Video conferencing technology ........................................................................................................... 16
Benefits of Telehealth .......................................................................................................................... 18

Efficacy of Using Telehealth to Deliver Services by Occupational Therapists .......................... 19
Patient Protection and Affordable Care Act (ACA) ........................................................................... 20
Barriers of Telehealth .......................................................................................................................... 20

Internet access .................................................................................................................................... 20
<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Privacy and Ethical Concerns</td>
<td>21</td>
</tr>
<tr>
<td>Licensure</td>
<td>22</td>
</tr>
<tr>
<td>Insurance Reimbursement and State Laws</td>
<td>23</td>
</tr>
<tr>
<td>Lack of Research</td>
<td>24</td>
</tr>
<tr>
<td>Telehealth in Education Programs</td>
<td>24</td>
</tr>
<tr>
<td>Telehealth in Medical and Allied Health Educational Programs</td>
<td>24</td>
</tr>
<tr>
<td>Telehealth in Occupational Therapy Educational Programs</td>
<td>26</td>
</tr>
<tr>
<td>Perceptions of Telehealth</td>
<td>26</td>
</tr>
<tr>
<td>Non-OT Student and Clinician Perceptions of Telehealth</td>
<td>27</td>
</tr>
<tr>
<td>OT Clinician Perceptions of Telehealth</td>
<td>28</td>
</tr>
<tr>
<td>Gaps in the Literature</td>
<td>28</td>
</tr>
<tr>
<td>Conceptual Framework</td>
<td>29</td>
</tr>
<tr>
<td>Conclusion</td>
<td>34</td>
</tr>
</tbody>
</table>

CHAPTER 3: METHODOLOGY .................................................................. 35
| Setting                                                               | 36   |
| Participants/Sampling Procedures                                     | 37   |
| Data Collection                                                      | 38   |
| Data Analysis                                                        | 39   |
| Participants Rights                                                  | 40   |
| Potential Limitations                                                | 42   |

CHAPTER 4: DATA ANALYSIS AND RESULTS ...................................... 43
| Analysis Methods                                                     | 44   |
| Background Profiles                                                  | 44   |
Data Analysis Procedures .................................................................................................................. 46
Results.................................................................................................................................................. 51
  Categorical and Thematic Patterns .................................................................................................. 52
  Categorical and Thematic alignment with the conceptual framework .................................................. 80
Conclusion .............................................................................................................................................. 82

CHAPTER 5: DISCUSSION OF FINDINGS AND IMPLICATIONS ...................................................... 84

Synopsis of Design .............................................................................................................................. 85

Research Findings ............................................................................................................................. 86
  Research Question 1: What is the knowledge level of OT faculty members regarding
  telehealth usage as a delivery method in practice? ................................................................. 86
  Research Question 2: What are the perceived barriers of OT faculty members to the
  adoption of telehealth into program curricula? ................................................................. 89
  Research Question 3: What are the perceived facilitators of OT faculty members to the
  adoption of telehealth into program curricula? ................................................................. 92
  Research Question 4: How can OT faculty be supported in developing knowledge and skills
  to incorporate telehealth practice into program curricula? .................................................... 93

Limitations ............................................................................................................................................ 95

Implications .......................................................................................................................................... 97
  Theoretical and practical implications ......................................................................................... 97
  Future implications ....................................................................................................................... 101

Recommendations .............................................................................................................................. 103
  Recommendations for future research ...................................................................................... 103
  Recommendations for future practice .................................................................................... 107
LIST OF TABLES

Table 4.1. Background Profile of Participants .........................................................45
Table 4.2. Early Iterative Codes and Their Relative Frequency ..................................47
Table 4.3. Dimensions of Attribution Formation Used for Coding ..............................49
Table 4.4. Outline of Categories, Themes and Subthemes ........................................51
LIST OF FIGURES

Figure 4.1. Flow Chart of Category 1, Theme and Subthemes ........................................52
Figure 4.2. Flow Chart of Category 2, and Themes ..........................................................66
Figure 4.3. Flow Chart of Category 3, Themes and Subthemes ......................................72
Figure 5.1. Diffusion of Innovations Stages ....................................................................99
CHAPTER 1

INTRODUCTION

The use of telehealth as a delivery method for health care services is gaining traction among all healthcare professions (American Telemedicine Association, n.d.). Recently, the World Federation of Occupational Therapists (WFOT) created, and the American Occupational Therapy Association (AOTA) updated their position statements on Telehealth to guide their constituents better. According to WFOT (2014), telehealth is defined as "the use of information and communication technologies (ICT) to deliver health-related services when the provider and client are in different physical locations" (p. 1). Telehealth is a relatively new service delivery method for occupational therapists (OT), unlike the physicians who have been utilizing this service delivery for some time (Bashur & Shannon, 2009).

Providing healthcare services via telehealth has increased over recent years due to substantial improvements in technology, increased access to broadband internet service, and increased prevalence in cell and smartphone usage throughout the world (Wooten, 2010). Telehealth has enabled many populations in both remote and not so remote areas access to affordable, quality, and convenient healthcare services. Technology has not only increased access to information for millions, but it has also increased access to healthcare. Individuals from isolated communities are no longer destined to receive subpar medical care due to the lack of state-of-the-art facilities and much-needed specialists. These communities can now be connected to more populated areas via technology and receive timely healthcare services from a broad range of qualified professionals. Individuals living in remote, rural areas will no longer have to drive three to five hours to the nearest specialty clinic. They will not have to take time off from work, missing a day's pay, to take themselves or a loved one to the doctor. Telehealth allows
quality healthcare to be more convenient, accessible, and affordable to individuals who live in limited medical access areas.

Advances in technology and shifting healthcare priorities initiated by the Affordable Care Act (ACA) have made way for telehealth to be seen as an effective way to deliver healthcare to a growing population in need of services (Cason, 2012). Medical schools are taking the lead in this effort and setting plans in place to prepare medical students and residency programs to utilize telehealth. The American Medical Association (AMA), at their June 2016 annual meeting, adopted a policy to ensure the inclusion of telehealth education into core competencies for medical education (AMA, 2016). In Occupational Therapy, the Accreditation Council for Occupational Therapy Education (ACOTE) included telehealth for the first time into their accreditation standards that went into effect July 2013. The standard states that occupational therapy students need to “demonstrate an understanding of the use of technology to support performance, participation, health, and well-being. This technology may include, but is not limited to, electronic documentation systems, distance communication, virtual environments, and telehealth technology” (AOTA, 2013b, p. 18). A revision of the current ACOTE standards is taking place, and it might be anticipated that standards would increase in this area as the use of technology becomes more commonplace. OT clinicians need to be adequately prepared to provide services via telehealth to keep up with this current healthcare trend (Cason, 2014). As a result of increased demand for telehealth education and practice, it is logical and imperative for OT programs to provide students with education on best practices within this emerging field to support its use.
**Problem Statement**

Best practice would dictate that occupational therapists should be adequately prepared to deliver quality services via telehealth to patients and clients to meet this increased demand. Currently, there is limited literature as to how health professionals, in general, are integrating this topic into their program curricula (Bulik & Shokar, 2010; Gallagher-Lepak, Scheibel, & Gibson, 2009). There is even less literature as to how OT programs are preparing students and future clinicians to practice in this relatively new context (Foti, Eleazar, & Furphy, 2014).

In light of the recent and increasing ACOTE education standards due in 2017, OT faculty members need to be adequately prepared and educated. Currently, only a fraction of OT faculty members across the nation has enough expertise in this area to adequately teach this subject matter to students. This premise was demonstrated during an informal poll sent out via an AOTA educators’ listserv by AOTA’s Commission on Practice (COP) asking for feedback from its members on this exact topic. Questions posed via this listserv asked educators whether they are integrating the subject of telehealth in any of their courses, whether they feel prepared to teach this subject and what resources might they need to feel better prepared to teach this subject (Grajo, 2016).

The site for this researcher’s study is a combined Bachelors/Master’s program in occupational therapy, at a private, not-for-profit medium sized urban university. OT faculty at this university do not currently have expertise in the use of telehealth as a delivery method and have minimal knowledge of how technology is used to facilitate OT services. This lack of expertise and knowledge serves as a barrier to the adoption of the topic of telehealth into the curriculum at this particular OT program. Therefore, it would be beneficial to understand OT faculty members’ level of understanding and perceptions about this delivery method as they are
on the frontline, educating future clinicians who will be using this technology. Faculty perception and knowledge regarding the use of telehealth will determine the level and speed of integration of telehealth instruction into OT curriculum (Rogers, 2003).

There is available research on the perceived barriers to and facilitators of telehealth adoption in the clinic setting (Brewster, Mountain, Wessels, Kelly & Hawley, 2014); however, there is no literature on the perceived barriers or facilitators to the adoption of telehealth by OT educators into OT curricula.

The main audiences for this research are allied healthcare educators, educational accreditation body stakeholders, and program coordinators who would benefit from understanding barriers and facilitators to the inclusion of telehealth into OT or other healthcare profession curricula.

**Purpose of the Study**

The purpose of this descriptive case study was to examine how faculty members teaching in a master’s level occupational therapy program during the 2017 academic year perceived the use of telehealth in healthcare delivery, and how this impacts their ability to teach this content to their students. Individual perceptions regarding the attributes of innovations can predict the rate of adoption of that innovation into society (Rogers, 2003). This researcher, therefore, was seeking to identify the perceptions of OT faculty members at this university to be able to anticipate the speed of telehealth adoption into the occupational therapy curriculum. Lagging of telehealth integration into OT curricula may affect the preparedness of future clinicians to deliver telehealth and meet the needs of society and the healthcare system. The results of this study will also identify the needs of OT faculty members at this program to assist in planning for
remediation of any identified issues regarding telehealth adoption into curricula and better prepare faculty to teach this content to students.

**Research Questions**

Using the constructs of the Diffusion of Innovation Theory to guide this study, the researcher sought after to understand four central questions regarding faculty perceptions in the use of telehealth. 1) What is the knowledge level of OT faculty members regarding telehealth usage as a delivery method in practice? 2) What are the perceived barriers of OT faculty members to the adoption of telehealth into program curricula? 3) What are the perceived facilitators of OT faculty members to the adoption of telehealth into program curricula? 4) How can OT faculty be supported in developing knowledge and skills to incorporate telehealth practice into program curricula?

**Conceptual Framework**

The constructs of the Diffusion of Innovations Theory (Rogers 2003) formed the groundwork and guided this research study. Diffusion is a "process of communication and influence whereby potential users become informed about the availability of new technology and are persuaded to adopt, through communication with prior users" (Attewell, 1992, p. 2). This theory explains how, why and at what rate innovations spread (Chan, Borja, Welch & Batiuk, 2016). This theory was first developed by Everett Rogers (1983), was initially used to examine the adoption of innovations in agriculture, and then was expanded to other industries. Most importantly, it has been shown to be useful in predicting the rate of adoption of innovations used in education (Sahin, & Thompson, 2006; Shea, Pickett, & Chun, 2005), as well as in examining factors influencing adoption of innovation in education (Ball, Ogletree, Asunda, Miller, & Jurkowski, 2014; Bennett, J., & Bennett, L. 2003)
Rogers (2003) identifies five attributes of innovation (relative advantage, compatibility, complexity, trialability, and observability). The identification of OT faculty perceptions regarding these five attributes of innovations assisted in determining the anticipated rate and factors influencing adoption of telehealth into this program’s curriculum and was intertwined in the methodology of this study. Research has revealed that innovations are adopted and/or adopted at a quicker pace if the following occurs: faculty members feel that the innovation works better than what is already in place (relative advantage), the innovation is perceived as having a higher level of compatibility with faculty members’ existing values and past experiences, the innovation was easy to understand (complexity), the faculty were given the opportunity to try the innovation (trialability), and the results of the innovation were highly visible to others (observability) (Sahin, 2006; Ball, Ogletree, Asunda, Miller & Jurkowski, 2014 Chan et al., 2016).

The five steps or stages (knowledge, persuasion, decision, implementation, and confirmation) in the innovation-decision process further identified which stage individuals and the group were currently in regarding telehealth adoption into the curriculum (Rogers, 2003). Identification of the appropriate stage proved helpful in assisting educational programs in the development remediation and further advance the rate of adoption. Therefore, the findings were aligned with the attributes of innovation and the stages in the innovation-decision process.

Assumptions

Based on this researcher’s experience as an occupational therapist, educator, and user of telehealth as a delivery method, three primary assumptions were made. The first is that telehealth is a method of healthcare delivery that occupational therapists must become familiar with in order to stay relevant in the changing healthcare arena. Second, telehealth usage for occupational
therapists is relatively new; therefore, many occupational therapy faculty members may have limited knowledge on the use of this delivery method for OT services. Lastly, limited knowledge on a subject would affect OT faculty ability to properly educate OT students in best practice and in real-world clinical scenarios that would enhance their learning and skill acquisition.

**Limitations**

There are three main limitations of this study. Firstly, this study is limited to occupational therapy faculty members who teach at a specific master’s level program in an urban New York City environment. Therefore, findings may not be generalized to other OT programs nationally. Secondly, this study is limited to occupational therapy faculty members. Therefore, findings may not be generalized to other health care professionals. Lastly, due to the small, convenience sample size for this study, results may not be able to be generalized to all occupational therapy programs.

**Rationale and Significance of the Study**

The use of telehealth by occupational therapists is on the rise as they are capitalizing on changes in the healthcare system, including the addition of the Affordable Care Act (ACA) as well as advances in technology for enhancing health care delivery (Cason, 2015). Although telehealth is not considered a new practice area and only a means of service delivery, there are still several nuances to this delivery method that require adequate exposure, education, and practice by the user to ensure best practice. OTs must first incorporate their clinical knowledge and reasoning to determine which clients are appropriate for this delivery method. OTs must also be knowledgeable regarding ethical parameters, technology privacy, and legislative concerns surrounding the proper use of telehealth in practice. Since OT programs and their faculty members are gatekeepers to future occupational therapists, they too need this requisite
knowledge and skills for this delivery method in order to transfer their knowledge to students properly. Since this is a relatively new form of delivery for OT, it is beneficial to explore the perspectives on and current knowledge of OT faculty on the utility of telehealth within the profession to determine a baseline for possible future remediation and support for faculty development.

**Definition of Terms**

For the purposes of this study, the following concepts will be defined as:

**Best evidence-based practices.** The use of effective and proven methods

**Diffusion.** “The process in which an innovation is communicated through certain channels over time among the members of a social system” (n.p., Rogers, 2003).

**Faculty member.** An individual who is teaching two or more courses for a department in the higher education system.

**Occupational Therapist.** A health care profession who “helps people across the lifespan participate in the things they want and need to do through the therapeutic use of everyday activities (occupations)” (American Occupational Therapy Association, n.d, para.2).

**Telehealth.** “The application of evaluative, consultative, preventative, and therapeutic services delivered through telecommunications and information technologies” (American Occupational Therapy Association, 2013, p. S69).

**Conclusion**

Telehealth usage for health care delivery is becoming mainstream. In order to stay current and relevant in the healthcare arena, occupational therapists need to have the knowledge and skills required to provide ethical, skilled, and evidence-based therapeutic intervention in a vastly different context of delivery - virtual. It is imperative that OT faculty members are prepared to
support advancing technology and innovative ways to support healthcare delivery in order to keep educational program objectives current and relevant to today’s health needs. If faculty members do not stay current in health trends, aspiring OT students and ultimately patients, clients or consumers will be at a disadvantage, and ultimately patients, clients, or consumers will lose on much needed OT services. Examining the perceptions and knowledge of OT faculty members in the use of telehealth for OT service delivery will help to lay the groundwork for future planning in OT programs in curriculum development and evolution.

The following chapters lay the groundwork for this study. Chapter 2 describes and analyzes the relevant literature on the use of telehealth as a delivery method by various health care professionals, its effectiveness, issues regarding privacy, legislative, ethical, and licensing concerns. Available literature on how the perceived barriers and facilitators to telehealth adoption in both the clinic and education are explored as well as how telehealth has been incorporated into healthcare profession curricula. Chapter 3 describes the roadmap to how this research study will be conducted, focusing on the research setting, methodology for participant and sample selection, procedures for data collection and analysis, in addition to procedures for maintaining participant privacy and confidentiality. Chapter 4 will describe how the data was interpreted, coded and organized into categories, themes, and subthemes. This chapter will also discuss the categorical and thematic details as well as the categorical and thematic alignment with the conceptual framework. Lastly, Chapter 5 will present the interpretations of the data results, and the conclusions of the research. It will also discuss the implications and recommendations for future research and clinical practice related to telehealth adoption into OT program curricula.
CHAPTER 2
LITERATURE REVIEW

Current literature supports the use of telehealth as an effective delivery method for medical, allied healthcare professionals (Kairy, Lehoux, Vincent, & Visintin, 2009; Barlow, Liu, & Sekulic, 2009) and specifically OTs (Cason, 2009; Hoffman & Russell, 2008; Schein et.al, 2011) therefore, it is anticipated that the use of telehealth will continue and expand. There is evidence that identifies the perceived barriers and facilitators to telehealth adoption by OTs working in clinical settings (Brewster, Mountain, Wessels, Kelly, & Hawley, 2014), however, no current literature was found on health profession faculty members and more specifically OT faculty member perceptions of barriers and facilitators affecting their ability to integrate or adopt telehealth in a curriculum and/or teach telehealth to students. It would be extremely beneficial to examine the level of knowledge and perceptions of OT faculty members so leaders in the field can better prepare instructors to impart best practices to students. In addition, faculty perception and knowledge will determine the level and speed of integration of telehealth instruction into OT curriculum (Rogers, 2003).

This literature review explores the literature on the utilization and efficacy of telehealth as well as the clinician and faculty perceptions of telehealth by occupational therapists and other healthcare professionals. Due to the broad and varying terminology used in the literature for telehealth, multiple search terms and a combination of descriptors were used with online databases such as ERIC, CINAHL, and ProQuest, to search telehealth (telemedicine, telerehabilitation, telepharmacy, teleconsultation, telecare, and teleconferencing), adoption, barriers, diffusion of innovations, rehabilitation and occupational therapy. In addition, a snowball approach was employed using relevant articles to identify other resources.
History of Telehealth

The use of technology for healthcare delivery can be traced back to its first milestone in 1897 when the telephone was used for diagnosing a child with croup. In the late 1930’s, the radio was first used to provide health care to seafarers (Bashshur & Shannon, 2009). It later evolved with the advent of television in the 1960's to what is now known as telemedicine with the use of closed circuit television for the consulting and monitoring of patients remotely in a psychiatric hospital (Bashshur & Shannon, 2009). In the 1970's-1980's, increased telehealth projects emerged, and the first conference on the subject took place; however, telehealth did not take off at this point due to the high cost of technology and poor quality of images (Cason, 2014). In the 1990’s, telehealth usage increased with the hope of providing greater access to healthcare services and reducing the cost of delivering health care. The vast improvement in digital communication, technological infrastructure, and mobile technology made the adoption of telehealth easier and brings the field to the present time, where telehealth services are rapidly expanding throughout the country (Cason, 2014).

Telehealth Terminology and Concepts

Throughout this study many different terms will be used to describe the use of technology for healthcare support and services. It appears that who is using the technology and for what purpose may determine the terminology used. The Federal Telemedicine Work Group (FedTel) was formed to explore concerns about a lack of uniform terminology. The committee evaluated the definitions of telehealth/telemedicine used across the United States Governmental agencies, and representatives of these agencies were asked to provide information on the definitions that are in current use by their organization. Input and definitions were solicited for the following terms: (a) telehealth, (b) telemedicine, (c) telemonitoring, (d) telepresence (e) store-and-forward,
(f) m-health. As was expected, the survey revealed that there was no standard unified definition for any of these terms among government agencies (Doam, Jacobs, Bott, Lamer, & Oliver, 2013).

It has also been pointed out in the literature that the terms telemedicine and telehealth have been used interchangeably (Cason, 2015; American Telemedicine Association, n.d; Institute of Medicine, 2012). In a report by the Institute of Medicine (IOM) (2005), telemedicine was defined as “the use of electronic information and communications technologies to provide and support health care when distance separates participants” (p. 1). In an effort to clarify and broaden the definition of telemedicine the American Telemedicine Association (ATA) (n.d) stated,

Telemedicine is the use of medical information exchanged from one site to another via electronic communications to improve patients’ clinical health status. Telemedicine includes a growing variety of applications and services using two-way video, email, smart phones, wireless tools and other forms of telecommunication technology. (para.1)

ATA (n.d.) further clarified that the terms telemedicine and telehealth could sometimes be used interchangeably or at times, the term telehealth is used to refer to a broader definition of remote healthcare that does not always involve clinical services (para. 4).

To complicate matters further, other terms referring to the use of telecommunication for health care have emerged that relate specifically to how it is used and by whom. For example, speech therapists use the term telepractice, physical therapists and sometimes occupational therapists use the term telerehabilitation, those in the mental health field might use the term telepsychiatry and telepsychology, and pharmacists might use the term telepharmacy, to name only a few.
The profession of occupational therapy once embraced the term telerehabilitation as noted in the American Occupational Therapy Association’s position paper on telerehabilitation (2012), the association recently changed usage and adopted the term telehealth as noted in their updated position paper (2014). The rationale for this change was for the profession to promote the use of technology not only for rehabilitative services but also for health promotion, health prevention, and for consultative services as well. AOTA (2013) defines telehealth as “the application of evaluative, consultative, preventative, and therapeutic services delivered through telecommunications and information technologies” (p. S69). The World Federation of Occupational Therapists (WFOT, 2014) states that telehealth can refer to “synchronous (real-time) interactions between the therapist and client (e.g., video conference, remote monitoring, virtual interactions using applications (‘apps’) and gaming technologies); and/or asynchronous (i.e., “store-and-forward”) transmission of data (e.g., video, photos, electronic mail) by the provider and/or the client” (p.

The complexity of language and the differing terms to describe this type of health care delivery should not cloud a health professional’s ability to explore, utilize, and evaluate its benefits in health care services. The term telehealth will be the primary term used throughout this study unless the quoting source uses another term. The term telehealth best aligns with the terminology used by health officials and policy makers and fittingly describes the full scope of occupational therapy (e.g. health promotion, habilitation, rehabilitation) (WFOT, 2014, p. 1).

**Technology**

Technological advances have supported the increased use of telehealth as a delivery method; technology includes internet service, mobile technology (use of text messages and other applications), and video conferencing platforms to name a few. Although these advances have
become commonplace in much of today’s society, they are still not available to all individuals throughout the United States and around the world. High-speed internet and mobile technology is a luxury in many places, although they have been identified as a necessity for the health care system.

**Internet**

Internet usage by adults in the United States (U.S) has steadily increased since 2000 with 52% of all adults in the U.S using the internet compared to 2015 where 84% of all adults were using the internet, according to a Pew Research Center report (Perrin & Duggan, 2015, p. 2). The report notes that usage varies depending on age, education, income, community preference, and race. Perrin and Duggan’s (2015) report notes that only 58% of older adults use the internet, however, they had the fastest adoption rate since 2000 (p. 4); 95% of college graduates are online compared to only 66% of non-high school graduates, and their rate of adoption has recently increased as well (p. 5). Perrin and Duggan’s (2015) report also notes that 97% of those with income of $75,000 or more are internet users as compared to those who make less than $30,000 with only 74% of usage. Once again this group’s rate of adoption has significantly increased in recent year, as only 34% in 2000 were internet users (p. 6). In addition, those with lower incomes tend to obtain their internet access from cell phones rather from other, more traditional methods (Pew Research, 2015a). Seventy-eight percent of blacks as compared to 85% of whites and 97% of English-speaking Asians are online (p. 7). Lastly, 78% of rural residents are online as compared to those who live in an urban or suburban community, which has 85% of users (p. 9). The internet is a crucial part of telehealth as it powers real-time video conferenced interactions (synchronous) and email or monitoring devices (asynchronous). Without the internet, much of telehealth would not be possible.
Mobile Technology

In addition to the internet, cell phones and mobile technologies have been used in the delivery of health care services. The use of cell and mobile phones in developing and developed countries has steadily increased and has made more possible many activities by those living in remote, underserved communities. Pew Research Center (2015) found that “a median of 84% across the 32 nations surveyed own a cell phone (of any type), not far off from the U.S. figure of 90%” (p. 12). A study conducted by Hunter & Scott (2010) demonstrated how integral cell phones are to society. In their study, it was found that 63% of the population of Ghana had cell phones; however, most did not have electricity or running water in their homes. This pattern of increased access to mobile phones can be seen around the world, especially in areas where internet access is not available or less available (World Health Organization, 2011; 2012a: 2012b; 2012c). According to the Pew Research Center (2015a), 64% of Americans own a cell phone and 19% of Americans can only access the internet by using their cell phone due to the lack of available broadband internet services (p. 2). These staggering facts demonstrate that mobile technology is critical to many communities for communication, is something that can be used by greater numbers of people, and has been harnessed for the delivery of healthcare.

The uses of telehealth applications (apps) are also becoming more popular. These applications can transmit automated messages to the users to encourage, instruct, or remind the users to do or check something and collect data. This type of telehealth is considered asynchronous or “store and forward.” These messages by their nature tend to be short and rather impersonal. It is important to recognize the limitations and benefits of using such applications. Jongenelen, Hoeken, and Hendriks (2010) investigated whether an implicit or explicit message would be more acceptable to the user and would that type of message lead to greater compliance
by the user. The results of their study suggested that explicit messages are less appreciated than implicit messages and that personality characteristics of the user did not appear to affect individuals' preferences for a different type of message. Lastly, the results suggested that, though users liked implicit messages less, they would be more likely to comply with an explicit message (p. 202). This finding is certainly useful information when considering whether to use such a method of healthcare delivery but also demonstrates that this form of technology is beneficial for servicing health needs.

**Video conferencing technology**

The most popular form of technology usage for health services delivery has been video conferencing, which is a synchronous form of telehealth. A health care professional can be at one location and the patient in another location. Both can see and communicate with one another in real-time (synchronous) to evaluate and/or provide treatment to the patient or consult with another clinician who does not possess a level of expertise required to treat the patient's condition adequately. A minimum level of bandwidth required for adequate delivery of service has been a concern in rural areas and developing countries. Specifically, concerns have been raised regarding the quality of the video needed to observe patients during assessments and treatment sessions adequately.

**Video conferencing platforms.** There are a plethora of different video conferencing platforms. Some of these video conferencing platforms have been specifically designed to address concerns of limited bandwidth and video quality when working with communities in underdeveloped and rural areas. These video conferencing platforms have features that are designed to allow health care professionals to adjust the system for varying Internet connections as well as varying quality needed depending on the task being observed by the health care
professional. Some of these platforms can be accessed from various devices including cell phones.

Chong et al., (2012), describes the features, uses for, and benefits of a video conferencing platform for telerehabilitation called the Versatile and Integrated System for Telerehabilitation (VISYTER). This platform was designed to require minimal equipment and maintenance and to be able to adjust to different bandwidths. It has such features as stimuli presentation, remote multiple camera control, remote control of the display screen and an eye contact teleprompter. This system has been used and proved effective for delivery of rehabilitative services such as during remote wheelchair evaluations and has received a high level of client/therapist satisfaction during research studies (Parmanto et al., 2010; Schein et al., 2011).

One group went further in designing a system. Researchers Tan, Narayanan, Koh, Kyaw, and Hoenig (2014) found that there are specific video conferencing needs of treating therapists, and those needs depended on which type of assessment or treatment was being conducted. Video quality requirements for gait analysis, fine motor, and gross motor skills were all found to vary. It was determined that “some needed a high resolution, whereas some others needed a high frame rate. By optimizing video parameters such as frame rate and resolution, assessment performance in each of these cases can be maximized in a limited bandwidth environment” (Tan et al., 2014, p. 1384).

This new method of bandwidth adaptation was introduced and tested by the researchers for its efficiency. The developed system was evaluated for the minimum bandwidth required to be used successfully in a teleconsultation, and it was shown to be able to operate even when the network speed dropped below 128 kbps (Tan et al., 2014). Survey responses from therapists confirmed that the system worked well in low-bandwidth environments. The results of this study
demonstrated that it is possible to conduct high-quality video conferencing sessions in bandwidth-limited environments such as rural areas and remote areas. The authors stressed the importance of matching the technology with the available resources in a community to make sure that an effective session takes place (Tan et al., 2014).

**Benefits of Telehealth**

Telehealth allows remote communities access to healthcare services throughout the world. These services can assist in providing needed health professionals where a lack or shortage occurs. Professional and international regulatory associations endorse the use of telehealth to assist in healthcare delivery. In 2005, The World Health Organization (WHO) passed a resolution that recognized the deficits in healthcare services in various parts of the world as well as the benefits that information and communication technologies can have on health-related activities (World Health Organization, 2005). The resolution urges member states to look at their long-term planning and implementation of e-health and look for ways to improve their infrastructure, collaboration, and research to address the needs of the world's most vulnerable populations better. The World Federation of Occupational Therapists (WFOT) (2014), further endorses this delivery method, identifying that “Telehealth is an appropriate delivery model for occupational therapy services when in-person services are not possible, practical, or optimal for delivering care and/or when service delivery via telehealth is mutually acceptable to the client and provider” (p. 2). Telehealth has also been endorsed by WFOT (2014) for providing educational opportunities to local providers and assisting in addressing shortages of occupational therapists throughout the world. It can also be very cost-effective and provide healthcare services that can be as effective as in-person care.
Efficacy of Using Telehealth to Deliver Services by Occupational Therapists

Before one promotes the use of something, one must provide evidence to demonstrate that it is effective. Empirical evidence has been increasing over the years as to the efficacy of the use of telehealth to assist in healthcare delivery and should facilitate telehealth’s adoption in education and the clinic. There certainly are some studies worth mentioning that compare the effectiveness of in-person services to services provided remotely via telehealth. One study demonstrated that an expert clinician could accurately assess the functional mobility needs of clients remotely. Schein et al., (2011) explored the inter-rater reliability between a generalist clinician administering the Functioning Everyday with a Wheelchair-Capacity (FEW-C) evaluation in person and a remote expert clinician observing via Telerehabilitation. Forty-six clients participated in the study in which both the generalist (in-person) and expert (remotely) evaluated the client at the same time. Both raters demonstrated excellent inter-rater reliability as it was deemed that both the in-person evaluation and the remote evaluation produced the same result (Schein, et al., 2011).

Hoffman and Russell (2008) evaluated the feasibility and accuracy of conducting occupational therapy (OT) home visits using the Internet for pre-admission testing of orthopedic patients. Both an occupational therapist in person and a therapist via videoconferencing saw forty patients who were scheduled for a total joint replacement surgery on the same day. Both therapists evaluated the same criteria, completed a home evaluation questionnaire, and assessed the patients’ transfer abilities and measurements of the heights of six pieces of furniture in the home. There was a 98.9% agreement for the home environment assessment and a 100% agreement on the items related to the transfers. There was only a 0.1-3.3 cm difference in the measured heights (Hoffman & Russell, 2008). The results suggested that conducting a pre-
admission orthopedic occupational therapy home visit via the Internet is both feasible and accurate. Unfortunately, there is still room for significant improvement regarding the available literature on the efficacy of telehealth in healthcare and OT service delivery. This two-part approach can be seen as a barrier to a telehealth’s adoption.

**Patient Protection and Affordable Care Act (ACA)**

The implementation of the Patient Protection and Affordable Care Act (ACA) in 2010 has changed the landscape of health care (Cason, 2015). Significant portions of the ACA lend itself well to promoting and utilizing telehealth to meet the healthcare needs of society. In addition, the ACA has allowed more individuals to access health insurance, increasing the burden on health professionals to provide services to more people. Telehealth has been identified as a delivery method that has the promise to decrease this burden on the health care professionals (Cason, 2015). There has been an increase in funding and programming due to the ACA to support telehealth use throughout the country (Weinstein, et al., 2014).

**Barriers of Telehealth**

Though there are a plethora of benefits to the use of telehealth, this form of healthcare delivery is not without its challenges. Some of the hurdles that need to be addressed pertain to lack of access to the internet to those who need it the most, health care professional licensing issues, ethical and privacy concerns, insurance, and licensing issues.

**Internet access**

Typically, those most in need of healthcare services tend to be the ones with the lack of infrastructure needed to support these services (Wootton & Bonnardot, 2010). For quality and effective telehealth sessions, minimum bandwidth Internet service is required (Chong et al., 2012; Peterson & Watzalf, 2014; Parmanto et al., 2010). This sort of technology is increasing
around the country, and the world yet is not readily available to everyone. Innovative individuals are addressing this need and creating video conferencing platforms that are supported by low internet bandwidth, however, these platforms are not yet mainstream.

**Privacy and Ethical Concerns**

The United States has policies and regulations in place to protect patient and consumer privacy when dealing with healthcare data transmission and sharing of information. For example, the United States has enacted the Health Insurance Portability and Accountability Act of 1996 (HIPAA) and the Health Information Technology for Economic and Clinical Health Act of 2009 (HITECH). These Acts not only protect a patient’s medical information but also stipulate certain safeguards that need to be in place when using technology, namely in this case the use of telehealth for healthcare delivery.

When utilizing video conferencing technology or email to deliver patient services, the treating health care professional needs to ensure that the data being transmitted is encrypted at the required level per regulations. Off the shelf video conferencing, platforms and email servers may or may not provide the needed level of encryption. Therapists also need to be mindful of the environment in which they are communicating with the client and ensure that client’s privacy is being protected and other around them are not unknowingly hearing the exchange of protected health information. It is the burden of the practicing healthcare professional to do their due diligence to find out what safeguards are mandated, and how to meet the standards required to protect their patients’ privacy (Peterson & Watzlaf, 2014).

Telehealth for many can be a great tool for healthcare delivery; however, this delivery method might not be the best method for assessment and/or treatment for all clients and all diagnoses (Cason, 2014). A clinician utilizing telehealth needs to make the clinical judgment as
for whom this would work best and for whom this method would not be a good solution. A therapist would commit an ethical violation if they provided services via telehealth and the level of the quality of therapy was compromised as opposed to delivering services in-person.

**Licensure**

Currently, all healthcare professionals who utilize telehealth are required to be licensed in the state in which they are physically located as well in the state in which the client is located, unless they are practicing within the federal government (Cason, 2014; Cason & Brannon, 2011; Lee & Harada, 2012). This requirement poses a challenge for some, as individual state licensing requires a fee approximately every three years (varies by state) in addition to the need to monitor and comply with each state’s unique practice acts and legislative policies. Each state may have different requirements for continued professional education maintenance by providers in order to apply for license renewal, therefore, it is the burden of the therapist to navigate each state’s specific process.

Due to the increased demand for health professionals to provide services via telehealth all over the country, some professions are responding by exploring the development of licensure compacts. These compacts would allow licensed health professionals to practice in neighboring states or perhaps multiple states around the country without having to obtain multiple licenses. Physicians and physical therapists have already initiated this investigation process. Physical therapy providers have formed an Advisory Task Force to address the issue and has ten states enlisted, with a projected enactment of a law that would create the Physical Therapy Licensure Compact (Federation of State Boards of Physical Therapy, 2016). These types of licensure compacts will not only benefit those utilizing telehealth, they will also benefit health
professionals working in areas that border multiple states and allow the public increased access to quality healthcare services.

**Insurance Reimbursement and State Laws**

A large part of any healthcare service is the consideration of being reimbursed for services. The requirement of reimbursement by insurance companies for services delivered via telehealth varies by state and profession. Medicare is regulated by the federal government, and currently, there is pending legislation; CONNECT for Health ACT that would expand telehealth usage (Congress.gov, n.d.). Currently, Medicare restricts reimbursement for services delivered via telehealth to designated licensed health professionals. For example, neither occupational therapy nor physical therapy telehealth services are reimbursable by Medicare. There has been legislature proposed yearly to amend this law; however, at this time, it has yet to be passed by both houses of the government. The most recent pending legislature is the Medicare Telehealth Parity Act of 2015, which would allow reimbursement for OT and PT services.

Medicaid and private insurances are regulated at the state level, and there are currently 29 states and Washington, D.C. (American Telemedicine Association, n.d.b) that have enacted telehealth parity laws that would require Medicaid and private insurance to pay for services delivered via telehealth at the same rate that an in-person service would be reimbursed. These telehealth parity laws also restrict which licensed professionals qualify for reimbursement. For example, New York State recently amended its Telehealth Parity law, which went into effect on January 1, 2016, to include occupational therapy and physical therapy on its long list of professionals warranting reimbursement.
Lack of Research

As mentioned previously regarding telehealth benefits, though there is some research supporting telehealth’s usage by healthcare professionals and OTs, there is still a need for significantly more. This underwhelming amount of research supporting telehealth’s usage should be identified as a barrier as well. In addition, although there is some research on the efficacy and cost-effectiveness comparing health care delivery via telehealth as compared to in-person services, literature continues to be limited. This dilemma might cause a financial roadblock for those intending to start telehealth programs. Those financing such projects may not find evidence regarding the cost benefits analysis in telehealth usage. Therefore, they might determine that financing a telehealth project might take away funds from other important health projects (Wootton & Bonnardot, 2010).

Telehealth in Education Programs

Why are some medical and healthcare professions and programs ahead of the curve and already providing students with training and experiences in the use of telehealth? There is limited published research as to how and if programs are integrating this topic in the curriculum. It appears that most of this literature comes from the fields of medicine, nursing, and pharmacy.

Telehealth in Medical and Allied Health Educational Programs

Nursing has been at the forefront in addressing the need of incorporating telehealth into nursing program curricula as leaders in the field recognized that most of their clinicians and faculty are not adequately trained to use telehealth services in practice (Gallagher-Lepak, Scheibe, & Gibson, 2009). One article highlights one nursing program’s effort in collaboration with four other programs and support from a United States Department of Health and Human Services Administration (HRSA) grant to build a model to train faculty on informatics and
telehealth as well as specific strategies for integrating this content into the curriculum. As the result of this training model, the faculty members involved were able to create telehealth assignments and integrate them into five core courses in the curriculum. A telehealth training facility was also created to demonstrate telehealth monitoring and allow students to practice their skills. A pre- and post-self-assessment was administered to the faculty members to measure six areas of competency. Results demonstrated increased faculty competency in all areas (Gallagher-Lepak, Scheibel, & Campbell, 2009). Student feedback telehealth was briefly discussed in this article, however, it was not the focus of the study therefore only anecdotal in nature, revealing mixed views of telehealth in practice.

Further highlighting the work of the nursing profession in telehealth education studies have been conducted to identify and understand the needed competencies and educational needs for nurses working in the community and utilizing telehealth (van Houwelingen, Moerman, Ettema, Kort, & ten Cate, 2016; Carter, Horrigan, & Hudyma, 2010). The identified competencies and educational needs such as advanced communication skills, comfort with the use of communication technology, advanced physical assessment skills, organization/multi-tasking have been able to then inform nursing program curriculum developers about proper training of their students and the educational needs of currently practicing nurses.

One article highlighted the importance of medical students becoming exposed to the use of telehealth in their program curriculum. The authors described a telemedicine elective course given in the fourth year of a medical school program with seven students enrolled (Bulik & Shokar, 2010). The course was four weeks in duration and provided students with an introduction to telemedicine. At the end of the four-week course, students submitted a reflective paper that addressed how they would use telemedicine in their future practice and their analysis
of communication between doctor and patient (p. 356). Lastly, the researchers for this study analyzed the feedback given by students in course evaluations. The evaluation ratings and the student comments about the experience all spoke favorably of this telemedicine elective course.

**Telehealth in Occupational Therapy Educational Programs**

The literature on the incorporation of telehealth into occupational therapy curriculum is limited. Only one article was found that described a qualitative study that looked at the benefits of incorporating teleconsultation into a Master's level OT program curriculum as a service-learning project (Foti, Eleazar, & Murphy, 2014). The teleconsultation program involved OT students and supervising faculty members who resided in the United States and individuals with physical disabilities who lived in Guatemala. The students used video conferencing, email, and the free messaging application, WhatsApp, to provide remote consultation and treatment to an underserved population. The effectiveness of the pilot program on student learning outcomes was measured in this study. Overall, the data demonstrated some benefit concerning student-learning outcomes after exposing students to this type of experience in the curriculum. The effectiveness of the treatment provided to the clients serviced was not evaluated in this study. The study did describe, however, the challenges experienced by students during their virtual interaction with the clients in Guatemala such as technological, language, and transportation barriers (Foti, Eleazar, & Murphy, 2014).

**Perceptions of Telehealth**

As with any innovation, individuals’ perceptions may vary depending on their exposure to the innovation, experience with the innovation, and other demographic information (Rogers, 2003). Some research has been conducted to examine the perceived barriers and facilitators of
telehealth by healthcare professionals currently working in the healthcare workforce around the world.

**Non-OT Student and Clinician Perceptions of Telehealth**

Literature on perceived barriers and facilitators to telehealth adoption by healthcare professionals is available that has supported efforts to remediate issues surrounding those identified barriers. This literature has come predominantly from the United Kingdom, Canada, Germany, and Australia and has examined the perceptions of nursing and medical students as well as practicing nurses and physicians (Dockweiler & Hornberg, 2014).

A sample (n=524) of medical students from all 36 medical schools in Germany were surveyed to understand their knowledge and attitude regarding telehealth usage in practice. The results indicated that the majority of medical students were aware of telehealth and gained this knowledge mostly from lectures, seminars, and the news media. Only 2.6% reported that they attended a required course in which telemedicine was the priority and only 5% stated that they attended an elective course on the subject (Dockweiler & Hornberg, p. 66) demonstrating the limited integration of the topic in medical schools in Germany. Regarding the medical students’ attitudes towards telemedicine, 80% felt that telemedicine was gaining importance and 60% believed this delivery method would ease their workload. Interestingly, due to reported lack of information, 30% of respondents reported that they were unable to opine on the potentials or challenges of the use of telemedicine (Dockweiler & Hornber, p. 69). The results of this study led the investigators to recommend an increase of information to medical students about telehealth as well as more publications on the topic to diffuse information.

A nursing program in England introduced an online learning resource that was integrated into an existing course. Their students were surveyed to understand the nursing students’ level of
knowledge and attitudes about telehealth before and after completing the online learning event as well as their satisfaction with the resource. Results demonstrated that there was a significant increase in the level of knowledge regarding telehealth, however, there was not a significant increase in positive attitude towards the use of telehealth (Barrett, 2013). The researchers concluded that this type of resource has proven to be acceptable for increasing knowledge level of nursing students however further research is needed to explore nurses’ perceptions regarding telehealth and to determine the best method for educating nursing students (Barrett, 2013).

**OT Clinician Perceptions of Telehealth**

One study conducted surveyed occupational therapists working in clinical settings in Houston, Texas on their use of telehealth as a delivery method as well as their perceptions regarding telehealth in practice (Hersch, Kao, Melton, & Pancheri, 2015). Out of 51 respondents, 22% indicated that they currently use telehealth to deliver services for individuals with varying diagnoses. However, 46% of the 51 respondents felt that their skill level in utilizing telehealth was inadequate to use telehealth properly (p. 1). Although most surveyed did not use telehealth or feel properly educated in its use, just over half of the respondents felt that telehealth could positively affect healthcare services. The researchers recommend further investigation as to why therapists are not seeking further education on telehealth.

**Gaps in the Literature**

Telehealth is a growing field catapulted by advances in technology and the demands of society for better, efficient, and cost-effective healthcare. As more and more healthcare professionals are using this delivery method, there will ultimately be a shift in education and a need to provide educational experiences for students and modules utilizing best practices. Literature on educational programs providing such experiences to its students is limited. It is
unknown if this is a direct result of this topic not being taught or just not being published. Although there is some research that examines healthcare professionals’ perceptions of telehealth use, no literature was identified that examines the level of knowledge or perceptions of faculty members of telehealth. Learning more about faculty perceptions and level of knowledge on this topic will be useful for long term planning in preparing faculty for the integration of telehealth education into program curricula.

**Conceptual Framework**

Literature has demonstrated that the use of the telehealth as a delivery method for healthcare services can be cost-effective and as effective as in-person therapy (Cason, 2014, Barlow, Liu, & Sekulic, 2009; Hoffman, & Russell, 2008), can increase access to services for individuals who might not readily have access due to distance or life circumstances (Cason, 2014) and is in alignment with current health policy such as the Affordable Care Act (Cason, 2015). Although it has also been noted that an increase in published research is needed to further solidify telehealth’s place in the health care system, there is enough literature to warrant identifying telehealth as an up and coming delivery method which is not a fad and will shape the future of healthcare for years to come.

Professional licensure, legislature, reimbursement, lack of knowledge, and misconceptions by those in and out of the healthcare arena have been identified as current barriers to the further adoption of telehealth. Identification and acknowledgment of these barriers have helped facilitate the better education of stakeholders and has assisted in moving the cause forward (Cason, & Brannon, 2011).

Although telehealth is blossoming in healthcare practice, current literature does not indicate if, how or where it is being taught in healthcare curriculum to the future professionals.
Accreditation bodies for healthcare professions are slowly increasing their expectations for the inclusion of telehealth in the curriculum. Currently, however, most accreditation standards are vague, but specificity and detail of standards are expected to increase over the next several years. Are faculty members in professional healthcare programs prepared to educate these future clinicians in telehealth? It would, therefore, be beneficial to discover the perceptions of faculty members towards the use of telehealth as a delivery method. This process would identify possible barriers or facilitators for programs related to meeting the accreditation standards, as well as the healthcare needs of society.

The Diffusion of Innovations Theory has been used to analyze why innovations have or have not been easily integrated into society. This theory was originally developed by Everett Rogers (1983) who intended to describe reasons for diffusion or lack of diffusion of technology used in agriculture. It was later adapted and applied to health care, education, and the pharmaceutical industries to name a few (Scott, 1990; Grigsby, Rigby et al., 2002; Attewell, 1992, Ball, Ogletree, Asunda, Miller, & Jurkowski, 2014). Diffusion is a "process of communication and influence whereby potential users become informed about the availability of new technology and are persuaded to adopt, through communication with prior users" (Attewell, 1992, p. 2).

Rogers (2003) identifies five steps or stages in which individuals or systems go through during the innovation-decision process, (1) knowledge, (2) persuasion, (3) decision (4) implementation, and (5) confirmation. Individuals are provided with information regarding an innovation through communication channels, which can be mass media, or from peers. Peers who have already adopted an innovation seem to have the most influence on individuals and serve as role models. Individuals then ponder over five noted attributes of innovations, (1)
relative advantage, (2) compatibility, (3) complexity, (4) trialability, (5) observability, during the persuasion stage before deciding whether to implement and confirm the use of this innovation in later stages. The perceptions of the members of a social system regarding these attributes determine the rate of adoption (Rogers, 2003). The more favorable these attributes appear to members of a social system, the faster the adoption.

The Diffusion of Innovations Theory has been used to predict the rate of adoption of various innovations used in education (Chan, Borja, Welch, & Batiuk, 2016) and examine factors influencing adoption of innovation in education (Sahin, 2006) as well as in health care practice. Diffusion research has focused on the examination of clients (Call et al., 2015) and clinicians’ perceptions of telehealth (Chedid, Dew & Veitch, 2013) to determine the facilitators and barriers to its adoption in various social systems. These identified barriers and facilitators have then been helpful to stakeholders in order for them to develop and provide the necessary education to remediate any client or clinician concerns.

Most relatable to this study is the Diffusion of Innovations research regarding adoption of technology in education, specifically the use of technology for distance education and in classroom environments. Starting in the 1990’s, with the increase of technology, research emerged examining the utilization of technology to deliver course content online (Ball et al., 2014; Shea, Pickett & Chun, 2005). At the time online learning had seen a rapid increase in use, however, only a small percentage of faculty members in higher education were using the technology despite the presence of various learning management systems. Researchers saw that there was much apprehension among faculty members to swiftly adopt this method of teaching.

The Diffusion of Innovations theory has proven useful for gaining insight into factors that possibly affect the integration or adoption of distance education among faculty members. Ball et
al. (2014) found that the lack of communication about distance education implementation among its faculty members was problematic and interfered with the steady adoption of distance education in their health program. Another study surveyed 913 faculty members across 33 colleges regarding their perceptions of online teaching. Results from this study revealed the need for institutional policy, and faculty development for facilitating faculty satisfaction, which in turn, would increase the likelihood of faculty to adopt or continue online teaching (Shea, Pickett, & Li, 2005).

Bennett & Bennett (2002) utilized the elements of the Diffusion of Innovations Theory to design an instructional technology faculty training program. The researchers found from this study that, when creating such a professional development programs for faculty, it was important to include discussion regarding the relative advantage of instructional technology, provide demonstrations, and allow faculty to try the technology while showing them how it fits with their values and philosophies surrounding teaching. It was further shown that all of these elements had a positive impact on the faculty members’ attitude and perceptions regarding instructional technology and thus had the potential to improve the adoption rate of instructional technology at this program.

Technology use in the classroom by faculty members was also found to be gradually integrated into teaching and learning environments. Researchers utilized the Diffusion of Innovations Theory to explore and possibly identify the needs of faculty members in order to assist in the diffusion of technology in the classroom. One study conducted at a college revealed that their faculty had been provided with adequate opportunity to try (trialability) various technologies in the classroom, however; faculty lacked “observability” in instructional use of technology at their college. These findings further revealed the need for more training of the
faculty in the use of technology in the classroom and that their faculty members were in the first stage of the innovation-adoptions process, the knowledge stage (Sahin, & Thompson 2006). Chan, Borja, Welch, & Butiuk (2016) revealed similar findings after they examined diffusion factors regarding the integration of an audience response system by their faculty members into their teaching practice. Their results highlighted the importance of trialability and compatibility; allowing the faculty members to try the technology and to help them to understand how the use of the technology can enhance and not interfere with their pedagogical goals is key.

It can therefore be assumed that by examining the perceptions of occupational therapy faculty members in the use of telehealth, applying the Diffusion of Innovations Theory, would lead to similar success; thus the identification of barriers and facilitators to the adoption of telehealth into occupational therapy curricula. These identified barriers and facilitators to adoption of telehealth can then be used by this educational program to remedy any concerns.

The constructs of the Diffusion of Innovation Theory formed the groundwork and guided this research study. Identifying faculty perceptions regarding the five attributes of innovations assisted in determining the anticipated rate and factors influencing adoption of telehealth into this program’s curriculum and is intertwined in the methodology of this study. In addition, utilizing the five steps in the innovation-decision process further identified which stage individuals and the group was currently in regarding adoption of telehealth. Identification of the appropriate stage proved helpful in assisting this educational program in the development of professional development activities and remediation, which will further advance the rate of adoption.
Conclusion

The use of telehealth for healthcare delivery is increasing for all health care professions; doctors, nurses, physical therapists, social workers, speech therapists, nutritionists and occupational therapists, just to name a few. In order to remain relevant and competitive in an ever-changing healthcare system, occupational therapists need to gain the skills needed to utilize this delivery method with their clients when appropriate. Telehealth is proving itself an effective delivery method and not a tool to be used just because others are using it. Although clinicians from all disciplines are using telehealth in their practices, the process of educating these individuals in best practices has not been well documented. There appears to be a conundrum; clinicians need to be participating in this type of practice in order to provide the needed research on its efficacy before it is indoctrinated into a professional education program. Are we at that point yet – the literature does prove that we are.

Examining the perceptions of occupational therapy faculty on the use of telehealth as a delivery method using Diffusion of Innovation lens provides useful information to program directors and other education stakeholders. Once the perceptions of OT faculty are identified, then a plan can implement the necessary interventions to prepare faculty for this new delivery method. This process is necessary in order to provide future occupational therapists with the necessary education to deliver effective and ethical OT via telehealth.
CHAPTER 3

METHODOLOGY

The purpose of this qualitative descriptive case study was to examine how faculty members teaching in a master’s level occupational therapy (OT) program in the 2017 academic year perceived the use of telehealth in healthcare delivery and how this impacts their ability to teach this content to their students. Healthcare in the United States has been shifting and changing due to legislative, financial, demographic, technological, and consumer needs and demands. Due to these shifts, the use of telehealth in health care has been rapidly increasing by various health care professionals. The use of telehealth for occupational therapy is relatively new and slowly being incorporated into OT program curricula. The research questions for this study incorporated language and concepts from the Diffusion of Innovations theoretical framework. This framework attempts to explain barriers, facilitators, and speed or lack of speed of integration of innovations into society or organizations (Rogers, 2003). These factors are determined by individuals’ level of knowledge and perceptions associated with this innovation. In order for the OT profession to facilitate the steady implementation of telehealth by OTs around the nation, it would be beneficial to start at the gateway to the profession – the OT educational programs. Examining the knowledge and perceptions of OT faculty members sets the stage for further planning and implementation of a strong curriculum in which OT students can learn from and later implement in the field as professionals.

This chapter describes the necessary elements regarding the methodology of this research study. It includes a description of the setting in which the study took place, procedures for sampling selection, methods for data collection and analysis, procedures for ensuring participant privacy and confidentiality and potential limitations of the study.
The researcher sought to understand four central questions regarding faculty perceptions in the use of telehealth. 1) What is the knowledge level of OT faculty members regarding telehealth usage as a delivery method in practice? 2) What are the perceived barriers of OT faculty members to the adoption of telehealth into program curricula? 3) What are the perceived facilitators of OT faculty members to the adoption of telehealth into program curricula? 4) How can OT faculty be supported in developing knowledge and skills to incorporate telehealth practice into program curricula?

Setting

This study was conducted at a combined Bachelor’s of Science/Master’s of Science (B.S./M.S) three-year occupational therapy program, which is housed in a mid-sized private, nonprofit urban university. The OT Program itself is moderately sized with over 160 students collectively enrolled at various stages throughout all three years. The OT Faculty for this program is made up of eight full-time faculty members and 18 part-time adjunct faculty members. Both occupational therapists and physical therapists are employed as faculty members at this OT program. The demographic of faculty member make up includes both male (4) and female (22) members who vary in age and teaching experience.

In order to be hired as a faculty member at any institution, certain qualifications need to be met. They must be currently licensed in the state in which the program is located, have at minimum a Master’s degree (degree not limited to occupational therapy) with at least half of those faculty members holding a doctoral degree. In addition, faculty members “must have documented expertise in their area(s) of teaching responsibility” (ACOTE, 2013).
Participants/Sampling Procedures

Participants for this study were selected by using a purposeful sampling approach and then further selections were made to accommodate for specific inclusion criteria. Purposeful sampling was utilized as this method involves the selection of individuals for a study who are knowledgeable about the phenomenon being explored (Creswell, 2013). This researcher purposefully selected participants for the study from the sample pool of 26 full- and part-time faculty members.

Faculty members are defined as educators who work either full or part-time at an institution as defined by ACOTE (American Council for Occupational Therapy Education). Many OT programs employ faculty members who are not licensed occupational therapists, rather who are licensed, physical therapists. Though these individuals may be considered faculty members in an OT program, they are not considered occupational therapy faculty members and therefore were not included as participants in this study. The site of this research study employs one physical therapist (PT) as a full-time faculty member and one PT as an adjunct faculty member, who were not invited to participate in this study. Sampling procedures to select participants had no other exclusion criteria.

Six full-time faculty members were selected as well as two part-time or adjunct faculty members. One full-time physical therapy faculty member and the one part-time PT faculty member were excluded from the pool. According (ACOTE) standards, faculty members share the burden of both monitoring and developing of program curriculum. This expectation forces faculty members to examine their program’s curriculum periodically to assess its content, rigor, and effectiveness. Any modifications to a program curriculum would need to be mutually agreed upon by the faculty members, therefore, it was crucial to examine the perceptions of the full-time
OT faculty members regarding emerging technology and its role in healthcare service delivery. The two part-time or adjunct OT faculty members were selected as they have taught in this program for several years and although they are considered contractually as part-time faculty members, the amount of credit load and skill contributed to the program is recognized at the same level as full-time faculty members. Therefore, their perceptions and knowledge are valuable to the results of this study.

This study examined the perceptions of and knowledge level about telehealth of faculty members who are occupational therapists. All faculty members in the sampling pool are familiar with telehealth use on various levels, however, at the time of the study, it was unknown whether any were currently including content regarding telehealth into their courses.

**Data Collection**

The primary method of data collection for this qualitative descriptive case study was one-hour, one-on-one semi-structured in-depth interviews with purposefully selected participants. The interview was conducted, in person, or via telephone conversation. Interview questions were open-ended and probing in nature (Appendix A). The questions were designed to be thought-provoking, reflective, and revealing about faculty perceptions and knowledge base regarding the use of telehealth in OT practice. Research participants were asked to describe their perceptions about their experiences.

Interview questions were piloted with two OT faculty members, and the results of these interviews were included in the study sampling pool. This piloting process determined the average length of future interviews for time allocation purposes, whether any questions appeared to be leading or failed to elicit the answers rich in personal experience and thought. Either prior to the interviews, or right after, applicants completed a short questionnaire to collect relevant
demographic information including age range, gender, years of OT experience, and years of teaching experience (Appendix B). Interviews were audio recorded and then transcribed using Rev transcription services. The transcripts were compared to the audio recordings to check for accuracy, and then member-checked.

In a case study, the purpose is to describe a case in-depth and address the research questions and issues. A case is defined as a bounded system, and in this instance, the case will be a finite group of occupational therapy faculty members at a specific OT program, during a specified timeframe (Merriam, 2009). Multiple methods of data collection such as interviews, observations, documents, and questionnaires are often used in case study research (Creswell, 2013). In this instance, interviews and questionnaires are the source of evidence and were sufficient evidence as the purpose of this study to uncover the perceptions of OT faculty members regarding telehealth.

In qualitative studies, the researcher is a tool in data collection. It is, therefore, important for the researcher to bracket themselves out of the study (Creswell, 2013). This process of bracketing required the researcher to identify and examine personal experiences with the phenomenon (use of telehealth) and set them aside in order to focus on the experiences of the participants only. Though the researcher has extensive knowledge in the use of telehealth, this bias is recognized, and a conscious effort was made not to lead participants or influence their answers in any way. This researcher continually monitored possible biases by using the process of journaling during the process of collecting data.

**Data Analysis**

Research participant demographic data was first synthesized, coded, and then later linked to their transcript counterpart. The audio recordings of the interviews were transcribed, and
member checked for accuracy. Participants were then allowed to expand or clarify any information. Transcripts were then analyzed with the assistance of the ATLAS.ti, qualitative data analysis software. The concepts of the Diffusion of Innovations Theory guided part of the analysis of data by utilizing predetermined themes or categories such as the five attributes of innovation: (1) relative advantage, (2) compatibility, (3) complexity, (4) trialability and (5) observability as described by Rogers (2003). Categorizing data into these themes allowed the researcher to examine faculty perceptions at this OT program, regarding the adoption of telehealth into their curriculum. These identified perceptions have been found to be helpful in determining individual and organizational needs regarding increased innovation adoption. In addition, the researcher also allowed and looked for any additional emerging trends and themes that could further identify OT faculty perceptions towards the phenomenon of telehealth adoption at this occupational therapy program. The emerging and predetermined themes were then coded, organized, and grouped together based on similarities. These themes shed light on the case and help shape a report that focused on a rich description of the context and operation of the case (Creswell, 2013). These identified themes were also be compared to those themes identified and supported by the literature and informed the recommendations for this program regarding the adoption of telehealth into their occupational therapy curriculum.

**Participants’ Rights**

During the process of participant informed consent, all potential participants were verbally notified of the purpose, procedure, potential risks, benefits, and voluntary nature of this study so that they could make an informed decision regarding their participation in this research study. This information was also included in the invitation to participate as well as the informed consent form.
Through the informed consent process, participants of this research study were alerted that they are assisting a colleague in their dissertation study. In addition, they were notified of the fact that the dual intention of this research study is to provide valuable insight into the profession and the department regarding the knowledge and perceptions of the faculty as a whole on the use of telehealth as a delivery method in practice. Participants were made aware that there would be no judgments made regarding their level of knowledge or perceptions regarding this delivery method and they could choose not to participate in the study or withdraw from the study at any point without and repercussions. Research participants were also made aware that results of this research study would be used to assist in the planning and potential allocation of resources to assist the faculty members in developing curriculum content related to telehealth usage in order to better prepare students in the OT program to work in this context. There were no potential risks or harm associated with the participation of this study. Participants were provided with a written consent form, which contained such information and were required to sign the written consent form if they wished to participate.

Participants’ privacy was maintained by omitting names of their names from any interview notes and transcripts. Coding was used to identify interview data and associate with relevant demographic data. Participant pseudonyms were assigned to the participants to allow direct quoting. Confidentiality was maintained by securing all interview notes, demographic information, transcribed data and results on a cloud-based password protected file on the researcher's laptop. Only the researcher conducting this study had access to the raw data. The data will be kept for four years, and after four years, the data files will be shredded and deleted electronically.
In addition, Institutional Review Board (IRB) approval was obtained from both XYZ University and the University of New England to ensure that all ethical and governmental procedures were being followed regarding human subject research.

**Potential Limitations**

This study was conducted in a mid-sized occupational therapy program located in an urban area. Due to this study’s specific nature and specific setting in which it will be conducted; results may not be generalized to other settings. Therefore, these results may not be generalized to other OT programs as the results pertain to a specific set of faculty members. However, results may be useful to other programs when seeking to explore similar processes for curriculum development regarding telehealth adoption.
CHAPTER 4

DATA ANALYSIS AND RESULTS

This study examined the perceptions of eight occupational therapy faculty members’ perceptions and knowledge level regarding the use of telehealth in healthcare delivery. Chapter 4 summarizes the collected data, reports on the analysis process, and provides the results of analysis while addressing the four primary research questions that guide this study. This chapter also presents the descriptions of the three overarching categories and eight themes that emerged during the data analysis process. It provides contextual information about the OT faculty members’ thoughts about OT’s using telehealth, their personal experiences using telehealth, possible barriers and facilitators to the use of telehealth by occupational therapists as well as its inclusion into curricula, and what they would need in order to address this topic in their course delivery.

The results of this study answer the research questions: 1) What is the knowledge level of OT faculty members regarding telehealth usage as a delivery method in practice? 2) What are the perceived barriers of OT faculty members to the adoption of telehealth into program curricula? 3) What are the perceived facilitators of OT faculty members to the adoption of telehealth into program curricula? 4) How can OT faculty be supported in developing knowledge and skills to incorporate telehealth practice into program curricula? A qualitative method, using a single case study design, informed the investigation of the research questions. The case study relied on demographic data collected via a questionnaire and individual interviews. The faculty members at a specific occupational therapy program were the recruitment pool for the study with a purposeful sampling approach. Eight individual interviews were conducted to describe this case in-depth, address the research questions and issues for this case.
This chapter begins with the presentation of the demographic information of the participants, followed by a description of the data analysis procedures including the coding process. The results of the research will be presented and organized by categories, themes, and subthemes. Chapter 4 concludes with a brief summary.

Analysis Methods

This section will explain how the data was interpreted, coded, and organized. A detailed explanation is provided regarding the data analysis, including coding schemes, pattern identification, categories, and themes.

Background Profiles

This section begins with the background profiles of the research participants as shown in Table 4.1. Data collection included interviews with eight participants whose age ranges varied as well as gender, years of teaching experience, areas of practice/teaching and full-time or adjunct faculty member status. There were two males and six female research participants. The majority of the participants were female, between 40-50 years old, full-time faculty members and identify their primary area of OT practice as pediatrics. Participants’ years of practicing OT ranged from 9-30 years with an average of 19.5 years. Years of teaching experience ranged from 3 to 20 years with an average of 9.6 years.
Table 4.1

**Background Profile of Participants**

<table>
<thead>
<tr>
<th>Participants</th>
<th>Gender</th>
<th>Age Range</th>
<th>Years in OT Practice</th>
<th>Years in Teaching</th>
<th>OT Practice Area</th>
<th>Employment Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>Female</td>
<td>40-50</td>
<td>24</td>
<td>6</td>
<td>Pediatrics</td>
<td>Full-Time</td>
</tr>
<tr>
<td>P2</td>
<td>Female</td>
<td>40-50</td>
<td>16</td>
<td>3</td>
<td>Pediatrics</td>
<td>Full-Time</td>
</tr>
<tr>
<td>P3</td>
<td>Female</td>
<td>30-40</td>
<td>14</td>
<td>5</td>
<td>Pediatrics</td>
<td>Adjunct</td>
</tr>
<tr>
<td>P4</td>
<td>Male</td>
<td>40-50</td>
<td>19</td>
<td>15</td>
<td>Adult Physical Disabilities</td>
<td>Full-Time</td>
</tr>
<tr>
<td>P5</td>
<td>Female</td>
<td>60-70</td>
<td>30</td>
<td>20</td>
<td>Mental Health</td>
<td>Full-Time</td>
</tr>
<tr>
<td>P6</td>
<td>Female</td>
<td>50-60</td>
<td>25</td>
<td>20</td>
<td>Mental Health</td>
<td>Full-Time</td>
</tr>
<tr>
<td>P7</td>
<td>Male</td>
<td>30-40</td>
<td>9</td>
<td>4</td>
<td>Adult Physical Disabilities</td>
<td>Adjunct</td>
</tr>
<tr>
<td>P8</td>
<td>Female</td>
<td>40-50</td>
<td>20</td>
<td>4</td>
<td>Pediatrics</td>
<td>Full-Time</td>
</tr>
</tbody>
</table>

Two pilot interviews were conducted, and the content of those interviews was included in the overall data collection. As a result of these pilot interviews and feedback from the participants, interview questions were slightly revised to eliminate areas of redundancy and allow for more clarity and depth in the responses. The pilot study also allowed the researcher to establish an approximate baseline regarding the length of time for an average interview as well as increasing the confidence of the researcher in the use of audio recording devices. The results of the pilot study yielded similar responses to the main study.

Interview lengths varied from approximately fifteen to thirty-five minutes for each participant. Each participant voiced a preference for having the interview conducted in his or her
own office. One interview was conducted via telephone in order accommodate the participant’s schedule preference. Information regarding the interview script may be found in Appendix B. The interview script for the semi-structured interview was used as a guide with additional prompts or questions used as needed for clarification or a deeper understanding of the topic. The researcher audio recorded the interviews with participant permission. The researcher created memos immediately at the conclusion of the interview to capture additional details, address possible biases as a researcher, or capture any other relevant thoughts. The digital recordings of the interviews were transcribed using Rev Transcription services. The transcripts were then compared to the recordings to check and correct any transcription errors, and then the transcripts were member checked for accuracy.

Just prior to the start of the interview or just after, participants were asked to fill out a short demographic questionnaire. The survey may be found in Appendix A. The information in this survey was used to determine if there were any additional themes related to the data regarding age range, gender, years of teaching, years of practicing OT or practice area in relation to their perceptions regarding the use of telehealth in healthcare delivery.

**Data Analysis Procedures**

The researcher read all of the transcripts several times before beginning the coding process in order to become familiar with and immersed in the data. Analysis of the interview data was expedited using ATLAS.ti software. An iterative process to identify and code relevant text segments from the transcripts supported the analysis. The research questions, theoretical framework, and purpose of the study guided the coding process. Multiple cycles of coding occurred. Through the first iteration of coding, the researcher used short phrases to code the transcripts based on the individual interview content. Table 4.2 illustrates early iteration of codes
and their relative frequency across all interviews. In addition, Table 4.3 illustrates how the five attributes of innovation specifically were applied when coding the data.

Table 4.2

*Early Iteration of Codes and Their Relative Frequency*

<table>
<thead>
<tr>
<th>Code</th>
<th>Frequency</th>
<th>Code</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barrier - utilizing telehealth</td>
<td>17</td>
<td>Perceptions-evals</td>
<td>16</td>
</tr>
<tr>
<td>Barrier – teaching telehealth</td>
<td>1</td>
<td>Perceptions- treatment</td>
<td>9</td>
</tr>
<tr>
<td>Benefits of technology</td>
<td>2</td>
<td>Relative advantage</td>
<td>25</td>
</tr>
<tr>
<td>Benefits of telehealth</td>
<td>9</td>
<td>Telehealth-experience</td>
<td>5</td>
</tr>
<tr>
<td>Challenges with technology</td>
<td>2</td>
<td>Telehealth- knowledge</td>
<td>11</td>
</tr>
<tr>
<td>Compatibility</td>
<td>25</td>
<td>Telehealth- facilitators</td>
<td>8</td>
</tr>
<tr>
<td>Complexity</td>
<td>14</td>
<td>Trialability</td>
<td>11</td>
</tr>
<tr>
<td>Fear of losing connection</td>
<td>9</td>
<td>Used telehealth-patient</td>
<td>3</td>
</tr>
<tr>
<td>Introduction to telehealth</td>
<td>16</td>
<td>Used telehealth-therapist</td>
<td>3</td>
</tr>
<tr>
<td>Observability</td>
<td>8</td>
<td>Wants to know more about</td>
<td>21</td>
</tr>
<tr>
<td>Perceptions-consultation</td>
<td>11</td>
<td>Wave of the future</td>
<td>16</td>
</tr>
</tbody>
</table>

The second cycle of the coding process used the ATLAS.ti software to further analyze and code the data and was guided by the theoretical underpinnings of the Diffusion of Innovations Theory, discussed in Chapter 2 of this dissertation. This theory describes the five attributes of innovations; 1) relative advantage, 2) complexity, 3) compatibility, 4) trialability 5) observability. These attributes were used as predetermined codes and considered as each
transcript was reviewed. This second coding process served to explore the research questions from the perspective of the Diffusion of Innovations Theory. Faculty comments that indicated having tried telehealth or felt that trying the technology would be beneficial were coded *triability*. Faculty comments that suggested that the use of telehealth superseded conventional methods were coded *relative advantage*. Faculty statements that referred to their mental model, beliefs, and attitude regarding the use of telehealth in OT were coded as *compatibility*. Faculty statements that referred to how difficult, easy, or complex utilizing telehealth, were coded *complexity*. Lastly, faculty comments that referred to their ability to have observed the use of telehealth in order to have some sense of the results of such technology were coded *observability*. The codes presented in Table 4.3 outline the predetermined codes with examples.
### Table 4.3

**Dimensions of Attribution Formation Used for Coding**

<table>
<thead>
<tr>
<th>Code</th>
<th>Coding Descriptors and Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relative advantage</td>
<td>Statements that supported the construct that the use of telehealth superseded conventional methods.</td>
</tr>
<tr>
<td></td>
<td>“I can see how beneficial it would be for certain clients and rural areas, hospital settings, hard to reach areas.” (P4)</td>
</tr>
<tr>
<td>Compatibility</td>
<td>Statements that referred to participants’ mental model, beliefs, and attitude regarding telehealth usage.</td>
</tr>
<tr>
<td></td>
<td>“I'm so used to hands-on, and like being in the session and being there, I feel like it would be difficult for me to step away.” (P3)</td>
</tr>
<tr>
<td>Trialability</td>
<td>Statements that referred to participants having tried telehealth or felt that trying telehealth would be beneficial.</td>
</tr>
<tr>
<td></td>
<td>“I would just like to have my own opportunity to try it out, to see how it works, because I certainly feel like it's not the end-all, but I feel like it's the wave of the future, so why not try and see what can be done or how we can use it as a tool to facilitate treatment globally.” (P2)</td>
</tr>
<tr>
<td>Complexity</td>
<td>Statements that referred to perceptions regarding the difficulty, ease or complexity of telehealth.</td>
</tr>
<tr>
<td></td>
<td>“There were a few issues because it was international, and it was a country that did not have the same type of bandwidth, so delivery was a little bit slower in terms of how they would receive the information.” (P1)</td>
</tr>
<tr>
<td>Observability</td>
<td>Statements that referred having observed telehealth or wanting to observe telehealth.</td>
</tr>
<tr>
<td></td>
<td>“I think more presentations for faculty on how it's being used in the clinic and the potential for actual use in the clinic would be good, as an educator to relay that to students so that I have examples of seeing it in action”. (P8)</td>
</tr>
</tbody>
</table>
Upon the conclusion of the second cycle of the coding process, this researcher utilized
the ATLAS.ti analysis tools to sort the codes, create code networks or concept maps, and
continue to search for emerging themes and connections. Codes with higher frequency were
examined for commonality and categorized. It was determined after this process that several
codes overlapped with one another and could be merged into a theme. In addition, it was
determined, that some codes were too broad and could be further subdivided into subthemes.
Lastly, overarching categories were created to outline thematic process further. Further analysis
determined that some codes and related themes, though interesting did not directly relate to the
research questions and therefore not reported. At the end of the process, three overarching
categories and eight themes emerged. Table 4.4 outlines the three categories, themes, and their
related subthemes.
Table 4.4

**Outline of Categories, Themes, and Subthemes**

<table>
<thead>
<tr>
<th>Category</th>
<th>Theme</th>
<th>Subtheme</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Telehealth-Use in Practice</td>
<td>1. Telehealth -Perceptions</td>
<td>1a. Knowledge about telehealth</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1b. Telehealth for evaluations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1c. Telehealth for treatment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1d. Telehealth for consultations</td>
</tr>
<tr>
<td></td>
<td>2. Telehealth- Barriers</td>
<td>2a. Issues with technology</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2b. Requires a person present with the client</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2c. Decreased effectiveness</td>
</tr>
<tr>
<td></td>
<td>3. Telehealth -Benefits</td>
<td>2d. Accuracy of telehealth</td>
</tr>
<tr>
<td>2. Telehealth-Experience</td>
<td>4. Experience as a consumer</td>
<td>3a. Increased access to OT services</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3b. Patients are seen in context</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3c. Increase in OT fieldwork sites</td>
</tr>
<tr>
<td></td>
<td>5. Experience as a therapist</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. Experience as an</td>
<td></td>
</tr>
<tr>
<td></td>
<td>educator</td>
<td></td>
</tr>
<tr>
<td>3. Telehealth- Education</td>
<td>7. Barriers to teaching</td>
<td>7a. Technology</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7b. Reimbursement</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7c. Privacy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7d. Evidence</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7e. Lack of experience</td>
</tr>
<tr>
<td></td>
<td>8. Facilitators to teaching</td>
<td>8a. Generational influences</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8b. Societal influences</td>
</tr>
</tbody>
</table>

**Results**

This section presents the results of this research study including the categorical and thematic patterns. Categories and themes were developed from the coding process. The three major categories are Telehealth – Use in Practice, Telehealth – Experience, and Telehealth-
Education. A summary of the Categories, themes, and subthemes are presented in Table 4.4. This section also presents the categorical and thematic alignment with the conceptual framework.

**Categorical and Thematic Patterns**

Three categories, eight major themes, and their sub-themes emerged from the faculty interviews. All eight research participants knew to varying degrees what telehealth was and they were able to share their perceptions regarding the use of technology and specifically telehealth for health care delivery. All participants had varying firsthand experiences with telehealth either from their personal healthcare experience or utilizing it in their day-to-day clinical practice. Some had no prior experience with telehealth however heard about it from a colleague, media, or professional literature. Faculty members were able to identify barriers and facilitators to telehealth usage by OTs and how this impacted their ability to teach this content in their courses. The three categories and eight themes, along with their subthemes will be explained in-depth.

![Flow chart of category 1, theme and subthemes](image)

*Figure 4.1. Flow chart of category 1, theme and subthemes*
**Category 1: Telehealth- Use in Practice.** An important component of understanding a group’s readiness to adopt an innovation is the need to uncover their level of knowledge on that innovation as well as their perceptions regarding its use (Rogers, 2003). Results from individual interviews revealed faculty thoughts regarding telehealth’s use in practice, which became one of the over-arching categories. This category is also subdivided into themes, and those themes were further divided into subthemes to identify faculty concepts regarding telehealth. The category of *Telehealth- Use in Practice* has three identified themes, 1) *telehealth-perceptions*, 2) *telehealth-barriers*, and 3) *telehealth-benefits*. There are also related subthemes for each theme, which will all be discussed in depth.

**Theme 1: Telehealth usage- Perceptions.** Though only one research participant had first-hand experience in using telehealth on a daily basis as a clinician, all participants had strong beliefs regarding the purpose of telehealth, its accuracy and when it should and should not be used. Accuracy regarding these perceptions will be discussed further in Chapter 5. This theme has four subthemes regarding telehealth usage for specific activities; 1a) *knowledge about telehealth* 1b) *telehealth for evaluation*, 1c) *telehealth for treatment*, 1d) *telehealth for consultation*.

**Subtheme 1a: Knowledge about telehealth.** Most research participants admitted to knowing minimal about the use of telehealth for health care and specifically OT service delivery. What they have learned came from what others have told them, and then some chose to further their knowledge and do independent research. The majority agreed that telehealth is used to increase patient access to services. P1 stated that,
What I know about Telehealth is pretty much what I learned from a colleague, and I've seen it service delivery in terms of a health professional being in one location and giving directions, treatment protocols, advice, handling techniques to caregivers and to the person themselves for a treatment session.

P7 summarized their knowledge about telehealth with a little more detail, as this participant was one individual who uses telehealth on a regular basis in their clinical practice.

Telehealth is a way of using technology to sort of increase access to the different patient populations and a way for service delivery where the provider, such as myself, can maybe reach someone who is not in my same clinic or my same building. I can reach them on the other side of town or the other side of the world. It's another way to connect people and try to provide services.

P5 expressed similar thoughts,

I know that Telehealth is used to communicate to families who cannot access medical care, or for families that are too far removed from medical care. I think we use it for group work at the VA hospitals so that you have one therapist who can reach out to maybe three hospitals for group work with exercise. I think that's marvelous in that sense.

P8 added that

I think of Telehealth as ... what I know about Telehealth is that it is really a method of service delivery, with the purpose of reaching clients who may not otherwise be reachable, whether for environmental barriers. It can also be used to facilitate a consultative model of care and to do patient monitoring.

P6 echoed this statement, “It's providing online services for occupational therapy treatments to people who don't have access to clinic appointments or going to a hospital.”
Subtheme 1b: Telehealth for Evaluation. Research participants shared their perceptions regarding OTs performing evaluations utilizing telehealth. Their perceptions varied as some felt that using telehealth would be appropriate, while others noted that there would be some challenges and questioned the accuracy of performing evaluations remotely.

The strongest opinions of the research participants were regarding the feasibility of physical assessments completed accurately or at all from a distance. All of the research participants questioned whether it was possible for an evaluation to be performed remotely when physical measurements need to be made or when a therapist needed to feel something on a client. One participant felt that performing an evaluation this way could not be done at all, as P5 stated, “I think you need to be more hands on for the initial evaluation. I don't know. I think you have to feel tone. I think you have to feel range of motion. I can't see how you could do that”. Others also expressed some skepticism. P8 stated that,

You know, I think it depends on what the problem area is, that's being evaluated, because some things you can certainly look at and see, but for example measuring specific range of motion, you can get an idea if something is within functional limits or even within normal range, but the actual degree of measurement, I think is going to be hard to do it on a video platform.

P2 shared similar thoughts as noted by “For things like muscle grades and things like that, I think there might be some discrepancy in regards to that.”

The majority identified that it would be a challenge to perform an evaluation remotely, however, after some reflection they were able to identify some possible strategies for remedying the situation. P4 stated that,
I think the only issue I see is like how would you do some of the palpatory tests when you can't touch the patients. The patient has to touch themselves or perhaps a family member. You can instruct the family member. That's my only question, is how would you do some of the palpatory tests without you actually being there? I think it can be done. For sure, I think it can be done if you have a cognitively intact patient where they have pretty good cognitive skill. Then I think it can be done.

P1 with similar perceptions added that,

I'm not sure how you would be able to assess a certain thing that needs to be felt like muscle tone or rigidity or really looking at range of motion sometimes. I think in that way there's a certain amount of limitation unless you have someone on that end that was facilitating the evaluation. If you were to direct that person and said, "Okay, well hold a patient here, and what do you feel?"

Others envision that telehealth can be used for the interview part of the evaluation, to collect information for the occupational profile, however, they are still apprehensive regarding the physical assessment part. P7 stated that,

The other thing is in the assessment itself, you understand you can do a simple interview, you can get the client information through like a Skype type of talk, but the assessment also consists of physical assessment, using observation skills, using some of the hands-on techniques. That's going to be missing. So I would think it would be hard for someone to assess someone's range or assess someone's fine motor skills, or any other of those client factors, through just plain video technology. But if you're dealing with some of the other conditions, I think it would be difficult, again, because part of our assessment involves the physical assessment, the occupational assessment. I guess you can use it on one hand
where you can do the interview and the client history and all that, but when it comes time to the hands-on skill, I don't think we're there yet.

One participant recognized that using telehealth might be appropriate for performing home environment evaluations. They stated that,

> We used to do a lot of home visits before somebody went home, and make recommendations. I could see, the benefit time-wise, and efficiency, cost effectiveness possibly, of doing a video chat with somebody at the home, that could walk around and show you virtually, through the virtual context of FaceTime or Skype, video conferencing, that you could assess the environment and make some recommendations in that virtual context. That would be very beneficial, and that's the evaluation. So really, I think it depends on the problem area you're looking at.

**Subtheme 1c: Telehealth for Treatment.** Traditionally treatment is provided to clients or patients only when the therapist is in-person and able to physically touch the client. The use of telehealth and the thought that a therapist could be in one location and a client is in another location for a treatment session is a concept that is new to the profession of OT.

When research participants were asked in the interview regarding their thoughts about OTs using telehealth to provide treatment, participants appeared to be more supportive of using telehealth for this type of service as compared to using it for evaluation; however, similar barriers were mentioned for both. All eight participants thought that providing treatment via telehealth could be done but shared concerns. Three out of the eight participants spoke about their concerns with not being in person to perform the hands-on activities, and how that would impact care; however, they thought that patient education and coaching could be a more appropriate activity to be performed via telehealth. P8 articulated that,
I think it really depends, if it's a client who has to have passive range of motion, clearly you can't do passive range of motion through the virtual context, but, if it's a matter of giving caregiver education, on something ... I don't know passive range of motion, I think you might need to be in person for that because you want to make sure that they have their hands in the right place, and things like that, and they are maintaining integrity of the joint. But again, certain kinds of patient education, like picking up your throw rugs, or placing things in your kitchen in a different way, could be definitely done virtually. So, I think again, specific to the problem area.

P7 echoes similar concerns but in addition, highlights concerns with not being in-person and how this would impact the therapist–client interaction. P7 also reflected a bit more and was able to begin to articulate alternatives to being in person and yet have a successful treatment session.

For certain types of clients, where perhaps it's more dealing with motivation, coaching, education, sure. Yeah, you can use telehealth, and it could be pretty effective, and maybe the patients could really appreciate this high satisfaction scores in that. Yes. But when it comes time for the hands-on type of techniques, the handling, I feel, personally, when you're in the same room with the person, there's a certain energy that's exchanged between people, and you can understand better, or you can instruct a little better or educate the client a little better. If that is going to happen, let's say I'll set up a clinic where I'm going to use Telehealth, I would have to have someone on the other side who is helpful. It doesn't have to be on OT, but they have to have the technical skills to try to convey what I want the client to do on that side.
P5 expressed similar thoughts regarding the need of someone to assist with treatment on the other side when an OT is physically not present to facilitate a treatment session remotely. “I think you have to be experienced to do that. I think you have to have an experienced person on the other end that's going to implement the treatment. You need somebody who's going to be involved and invested in the treatment. In those instances, yes, it'll work”.

Subtheme 1d: Telehealth for Consultation. Research participants unanimously agreed that this type of service delivery could be facilitated by telehealth, though the interviewed participants have reported to personally never having used it in such a manner.

P7 spoke positively about using telehealth during client consultation,

Yeah, I think that is an area that, at least right now, today, with the technology that OTs can do ... I'm trying to think about OTs and all that we do and not just what I do as an OT. You have OTs that maybe they're doing ergonomic consultations, or they're doing consultations with the parents or developmental, sensory activities for the child, or just plain consultations about fall prevention, or all the other things that OTs can do. When it comes to consultations, education, and helping the client with their self-management of their condition, I think, today, as we speak, we have the technology to do that.

Most see consultation easier to conduct via technology as typically this type of service delivery does not require the therapist to be hands on with the client as described by P3,

I think that is definitely something that is more realistic I feel like because consultations are consultations, you know, that's what they are. They're usually a one time or a few times event. They're not like constant, twice a week, three times a week, you know, usually. They don't need to be necessarily hands on; I feel like they could be more at a distance.
Others see that telehealth can be used as an appropriate way for two therapists to exchange information and share opinions about a particular client or gain knowledge from an expert in the field as implied by P5,

Consultation, I think it would work. I think that would be great distance-wise, having more than one person involved in the care of the client at the other end, who has the expertise so that the therapist can then implement it. I think that's useful.

P1 expressed similar thoughts,

I could definitely see the benefits of it. It would really open up the doors to OTs in the areas that we're not usually around, so say they don't apply a full-time OT. Now we're seeing less and less occupational therapy in mental health settings. I think it would be great to say we have someone that we could Skype in. You know, Zoom meeting in, and get their take on this perspective. Get their perspective on this client; I think it would be really great.

**Theme 2: Telehealth- Barriers.** This theme relates to one of the research questions and appeared to be the easiest for faculty members to identify regarding the use the telehealth as it was mentioned 18 times in varying capacities during interviews with each of the participants. A barrier was defined as anything that was perceived as interfering with the utilization of telehealth by occupational therapists during healthcare delivery. Whether these perceived barriers were justified by evidence, rather based solely on the research participant’s opinion was not identified at the time. The literature has identified several barriers to telehealth delivery, however, research participants were only able to identify a few of those barriers, which will be further discussed in Chapter 5. The theme *barrier has three subthemes, 2a) Issues with technology, 2b) requires a person to assist client, and 2c) decreased effectiveness and accuracy of telehealth.*
Sub-Theme 2a: Issues with technology. Participants were particularly concerned with the technology needed for telehealth not being available or accessible to everyone. Since telehealth is powered by the internet, faculty had questions and concerns that those living in rural and remote areas do not have the same access to high-speed internet and Wi-Fi as others and thus this is a significant barrier to the use of telehealth. P1 stated that,

I think one of the biggest things is technology and access, so how would the client have access to that model? Is it through a cell phone? Is it through cable? Do they have cable? Do they have TV? Do they have Wi-Fi? I think all those things have to be considered.

P8 added that,

…internet connectivity, Wi-Fi, and cost, because not all of our patients may have technology. Also, I know what comes up in some of the telehealth literature is related to accessibility in rural areas that don't have good cell or internet infrastructure, can be a barrier to actually getting the service.”

P3 gave a specific example, “I work in the ultra-orthodox community. They don't have any computers; they don't have any access, so that's another barrier for them, you know, I wouldn't be able to access it unless they went to a place where they filter all the computers. If they went to that place, then can do it there”.

As identified by the research participants, lack of access to technology was determined by individual abilities and capabilities of patients as well. Participants were concerned with older populations not being able to learn or access the systems that facilitate telehealth. P3 noted that “….older adults or caregivers, they may not be able to access it or know how to do it. They may get frustrated with it or ... there might be technology issues”. P1 added, “I mean if you're dealing
with the older population in terms of learning how to do it and how to set it up, they would probably need help with that.”

Issues with technology for telehealth were not only identified as a possible concern for the older populations but with all populations and the therapist as well. P8 described “knowledge of how to use the technology, both for the provider and the client.” Those participants who have utilized telehealth in their clinical practice identified more specific issues a telehealth provider might face.

P7 revealed that,

You have to rely on a technology that sometimes, most of the time, is very reliable, but sometimes there are some hiccups. As an OT, as a practitioner, I think about a lot of things I do, I have control of how I want to treat. If you're treating, if this is the way you're going to deliver your services, through this technology, part of that is going to be out of your control. When there's a service interruption, the network goes down, or you're waiting for maybe a technician, one of the Telehealth technicians, to set up the connection for you, or maybe there's a problem with the audio, there's all sorts of things with the technology itself that can be a barrier, even if just a small barrier on the delivery of the services. If you're a therapist that's concerned about the quality of your services, when you have interruptions like that, but maybe with the connectivity that could be annoying at times.

Sub-Theme 2b: Requires person present with the client. Some research participants feel that in order for telehealth to be effective or done the client or patient must have a person at the remote site to assist or coordinate. P 6 stated that “if there was somebody who was like a professional or maybe an adult there who could be coordinating some of the information that
needs to be obtained by the therapist online that might be useful.” P2 further elaborated on the need for a person to assist

Telehealth is a tool that people can use if there is someone who at least can assist with that particular area. I mean, there are going to be downfalls in regards to not being there in-person. If you want to position a patient, exactly how you need them to be that is going to take time and assistance from someone else, maybe the treatments might have to be longer than a typical session would be. I feel like it's probably going to affect the way we deliver services to patients in the future and how maybe the insurance might look at that.

Sub-Theme 2c: Decreased effectiveness and accuracy of telehealth. Participants had concerns that not being physically present during a treatment session or evaluation would decrease the effectiveness of treatment or decrease the accuracy of the evaluation. P2 stated, “I feel like for certain things like manual muscle testing and grades, being sure that what you're evaluating is accurate would be difficult. There might be some discrepancy in regards to that”. P6 adds further, “Might not be able to get all the information that you need, accurate information that you need by just observing as it is like one-dimensional.” P4 noted that,

My only concern would be the physical exam. When you can't touch the patient, then you have to tell the patient “this is what I want you to do.” There has to be I think at least the average cognitive ability (patient) to get that message across.

Theme 3 Telehealth -Benefits. According to the literature if individuals are able to perceive that an innovation has the potential to supersede, what is being currently used then there is an increased probability of that innovation being adopted (Rogers, 2005). Faculty members interviewed were able to identify attributes of telehealth used by occupational therapists that could improve current practice. These attributes were grouped into three categories; 3a) increase
in access to occupational therapy services, 3b) patients seen in context and 3c) increase in OT fieldwork sites.

**Sub-Theme 3a: Increase in access to occupational therapy services.** As with other healthcare professions, shortages of healthcare providers can be an issue, especially when dealing with clients who live in rural and remote areas. Research participants recognized that OT services are limited in many areas of the country and the world thus reducing access to services. Six out of the eight research participants have identified telehealth as a mechanism to increase access to OT services for those who live in these remote areas and for those who have decreased mobility due to physical or cognitive limitations and cannot leave the home. P6 states that,

I think it [telehealth] is very valuable if there is a lack of services available in the community or for people who live in rural areas and they can't get access. I think it provides like social justice. Right? People are able to have you know, equality in treatment and that's really valuable. I think that there have been a lot of positive results from that.

P3 further elaborated that

If the patient lives so far and they can't access health care, so that [telehealth] would be a big plus, they can get an evaluation, or someone's not able to leave their home, and they need a therapist, that [telehealth] would help. I have a child now that I'm seeing that has hydrocephalus, and they could not find a therapist for a really long time, the child really suffered. If you could have used Telehealth in that situation, just to educate parents on techniques that would have been so helpful.

**Sub-Theme 3b: Patients seen in context.** Literature supports that OT services that are conducted in the home or in the context in which the functional activities are performed on a
regular basis can be more beneficial to the client (Steultjens, et al., 2004) Therefore the use of telehealth for OTs to evaluate, and treat clients in their home, work or school environment would prove to be equally as beneficial (citation). One research participant highlighted that seeing a child in the home environment would facilitate increased parental involvement. P2 explains that,

Nowadays it's much more of a push to involve parents and for the therapist to be much more of a facilitator rather than the person that does everything and engages the child. I also have the experience and know that parents, they want to be more involved; they want to be more hands-on. So, I think definitely in pediatrics; telehealth will play a role in helping to facilitate that parental involvement.

Others noted that when working with adults, seeing the clients virtually in the home environment could assist therapists in identifying hazards in the home and allow the therapist to actually see how the client performs their activities of daily living in their home environment rather than a clinic. P1 states that,

I think that way it would be even better, but it [using telehealth] could definitely give you an idea of how the patient performs, especially in their own setting. I think as OTs we need to see what they look like in their home especially for the ADLs, (Activities of Daily Living).

P8 noted the following:

I could see, the benefit time-wise, and efficiency, cost effectiveness possibly, of doing a video chat with somebody at their home. They could walk around and show you virtually, through the virtual context of Facetime or Skype, video conferencing, and you could assess the environment and make some recommendations in that virtual context. That
would be very beneficial, and that's the evaluation. So really, I think depends on the problem area you're looking at.

**Sub-Theme 3c: Increase in fieldwork sites.** Occupational therapy educational programs are consistently challenged with finding quality fieldwork sites for their students. For the field of occupational therapy, fieldwork sites must provide a minimum of eight hours of supervision a week for the students in a setting where no OT exists. Two out of the eight participants acknowledged that telehealth could be used to adjunct or in lieu of traditional in-person supervision for OT. This concept could expand existing fieldwork sites and provide OT services where currently no OT is provided. P1 discussed “It can be used for students where they're at sites that do not have an OT full time. Where they don't have that model of supervision, where they only are in contact with an OT eight hours of the week. I think a Telehealth model could be implemented there”.

![Flow chart of category 2 and themes](chart.png)

**Figure 4.2.** Flow chart of category 2 and themes

**Category 2: Telehealth- Experience.** Individuals form their perceptions on an innovation based partly on their experiences with that innovation. These experiences can be
based on first-hand experiences, of someone that they observe or merely based on what they have heard about from friends, colleagues, or media sources. According to research, if individuals have the opportunity to try out the innovation it increases the likelihood of adopting the innovation (Rogers, 2005). Research participants were asked how they were first introduced to the concept of telehealth, if they or a family member ever utilized telehealth for health care services as a patient, and if they ever utilized it as a therapist for direct patient care. Participants reported experiences with telehealth varied. The category of experience with telehealth has three identified themes; 4) experience as a consumer, 5) experience as a therapist and 6) experience as an educator.

Theme 4: Experience as a consumer. Experience with an innovation can come in many forms. Three out of the eight participants reported that they have experienced using telehealth as a consumer either for themselves directly or for the care of a family member. P1’s initial experience with telehealth stemmed from the monitoring of her daughter’s health as they reported that,

“I’ve also had the experience with my own daughter in terms of a Telehealth model that the agency uses on a monthly basis, they call in once a month, and they ask a series of 10 questions. “Has there been any change in the health status? Has there been a change in the medication? Was the person admitted to the hospital in the last 30 days?” They go through a series of questions, and if anything shows up on their end, they call you immediately to follow up.

P8 described that their only experience with telehealth was as a patient sending a picture to their doctor for medical advice. They reported that they were very satisfied with the results of this interaction.
Well, I did actually once. Actually, I don't know if I want to talk about it but ... it's funny you know, now that you mention it, I did once use that because I had a circumstance that I wasn't sure if it was something I needed immediate attention for, and I took a picture and sent it to my physician, and let them assess whether or not I needed help right away.

P7 has seen their mother participant in a health and wellness telehealth program through the Veteran’s Administration,

My mother was actually part of my class, where I do “Move,” which is the weight management program. But there's also an adjunct that I created called “BAM” Be Active and Move. In that class, at least on a separate day, that class is really more heavily focused on the exercise. My mother was a part of that class where we use Telehealth technology. I would hold a class live in Brooklyn and my mother's there with me, and that class would be broadcasted to St. Albans campus in Queens and the campus on 23rd Street Building and the VA. I, myself, have not, as a patient, had any experience with Telehealth, but my mother has.

Five research participants had no experience with telehealth as a patient or using telehealth for patient care.

**Theme 5: Experience as a therapist.** Out of the eight participants, only one stated that they used telehealth for patient care on a regular basis and in a formal manner and another participant reported trying telehealth during the pilot study. One therapist wasn’t sure if they used telehealth in practice but described a scenario in which they thought it was used. Five participants reported no experience using telehealth as a therapist.
P7 spoke about their experience using telehealth daily at their workplace

I am also a physical activity provider or physical activity instruct in “Move.” I do a lot of the exercises with the veterans. We use clinical video technology, which is, in my sense, a type of Telehealth, where I would do my education and my exercises with the veterans who live, in Brooklyn, but also through clinical video technology, it would be broadcasted to the community-based clinics in Staten Island and St. Alban’s. I guess that’s my usage with Telehealth in the VA.

P1 spoke about the one experience that they had with telehealth; the opportunity to try telehealth during pilot project working internationally.

I had the opportunity to do service learning through our university. We travel abroad once a year with students on an interprofessional basis to Belize, and we implemented a model there with two children. Piloted, and tried to engage the parents working on specific activities and techniques with these children because they needed occupational therapy, but they don't have OTs in the country, so we facilitated a discussion giving them treatment ideas and activities that would be helpful that we felt that the parents would be able to carry out throughout a certain time span with the child.

When initially asked if they utilized telehealth, P4 said “no” however after further discussion and reflection, thought that maybe they did but were unsure. They elaborated,

I will just say because I talk to clients on the phone, sometimes I do modified or mini-Telehealth. Let's say a patient goes over the weekend. "Hey, this looks infected. I'll can’t come in." I’ll say, "Just send me a picture of it." They'll send me a picture and based on the picture I'll say, "Listen, call the doctor," or I'll try to help them out. We do it that way. Also, some people like to take a video of the exercises in the office on their iPhones.
That's not really Telehealth. It's more technology in the office. I forgot about that. A lot of patients take pictures, or they want to take a video of the exercise. I'm okay with that.

That's fine. I actually encourage that.

P4 was able to give further examples of how they incorporate telehealth into their patient care. If a patient comes in and says, "Oh, I forgot my exercise. I forgot what to do." I would say, "Listen, put on your iPhone. Let's do that. You keep forgetting, so let's do that."

Sometimes I'll have patients send me a picture. Sometimes I'll send a picture of a brace that I made to the doctor. I'll ask them if they are you okay with it? Is this what you want? It's a little bit better. I have to call him. I could actually text him the photo, and he can take a look at it and let me know. It's not really Telehealth, but it's kind of patient management via technology. I have used it [telehealth] a lot more I would say in the last two, three years than I ever did.

**Theme 6: Experience as an educator.** Participants were asked if they mention or teach the subject of telehealth to their students in any of their courses and if so in what manner. Five out of the eight faculty members interviewed do not teach nor mention the subject of telehealth in the courses that they teach. Two faculty members reported that they mention telehealth in one of their courses, and one faculty member reported that they have a guest speaker come to introduce the topic in their class.

P7 described how they are discussing the topic of telehealth in their class, which focuses on self-care,

I do not cover it (telehealth) as a topic, per se. I teach OT 303, the self-care course, and we speak about disability perspectives. With the disability perspective, there's this viewpoint of "Where's the locus of disability? Is it within the client who has a certain
impairment or a different way of being? Or is the disability within the environment, and the interaction between that person and perhaps they’re lacking in some area and the environment?” In that discussion, I bring in technology and some of the things like the robotic prosthetic arms, the exoskeletons, and the wheelchair that climbs stairs. In those discussions, I may talk about technology, in general, and how it relates to disability, and I mention about Telehealth and how that this is something up and coming and a new way to deliver services. But I don't have anything in my courses specifically to talk about Telehealth. I talk about the benefits, talk about some of the things that are in development, but I don't really have that in my courses now.

P8 articulated how they cover this topic in one of their courses.

Yes, as a matter of fact, I introduced the idea of Telehealth in the Intro to Health Promotions class. That class focuses on introducing the topic, and it is a one credit class within our professional development series, and it introduces students to health and wellness programming. And so in one of the lectures, they have assigned readings related to programming and one of the articles that they read and discuss in class is an introduction to using Telehealth, and the potential uses of Telehealth, so it’s really about giving them an opportunity to even hear about it. By the time they come to me, they’ve already heard about it once, in another other class, but this is an article that they can actually read and see some real potential ways to use it and we discuss it in class.

P6 described how they have a guest speaker come to their first-year class to introduce the topic.

I do not know much about telehealth, but I know it is up and coming in our profession. I thought it was important to share this topic with the students. Since I am not an expert on this topic, I invite a guest speaker to come and speak to the class. They do a two-hour
lecture that is an overview of the topic and covers how telehealth is used and the benefits and barriers to telehealth usage.

![Flow chart of category three themes and subthemes.](image)

**Figure 4.3.** Flow chart of category three themes and subthemes.

**Category 3: Telehealth – Education.** As mentioned in a previous category only three faculty members actually mention the topic of telehealth of health to their students at this specific OT program. Themes with the category of telehealth-education summarizes faculty members’ thoughts on barriers to teaching, and facilitators to teaching the subject of telehealth and adopting it into their course syllabi.

**Theme 7: Barriers to teaching.** This theme directly related to one of the research questions and deals with faculty member perception as to factors impeding their ability to adopt this subject matter into their course syllabi fully. The majority of faculty members at this OT program do not mention telehealth in any of their courses. When asked why they did not, they
Faculty members were asked what they felt they needed in order to incorporate the subject of telehealth into their courses. Five subthemes emerged, *technology, reimbursement, privacy, evidence and lack of experience*. These four out the five subthemes align with the themes identified in the literature and will be discussed in more depth in Chapter 5.

**Subtheme 7a. Technology.** A majority of the faculty members reported needing more information and assistance regarding how telehealth works, what sort of technology is used and how to set up and use that technology in order to teach this information to their students.

P2 expressed concerns about their lack of knowledge in setting up telehealth and what kind of technology is needed.

> Up until now, I really have not too much knowledge of setting up something like that. I know we have various things that we use, again, but the most effective way to implement this and cost effective How exactly we would set it up, the type of equipment that would be needed, how it would be implemented. I guess, I just need more information on getting it all setup. I would need more training and understanding of using the equipment and what is necessary I know, in addition to having the equipment here in the United States, if we're doing that it has to be something where the equipment is available at the home of the client, and what exactly would be required for that?

P3 also expressed concern about their lack of knowledge setting up the technology needed. “I would want more information at the technology level. If I had like someone that could help, show me how it gets set up and make sure that it was set up correctly -technology wise”.

P4 reported to have specific questions regarding the technology,
I would need some type of instruction on the format and what are some of the key issues with the technology. There's got to be like key things that you would have to be concerned about. I'm sure there's got to be key issues. For example, you would have to know what the patients have, what technology the patient has access to. You have to know what type of program or software are you using. Are you just going to do Skype or are there better programs? I would want to know that. Then subsequent treatment, again what is the documentation? Is it via word or is it video documentation? Are you live with the video? Then once it ends, it's just whatever you write out. It would be interesting and see what that is.

*Subtheme 7b. Reimbursement.* Four out of the eight participants cited that they need more information about funding and insurance reimbursement in order to teach subject to students fully. The ability to get paid for OT services is crucial to the profession as noted by P4 and their statements and questions about reimbursement,

The other issue would be reimbursement. Who's paying for this and how do you reimburse for that? I’m not sure if your insurance is already paying for that now or not. I would be interested if the major healthcare industry is paying for Telehealth. P7 also stated that they wanted to know more telehealth on the politics and the whether OT services delivered via telehealth were reimbursable before educating their students.

I would love to learn about some of the more policy level information that I think it is important to educate the students on, and educate myself on, really, about whether these services are reimbursable. Can we get paid for what we are doing?
Subtheme 7c. Privacy. One participant spoke about questions regarding the evaluation or treatment session and whether that session should be recorded and if it is what is the ramification of that record to the patient’s health record. P4 asked,

Is it recorded? Is it a recorded interview? Does that then become part of their health record? Does your interview, become part of their health record? Does the patient get to keep that? Do you get to keep that? Anytime, they could always play it back and then anyone could see the evaluation you did.

Subtheme 7d. Evidence. In all healthcare professions today, using evidence-based practices in order to deliver the highest level of patient care is required. The OT faculty members interviewed at this program recognized the importance of this concept regarding teaching telehealth to their students. P8 stated that,

I would need to do a little bit more in-depth literature search, to look for articles that support the use of Telehealth across populations, because it's an intro course, so I'm teaching across the lifespan in population settings, so I would need to do that, to see current evidence on how it's being used and what's being done to teach the students about what is happening. P7 further supports this statement; “I think is important to educate the students on, and educate myself on telehealth and are these services efficacious. I don't know if the literature really sees it as more effect or just as effective.”

Subtheme 7e. Lack of Experience. All but one faculty member interviewed do not have experience using telehealth. Typically, when teaching students any subject, the faculty member’s experiential or clinical knowledge enriches the learning experience for the students. Without this
personal experience, faculty members reported the need for further education on the application of telehealth, by seeing examples and perhaps trying the method themselves. P8 stated that,

It would be nice to have an opportunity to see, maybe some work being done in the Telehealth. I know some OTs who used telehealth with clients in Belize. I would like to see what was done with some of the clients in the Telehealth, to get some ideas about how it could be used. I also think it would be beneficial for more presentations for faculty on how it's being used in the clinic and the potential for actual use in the clinic would be good, as an educator to relay that to students so that I have examples of seeing it in action.

P7 described what they needed, “I would need references. I would need to know who's using it. Why they're using it, how they're using it, so that I can give my students that information. I don't have that. P6 added, “I think it's such an interesting subject and I'd love to see more examples of how it's used. I'd have to talk to someone with experience in using it and to do research on it. I would probably interview OTs that are using it to use examples of that as well.

P4 stated that they needed,

…to probably be given some type of outline, or narrative, or instruction about how other people have used telehealth. Then I can use that as a model. I'd like to see some type of shell or some type of model that has been used or is being used currently for teaching telehealth. Then I would adopt or use that for occupational therapy.

In agreement with others, P2 stated,

I have never used telehealth, and I would just like to have my own opportunity to try it out, to see how it works, because I certainly feel like it's not the end-all, but I feel like it's the wave of the future, so why not try and see what can be done or how we can use it as a
tool to facilitate treatment globally. I would need more information about the implementation of how to exactly do it, so I can figure out if there are any areas of concern in order to effectively use Telehealth as a medium and to be able to then present that to students.

Theme 8: Facilitators to teaching. It has been identified in previous themes that research participants have had their apprehensions about the use of telehealth, as well as decreased knowledge regarding the use of the telehealth by OTs in practice. Despite these beliefs, a significant and recurring theme throughout all of the interviews emerged that faculty felt that telehealth is something that is supported by today’s available technology, it is something that is up and coming and is almost demanded by today’s generation and society. Seven out of eight research participants mentioned something related to telehealth being the future of health care and OT, and the importance to make it a priority to teach this content to the students. Two subthemes emerged in this category, 8a) generational influences, 8b) societal influences.

Subtheme 8a: Generational influences. Faculty members acknowledged students’ capabilities and savviness regarding technology. They envision students gravitating to this type of technology for their delivery of service to clients. Respondents felt that younger generations would most likely utilize telehealth in their practice in the future; taking into consideration, the way this generation appears to embrace technology in their daily life. P1 summarized this premise nicely by stating,

I think the students would do really well on their end with the Telehealth. The new generation is really demanding it. That's how they're learning now, and that's how we're going to have to reach them. We're becoming a technological generation, so you have to kind of move and learn with it otherwise you're going to fall behind.
P2 also commented and acknowledged how future generations are gravitating to this type of technology.

I became more knowledgeable and started looking at the way the generations are and the changes, I think I'm probably much more open now. I think it's [telehealth] definitely a stepping-stone, now, coming from this generation and the way that people are using technology.

P6 further elaborated

I think the students should really hear about this as much as possible in the program because it would something that they can use in their practice area when they go out to work when they graduate. I think it's going to be something up and coming. I have a good feeling about it.

Subtheme 8b: Societal influences. Similarly, to generational influences, societal influences appear to be driving the need for technology in health delivery per the responses by the research participants. Participants described how the use of telehealth perhaps aligns itself well with how society sees and uses technology and how telehealth might be the “wave of the future” and should be taught in OT programs.

P6 recognized society’s response to technology

People are more alienated these days. You know, they don't go out as much maybe to participate in social activities, and I think that's a factor in our world today. Right? People are much more involved with their screens at home instead of going out and being social.

P8 further elaborates

It's part of how people operate now, they seem to need to look at their screens, and stuff so if that's a tool that people are using to communicate in their daily lives, it's worth
investigating how that plays out in the therapeutic relationship as well, so I think it's valuable to share with the students.

P2 actually describes telehealth as the “wave of the future.”

I see our generation really changing, and I feel like definitely in the future this is going to be the wave of the future and very effective. But it's good that we're trying now to kind of figure out what works best and what doesn't work and a way to really implement this. But I feel like it's the wave of the future, so why not try and see what can be done or how we can use it as a tool to facilitate treatment globally.

P4 echoes that thought by articulating that. “You can read about it in the papers that's pretty much like the focus now is where everything is going.”

Others described telehealth as an emerging niche or an innovative practice area for occupational therapy and something that needs to be explored more thoroughly. P3 argued, “It's an emerging niche and something that really should be pushed, advanced, more by the profession.” P8 agreed and stated that “It is an innovative area of practice that needs further investigation and exploration.” P7’s quote summarizes the need for occupational therapy to embrace telehealth and advance the profession.

I think it's exciting to me to see how we can incorporate Telehealth, incorporate technology, in general, in our service delivery. We're showing that we're hip to the times. We can incorporate technology and Telehealth but still be able to provide the occupational therapy type of treatment that everyone kind of knows our profession to be able to provide, which is client centered, that is a caring type of intervention. So just really, the next step is to see how we can use technology and telehealth to kind of bring us into the 21st century.
Categorical and Thematic alignment with the conceptual framework

Concepts of the Diffusion of Innovations Theory guided the data collection and analysis of this qualitative case study. According to the Diffusion of Innovations Theory, there are five attributes of innovation, complexity, compatibility, trialability, observability, and relative advantage. According to the literature, the perception of individuals regarding these five attributes can predict the speed in which an innovation may be adopted (Rogers, 2003). Through the semi-structured interview, during data collection and analysis, it was revealed that participants spoke to these five attributes and codes were assigned accordingly in the transcripts. The references to these attributes were not strong enough to warrant their own themes which overlapped with larger themes however, these noted attributes were significant enough to the research questions and purpose of this study to warrant illumination in the results section for this study.

Within the Theme 2: Telehealth – Barriers, the attribute of complexity was described by the interview participants. Participants described barriers to the use of telehealth by OTs, and how these identified barriers align and describe just how complex the use of telehealth can be in practice. The participants described potential issues with technology, possible lack of access to this technology for the clients and therapist, possible inaccuracies during evaluations and the possible loss of personal interactions with clients. None of the participants described an ease in use of telehealth in their interviews.

Within Theme 3: Telehealth - Benefits, the attribute of relative advantage was described. Participants articulated how some aspects of telehealth could improve the way OTs currently provides service. All participants were able to describe in some way how telehealth can positively impact the profession. Most noted that using telehealth might increase access to OT
services for those who live in rural and remote areas and for those who have difficulties leaving the home due to physical and environmental barriers. It was also identified that telehealth could bring OT services to sites where this is no OT. This in turn would increase the number of much-needed fieldwork sites for the training of OT students.

Within Category 2: Telehealth- Experience and the related theme 4: experience as a consumer, theme 5: experience as a therapist and theme 6: experience as an educator, the attributes of trialability and observability were described by research participants. Only two participants reported having tried telehealth as an OT, and only one of those participants used it on a regular basis. Only three out of the eight faculty members had observed some form of telehealth in which to draw conclusions from. One participant suggested that seeing examples of OTs using this delivery method might be beneficial in facilitating teaching this topic in their courses.

Within Theme 1: Telehealth - Perceptions, the attribute of compatibility was described by the participants. Compatibility in this context refers to statements made which referred to the participants’ mental model, beliefs and attitude regarding the use of telehealth in OT. For the most part, it appeared that participants grappled with the thought of using telehealth by OTs. Statements made by the faculty members demonstrated that using telehealth went against their current beliefs and attitudes at times, regarding how OT sessions should be conducted. Most faculty members reported that they felt more comfortable evaluating or treating a client in-person, as in-person treatment sessions allowed them to have a more hands-on approach and allows the therapist to feel more connected to their clients. Having a video screen between themselves and their clients appeared to be an issue. As P7 noted,
For me, I really feel like I'm able to provide a better service when I'm in the room with someone. When in the room, I'm able to feel their energy; I'm able to pick on their subtle body language, and things that are not verbally shared using my observation skills, using some of those skills I get just by feeling the client. I think that is a barrier to the Telehealth, just having someone so far away and remote to you.

P3 felt similarly, “I'm so used to hands-on, and like being in the session and being there, I feel like it would be difficult for me to step away.”

According to the literature surrounding the Diffusion of Innovations, if individuals see these five attributes positively they would be more adept to adopting the innovation. Chapter 5 will discuss these findings in depth, and it’s implications regarding this program’s faculty members’ perceptions regarding the use of telehealth, how it will impact their ability to adopt this course content into their curriculum.

**Conclusion**

The purpose of this qualitative case study was to examine how faculty members teaching in a master’s level occupational therapy program during the 2017 academic year perceived the use of telehealth in healthcare delivery, and how this impacted their ability to teach this content to their students. Using demographic surveys and semi-structured interviews in data collection, eight respondents took part in this study. The study sought out to answer four primary research questions, 1) What is the knowledge level of OT faculty members regarding telehealth usage as a delivery method in practice? 2) What are the perceived barriers of OT faculty members to the adoption of telehealth into program curricula? 3) What are the perceived facilitators of OT faculty members to the adoption of telehealth into program curricula? 4) How can OT faculty be
supported in developing knowledge and skills to incorporate telehealth practice into program curricula?

This research study described the lived experiences of the eight individuals who participated in this qualitative case study. Responses from the individual interviews provided robust, contextualized insights into the perceptions and knowledge of faculty members at this specific OT program, regarding usage of telehealth by occupational therapists. Consistent with comments of Yin (2014), this case study research addressed the research questions with a “holistic and real-world perspective” (p.4) well suited to the exploration of this important and complex phenomenon of faculty perception regarding telehealth and its impact on teaching OT students.

While the Diffusion of Innovations theory (Rogers, 2003) aligned with some themes, it did not account for all aspects of the research results. Emerging themes, rather than themes bound by or related to the Diffusion of Innovations Therapy best represented the perceptions of the OT faculty members at this program and describe the influence that these perceptions have regarding OTs using telehealth as a delivery method. Categorical and thematic analysis yielded three overarching categories and eight emergent themes that summarize and support the findings. These three categories are 1) Telehealth - Perceptions 2) Telehealth - Experience, and 3) Telehealth – Education.

The next and final chapter will present the interpretations of the data results and the conclusions of the research. It will also discuss the implications and recommendations for future development of faculty members, and program curricula regarding teaching best practices in utilizing telehealth as a delivery method to students.
CHAPTER 5
DISCUSSION OF FINDINGS AND IMPLICATIONS

The advancement of technology and expanding needs of society for healthcare services have catapulted telehealth into the spotlight. Most healthcare professions are using telehealth as a delivery method to support this growing need in the healthcare system. In order for future occupational therapists to be prepared for this expanding sector, educational programs will need to transform their curriculum so students and future practitioners can meet this demand.

Occupational therapy (OT) faculty members will need to be educated in telehealth evidenced based practices in order to disseminate this information. Therefore, the purpose of this research study was to examine how faculty members teaching in a master’s level occupational therapy program during the 2017 academic year perceived the use of telehealth in healthcare delivery, and how this impacted their ability to teach this content to their students. This study has contributed to a greater understanding of topics related to faculty perceptions and knowledge level regarding telehealth usage by occupational therapists.

This need informed the four central research questions for this study which are: 1) What is the knowledge level of OT faculty members regarding telehealth usage as a delivery method in practice? 2) What are the perceived barriers of OT faculty members to the adoption of telehealth into program curricula? 3) What are the perceived facilitators of OT faculty members to the adoption of telehealth into program curricula? 4) How can OT faculty be supported in developing knowledge and skills to incorporate telehealth practice into program curricula?

The need for further research related to the topic of faculty perceptions of the use of telehealth is evident due to lack of literature on the topic. There is some literature that examined OT clinician perceptions regarding telehealth utilization, however, there is no research
examining OT faculty perceptions utilizing telehealth. Specifically, prior researchers (Cason, 2015) have commented that more research needs to be done in all areas of telehealth utilization for occupational therapists.

Chapter 5 provides a summary of this study. This summary includes information about the qualitative method and the single case study design selected for the research. Additionally, this chapter contains a synopsis of the sample selection, data sources, and data collection procedures. A summary of the data analysis procedures and results are also contained in this chapter. Finally, Chapter 5 provides the conclusions and implications of the study as well as data driven recommendations.

**Synopsis of Design**

This research addressed a gap in the literature related to perceptions of master’s level occupational therapy faculty members regarding the use of telehealth for healthcare delivery. It has been indicated that a qualitative approach would be useful in the exploration of themes and nuances of faculty perceptions. The research presented in this dissertation used a qualitative approach, with a single case study design focused on one master’s level occupational therapy program. The research questions explored in this dissertation were: 1) What is the knowledge level of OT faculty members regarding telehealth usage as a delivery method in practice? 2) What are the perceived barriers of OT faculty members to the adoption of telehealth into program curricula? 3) What are the perceived facilitators of OT faculty members to the adoption of telehealth into program curricula? 4) How can OT faculty be supported in developing knowledge and skills to incorporate telehealth practice into program curricula? This study utilized demographic surveys and individual interviews to address the research questions.
Because the research questions posed in this dissertation involved gleaning insights and lived experiences of faculty members, a quantitative approach was unlikely to capture the data required for successful analysis. Therefore, the researcher rejected a quantitative approach and selected a qualitative approach. The qualitative method places emphasis on understanding phenomena within the context of peoples’ lives where decisions are enacted (Creswell, 2013).

Faculty members in the OT program, which were the subject of the case study, comprised the research participant recruitment pool. The data collection included six full-time faculty members and two adjunct faculty members. ATLAS.ti facilitated the coding and analysis of data gathered from the interviews. An iterative process was used to code and process segments of text. Themes and overarching categories distilled from the coded interviews transcripts structured the results presented in this dissertation. The following sections of this chapter address these findings and illuminate the conclusions of the research.

**Research Findings**

The following section includes the answers to the research questions and its alignment with the overarching categories, themes, and concepts presented in the Literature Review. The purpose of this study was to examine OT faculty perceptions regarding the use of telehealth in health care delivery and how this impacted their ability to teach this content. As stated early, this study addressed four research questions. Based on the individual interview responses to these questions, the findings are as follows:

**Research Question 1: What is the knowledge level of OT faculty members regarding telehealth usage as a delivery method in practice?**

According to the Diffusion of Innovations Theory (Rogers, 2003), lack of knowledge regarding an innovation will influence an individual’s or group’s ability to adopt that innovation.
In order to understand the perceptions of individuals regarding an innovation, baseline knowledge needs to be established. Incorrect or incomplete knowledge about an innovation will delay or inhibit individual adoption of the innovation.

As outlined in Theme 1: Telehealth- Perceptions, participant interviews revealed that all of the faculty members were aware of telehealth but only three out of the eight participants reported to seek out additional information about telehealth after their initial exposure. Interviews revealed that faculty members were first introduced to telehealth in a variety of manners. Some heard about it from a colleague who was already using telehealth others first heard about it from journal articles, workshops at conferences or via other media platforms. An interesting correlation emerged; it appeared that those who heard about telehealth through a colleague were intrigued enough to investigate the concepts of telehealth further. As opposed to those who heard about telehealth from journal articles or media, and did not choose to investigate telehealth, further. This correlation will be referred to again in the recommendation section when discussing the need for champions to assist in disseminating information for increase adoption of telehealth in practice and in education.

As outlined in Theme 4: Experience as a consumer and Theme 5: Experience as a therapist, the participants reported their personal experience using telehealth as a consumer and as a patient. As stated prior, only one participant reported using telehealth daily as a therapist and thus had a level of knowledge from first-hand experience. One other faculty member had tried it once during a pilot study, and the five other participants have had no experience in using telehealth as a therapist. Three participants had some experience using telehealth as a consumer either for themselves or for family members. Five faculty members reported no experience using telehealth either as a therapist or as a consumer, leaving them lacking first-hand knowledge of
telehealth. Whatever knowledge they had regarding telehealth was from what others have told them about telehealth or from what they read or saw in the media. Being told about an innovation or having seen it in media does contribute to an individual’s process of adopting an innovation. Such exposure, however, does not impart enough knowledge on a subject for someone to teach about it to someone else in alignment with best practices.

Lastly, as outlined in Theme 2: Telehealth - Barriers, and Theme 3: Telehealth- Benefit, interviews revealed that faculty members had some correct, some incorrect and some incomplete perceptions and knowledge about how and why telehealth works. All faculty members were aware that telehealth could be used to increase access to OT services. However, each faculty member had a different perception and questioned whether evaluations and treatment sessions could be adequately performed using video conferencing. They also questioned the efficacy regarding the use of telehealth in these situations. Most faculty members, however, did feel more comfortable with telehealth being used for consultation as this involved more talking than a hands-on approach that they thought would be needed to perform an evaluation or a treatment session.

The Diffusion of Innovations Theory outlines five stages of adoption of innovation. The first stage is the knowledge stage. During this stage, individuals learn about the existence of the innovation and seek out more information, and three types of knowledge are formed: 1) awareness-knowledge, 2) how-to-knowledge, and 3) principles-knowledge. Awareness-knowledge is the individual’s awareness that the innovation exists and typically motivates the individual to learn more about the innovation. How-to-knowledge is knowledge regarding how to use the innovation correctly. Principles-knowledge includes the principles regarding how and why an innovation works (Rogers 2003).
Based on the results of this study, all faculty members at this program are aware of the existence of telehealth. However, only three out of eight faculty members took the initiative to learn more about telehealth, therefore the majority of the faculty members lack awareness-knowledge for telehealth. Only one faculty member has experienced telehealth firsthand as a therapist, so it is safe to say that the other seven faculty members lack the how-to-knowledge regarding telehealth. Based on the responses to interview questions regarding faculty perceptions on how telehealth works, barriers, benefits and uses for telehealth, it can be inferred that faculty members at this program lack sufficient principles-knowledge in regards to telehealth.

The research supports that lack of knowledge regarding an innovation will impact individual and group ability to adopt an innovation (Rogers, 2003). It is apparent that faculty in this specific OT program lack the knowledge needed to fully evaluate and therefore make a decision about adopting this subject matter into their course syllabi and fully integrate this topic into the program curriculum.

**Research Question 2: What are the perceived barriers of OT faculty members to the adoption of telehealth into program curricula?**

Faculty members when interviewed about telehealth not only had their opinions about OTs and telehealth usage but also a plethora of questions about the feasibility, accuracy, effectiveness, and about telehealth in general. These comments demonstrated one recurring theme about OT faculty perceived barriers regarding the adoption of telehealth into program curricula; lack of knowledge. Themes 2 and 7 summarize the faculty concerns surrounding this question.

*Theme 7: Barriers to teaching* directly relates to this question. This theme describes the concerns of the faculty members regarding their knowledge level about telehealth in general as
well as their knowledge level regarding the available literature on the efficacy and effectiveness on telehealth and OT in order to promote the use of telehealth in practice. Faculty members expressed a need to provide information to their students that is theory-driven and evidence-based. All faculty members were unsure and had questions about what evidence existed regarding OT and telehealth. They assumed that there was possibly some literature on this topic however, they did not how much, the quality or what the evidence supported or did not support. Faculty members expressed concerns about the effectiveness and accuracy of telehealth and posed questions regarding research available on this topic, which certainly presents a barrier.

Faculty members also had questions and doubts about the feasibility and effectiveness of telehealth, specifically conducting evaluations and treatment sessions. It was conveyed that in their minds, evaluation and treatment sessions could not possibly take place via telehealth without someone actually touching and handling the client for physical evaluations. Most participants felt that there was a need to have someone present on other end with the client to assist in the therapy session. With some reflection during the individual interviews, two faculty members began to think of strategies for ameliorating this concern, however, a most felt uncomfortable with using telehealth in this capacity without such support.

*Theme 2: Telehealth-Barriers* also relates to this question as faculty members’ perceived barriers to the use of telehealth in practice does inhibit faculty members’ ability to support this delivery method fully and therefore their willingness to adopt it into their course syllabi. All though most participants do not have firsthand experience with using telehealth, they all expressed concerns regarding telehealth’s use in OT practice. Barriers expressed by the faculty members regarding telehealth use in practice carries over to their ability to teach this content to their students.
Faculty members identified decreased access to technology for the client and the therapist as a barrier for OTs use of telehealth. They used examples such as a lack of available technology on the client’s end that is needed to participate in telehealth depending on the client socioeconomic status as well as a possible decrease in internet access for the client depending on their location. They also spoke about their concerns regarding the capabilities of clients, both physical and cognitive, which could be barriers for them to navigate video conferencing and other telehealth technology adequately.

The majority of faculty members also described telehealth as being challenging to use. Since only one person interviewed has actually tried, telehealth it would be safe to say that the reported concern that telehealth is challenging to use is based merely on what they have heard from others or from assumptions. Without trying telehealth firsthand, it would be very difficult for faculty members to fully understand the process and make a full assessment as to the complexity of telehealth. In addition, comments and expressed fears by faculty members regarding the use of video conferencing or other technology, which they feel will inhibit their ability to be effective with their clients surfaced repeatedly.

It is evident by the conducted interviews that faculty members at this specific OT program had concerns, questions and incomplete knowledge about telehealth. This can contribute to issues with faculty acceptance of telehealth as a valid delivery method and therefore the adoption of such a topic into the program curricula. Lack of knowledge about an innovation and in this case, telehealth will be further discussed in the section.
Research Question 3: What are the perceived facilitators of OT faculty members to the adoption of telehealth into program curricula?

Despite limited firsthand experience with using telehealth faculty members appeared to have strong beliefs about how telehealth would beneficial to the profession and thus their openness to promote some aspects of its use in their course syllabi.

During the interview faculty member were directly asked, “Can you identify any facilitators to the use of telehealth practice”? Theme 3 Telehealth - Benefits, relates to this question. Faculty members articulated aspects of the profession that would contribute to an uptake of telehealth. They all acknowledged how there is an increased need for all healthcare services in remote and rural areas. Due to this lack of services, specifically occupational therapy in these areas, faculty members could see how this shortage can be ameliorated by telehealth. Faculty members feel that this premise would warrant further exploration of the use of telehealth to deliver and provide quality OT services to rural, remote, and underserved areas thus supporting including telehealth in the OT curriculum.

Literature supports enhanced outcomes from clients who are seen for therapy in context rather than in a clinic or hospital environment (Steultjen et al., 2004). Using telehealth will allow therapists to treat clients in their environments; therefore, faculty members see a benefit to the use telehealth for this reason, thus recognizing another reason why telehealth would show promise for OT curriculum. Lastly, one faculty member stated that the use of telehealth could help with a shortage of OT fieldwork sites by allowing supervision of fieldwork students via video conferencing thus providing OT services and supervision of students where no OT services had been before. This idea would also warrant telehealth’s inclusion in an OT program.
Theme 8 Facilitators to teaching relates to this research question as well. In this theme, faculty members describe facilitators to telehealth adoption in the curriculum. Faculty members reported that the use of technology for healthcare, specifically telehealth to be the “wave of the future.” They noted that students and today’s generation really seem to take to technology, technology usage appears to be a way of living for them, and this is how they learn. Faculty members imagine that it would be very easy for this generation to use technology for healthcare service delivery. It is how they learn, and we need embrace this way of learning and use it to our advantage.

Also, faculty indicated societal influences that would promote the use telehealth for OTs and warrant its adoption in OT curriculum. Faculty members described how society appears more engaged in technology than ever before and individuals tend to interact using technology as much as they interact with others in person. Using technology for health care delivery, specifically, telehealth does not appear to be that much of stretch for some. These mentioned generational and societal influences were indicated by faculty members to drive the need for some inclusion of telehealth into this OT program’s curriculum.

Research Question 4: How can OT faculty be supported in developing knowledge and skills to incorporate telehealth practice into program curricula?

During the interview faculty members were asked the questions, a) “What would you like to know more about regarding the use of telehealth by OTs in health care delivery?”,  b) What would you find useful for increasing the content of telehealth in the courses you currently teach? c) If you were asked to include telehealth into the courses you currently teach, what knowledge would you need?”
Based on the faculty members’ responses thus far, it was not surprising that faculty members had many suggestions for increasing their knowledge level regarding telehealth. Most faculty members reported that they needed more information on how telehealth works, as they have never tried using it before. They had concerns regarding how to navigate the available technology; specifically what technology is available, how to set it up, and how to troubleshoot were a common theme. Some faculty asked to have the opportunity to try the technology so it would be easier to share their experiences with the students.

Faculty members expressed that they were unsure how to advise students regarding billing and reimbursement for telehealth services. They were not aware as to whether services delivered by telehealth would be reimbursed and if so, which billing codes would be appropriate to use. Faculty members were aware that there were legislative issues involving OTs and telehealth usage however they were unsure how this influenced reimbursement and wanted to know more. They were aware that there might be privacy and ethical concerns regarding telehealth but did not feel that they had a solid enough understanding to disseminate this information to the students properly. Faculty members also expressed wanting more information about the research supporting telehealth as an effective model for delivering OT services.

They also felt they needed to know how telehealth could be used for different practice areas. The field of occupational therapy is very diverse, and therapists can work with clients across the lifespan and in a various practice areas i.e. with children, adults, elderly, those with developmental disabilities, physical disabilities (musculoskeletal, neurological, orthopedic), mental health issues as well as work with individuals to manage their chronic and multiple conditions. There are also many specialty practice areas, too numerous to list them all but to name a few, hand therapy, ergonomics, home modifications, wheelchair positioning, low vision
and health promotion. Telehealth could be applied to any of these practice areas however, faculty wanted more specifics and to be educated on how to do so. Faculty members asked to see examples of how telehealth is being used in these different practice areas as well as how it could be used for evaluations vs. treatment vs. consultative sessions.

Lastly, one faculty requested more information on how to use telehealth to facilitate the supervision of OT students on fieldwork. They had read that was possible to use video conferencing for this task however, they were not sure how to go about implementing it and if there were any ramifications for using such a method to supervise students.

**Limitations**

Conducting research within your own organization can pose challenges and may have contributed to the limitations of this study. First, the researcher for this study is knowledgeable regarding the use of telehealth, has had firsthand experiences using telehealth in practice, and is in support of telehealth’s inclusion in OT program curricula and in practice. This experience may have biased the researcher when analyzing and coding the results of the study. Measures were however taken to lessen this potential bias. The researcher participated regularly in journaling to examine their feelings and reflect on potential biases surrounding the subject of telehealth and participant individual responses and as well as group themes that emerged. Journaling occurred after individual interviews and during coding and thematic analysis in order to lessen any effects, as well as outside reviewers participated in the final rounds of coding and thematic analysis to ensure unbiased interpretation of the findings.

This researcher was a member of the faculty in which the study took place. During the informed consent process, research participants were informed that their participation in the study was voluntary and they were free to discontinue their participation it the research study at
any time with no potential retaliation from this researcher. They were also informed that they were free to share their opinions and perceptions regarding the use of telehealth with the understanding that there would be no punitive measures taken towards them for responses that might have demonstrated a lack of knowledge about telehealth or negative responses regarding the topic. They were informed that the research study was being conducted to fulfill the requirements of this researcher’s doctoral requirement and that the results of this study would be used to inform programmatic decisions regarding professional development opportunities and training regarding telehealth for the faculty as a whole. These measures were used to lessen any potential for participants to skew responses to a more positive end to please the researcher yet these factors could have contributed to limiting the study.

It is important to note that the findings of this case study may be limited to only the OT program from which the researcher collected data. The site of the case study took place in a mid-sized urban private, not-for-profit university. It is possible that faculty members at other OT programs will have different experiences and knowledge levels regarding telehealth. This researcher would also suspect that OT programs located in rural or remotely located areas around the country would have a significantly different result as these faculty members might have increased first-hand experiences both as a therapist and as a patient due to the needs of their communities and lack of healthcare services. This limitation will also be mentioned as a recommended area of future of research. Despite the results of this study being limited to this specific OT program, the methodology can and should be considered a framework in for which other programs that wish to investigate faculty knowledge and perception of telehealth can use.

Lastly, it is worth noting that all but one participant of this research study reported a lack of first-hand experience with telehealth. If might be implied that if more of the participants had
experienced telehealth firsthand, there might have been a richer, more in-depth results and discussion.

**Implications**

This section of the chapter addresses the potential implications of the research results. A discussion of the implications relative to the Diffusion of Innovations theory deserves attention as well as the implication of the findings for the OT program of interest and the profession of occupational therapy.

This case study addressed the research questions: 1) What is the knowledge level of OT faculty members regarding telehealth usage as a delivery method in practice? 2) What are the perceived barriers of OT faculty members to the adoption of telehealth into program curricula? 3) What are the perceived facilitators of OT faculty members to the adoption of telehealth into program curricula? 4) How can OT faculty be supported in developing knowledge and skills to incorporate telehealth practice into program curricula? This current research did prove insightful into the perception of faculty at this program about telehealth. The results of this study suggested that overall there were some positive perceptions regarding the use of telehealth, which will assist in the steady diffusion of this topic in the program’s curriculum. There is, however, a lack of knowledge about how telehealth can be used by occupational therapists in practice, which contributed a lack of adoption of this topic into individual course syllabi as well as the program curriculum.

**Theoretical and practical implications**

Diffusion of Innovations Theory applied to the adoption of telehealth in a program’s curriculum is relevant in understanding how slowly or quickly the rate of adoption will occur and to determine which stage the group is currently in for the innovation adoption. This staging and
determination of the rate of adoption will assist in the professional development of educational opportunities by stakeholders. Table 5.1 will summarize the Diffusion of Innovations process.

In alignment with the Diffusion of Innovations Theory, faculty members have identified the five attributes of innovations as elements to support their better understanding, knowledge level, and eventual acceptance of telehealth usage. Based on faculty member interviews, it was reported that they would be best supported to teach this content if they were to have the ability to try telehealth in various of contexts (triability), be able to see how it has worked with others (observability), see what sort of equipment is used and how easy or difficult it is to navigate (complexity), understand whether it is truly effective in patient care (relative advantage and compatibility). This powerful premise is supported by the literature when looking at the speed at which an innovation is adopted or at all and the creation and implementation of successful training programs (Ball, et al., 2014; Bennett & Bennett, 2003; Chan, et al., 2016; Sahin & Thompson, 2006; Shea, et al, 2005).

Examining the application of the five attributes of innovation and applying them to the results of the study, it was revealed that faculty members at this OT program, for the most part, have not had the opportunity to try (triability) or observe (observability) telehealth. They feel that telehealth is not easy to navigate (complexity) and its use is not aligned with their current beliefs and attitudes (compatibility). They do however see its relative advantage for the profession. Based on these responses, it can be implied that these individuals at this specific program do not currently have a positive view for these attributes of telehealth and therefore it can be assumed that based on the Diffusion of Innovations Theory that this program will not be adopting telehealth quickly or easily into their curriculum.
Several steps would need to happen in order to get the member of this faculty to the point of acceptance and adoption. According to the Diffusion of Innovations Theory, an organization or an individual goes through five stages (Diagram 5.1) before fully adopting an innovation. Using the stages of innovation adoption as outlined in the Diffusion of Innovations Theory, it can be identified that this group is in the first stage of innovation adoption, the knowledge stage.

As previously mentioned, in the knowledge stage individuals learn about the existence of the innovation and seek out more information, forming three types of knowledge. Faculty members collectively at this OT program do not possess awareness-knowledge, how-to-knowledge or principles knowledge. These types of knowledge need to be formed prior to moving on to the second stage of Persuasion. In this stage, individuals have the foundation needed in order to form opinions about the innovation in preparation for the third stage, Decision, in which they decide whether to adopt the innovation. This stage is then followed by the fourth stage of implementation, where the innovation is finally implemented and the last stage of confirmation, where the individuals re-evaluate the innovation and either continue to adopt it or discontinue.

![Diffusion of innovations stages](image)

*Figure 5.1 Diffusion of innovations stages*
The primary practical implication of the study stems from insight into the perceptions of OT faculty members regarding telehealth usage for healthcare delivery. Previous research on clinician perceptions regarding telehealth revealed that individual perceptions on the level of knowledge, barriers, and facilitators to telehealth are valuable to stakeholders (Call, Erickson, Dailey, Hicken, Rupper, Yorgason, & Bair, 2015; Chedid, Dew, & Veitch, 2013; Weinstein, Lopez, Joseph, Erps, Holcomb, Barker, & Krupinski, 2014). It provides information that allows stakeholders to plan strategically in order to remediate identified issues.

Results of this research indicate that most faculty members at this OT program have some positive perceptions regarding telehealth usage by OTs and are supportive of its inclusion in the curriculum despite not having much knowledge about the subject. Some instructors have begun to share concepts with students at the level that their knowledge on the subject allows. These positive perceptions signal the programmatic readiness at some level for further education and training of faculty members.

Insights gained from this research illuminated how faculty perceptions can potentially influence the integration of a subject into the program curriculum. Specifically, the results of this research suggest that faculty members at the OT program of interest do not yet possess full readiness to adopt the topic of telehealth in their curriculum. They require further education, resources, and specific training opportunities. Similarly, to previous research, the perceptions of this group of faculty members regarding the attributes of telehealth can be used to inform and assist in developing professional development opportunities for these individuals related to telehealth (Bennett & Bennett, 2003).

Research has demonstrated that successful professional development programs have been created based on the principles of the Diffusion of Innovations Theory (Bennett & Bennett,
Based on the needs of this OT program, and the identified stage of adoption, it appears that a multi-stage educational program would need to be implemented. One that would first address the basic knowledge needs of the group and then additional professional development programs that would further progress the group along in the full adoption of telehealth into the curriculum.

Since this OT program is still in the Knowledge Stage, a professional development program needs to be developed for OT faculty that would provide awareness, how-to and information regarding how and why telehealth works. Information regarding the efficacy and effectiveness of telehealth in OT would be critical at this stage as the majority of faculty members interviewed voiced concerns and had questions about this area. Once this foundation has been laid, then further professional development can occur that will progress the group to the persuasion stage. It would be here where the professional development program can provide opportunities for trying different platforms and technology that support telehealth, and have faculty members investigate different opportunities and practice areas for telehealth. The educational programs would need to include opportunities for individuals to observe, try, discover how easy or complex telehealth is and the advantages of telehealth.

**Future implications**

Strengths of the research include the applicability of the findings to the tasks of college faculty and administrators charged with examining program curriculum. The findings of the study have the potential to influence professional development efforts for faculty members at the OT program of interest and lay the groundwork for other OT and healthcare professional educational programs. The findings of these research efforts are significant to college faculty and administrators who are engaged in curriculum development. In addition, the findings of this
research may help guide decisions regarding professional development for faculty members targeting telehealth education.

Accepting the premise that telehealth should be included in the educational program, it would, therefore, need to be determined what level of education should be provided and is considered entry-level practice. Professionals need to recognize that telehealth approaches can be applied to a wide range of practice areas in which OTs work, although it would be impossible for an entry-level OT program to provide their students with an all-encompassing education on the subject. A framework of essential competencies for educating entry-level OTs in telehealth would need to be created; thus far, there is none this researcher is aware of. Taking existing research from other healthcare professions might prove to be useful, however; research specific to OT needs to be done to further develop a solid model (van Houwelingen, Moerman, Ettema, Kort, & Cate, 2016).

Faculty members expressed concerns about delivering evaluations and treatment sessions via video conferencing, as they were afraid that they would lose interpersonal connections with their patients. Some expressed that only in-person therapy sessions allow therapists to connect with their clients. This researcher did not identify research to support the loss of personal connections via telehealth among OTs, however, it has been discussed in the literature in the medical field. Researchers examined the difference between in-person and telehealth consultations by medical doctors (Liu & Sawada, 2007). It was found that although the patients were satisfied with the telehealth consultation sessions, there were measurable differences in the two sessions. In-person sessions with patients were longer than telehealth sessions, doctors who conducted their consultations were noted to have decreased empathy utterances, praise-utterances and facilitation utterances than in-person consultations, and it was also seen that
patient responses to questions during the consultation were shorter during the telehealth session (Liu & Sawada, 2007). This study supports the premise that interaction between client and patient can be impacted by the technology medium being used and it deserves to be considered part of an educational program for healthcare professionals. Thus, the expressed fears of faculty members regarding a loss of connections with clients at this OT program should not be dismissed.

It has also been recognized in the literature that society’s rapid adoption of social and mobile technology has shifted communication patterns among individuals and thus impacting how individuals express and understand empathy in this virtual world (Terry & Cain, 2016). There has been some discussion about the term digital empathy, which describes this phenomenon. Researchers in this arena recommend that the topic of digital empathy be addressed in studies within the health professions alongside traditional empathy constructs (Terry & Cain, 2016). Including this topic would assist in laying the foundation in preparing students for the ever-changing healthcare system.

**Recommendations**

This qualitative case study explored the current perceptions of OT faculty members at master’s level program regarding the utilization of telehealth and how those perceptions impact their ability to teach this content to their students. This dissertation research utilized a qualitative approach to a single case study design. The following section provides recommendations for future research as well as future practice.

**Recommendations for future research**

Each of the recommendations below addresses gaps in the literature related to OT faculty, OT student, and OT clinician perceptions regarding the utilization of telehealth in healthcare
delivery, and the adoption of telehealth in OT program curricula and practice. The field of telehealth in healthcare delivery is relatively new, and the available literature regarding OT and telehealth is in its infancy. Recommendations for future research are bountiful as this is relatively unchartered territory for most occupational therapists.

**OT Faculty Perceptions.** This study has the potential to be replicated with a few key changes. First, it would be valuable to understand OT faculty perceptions of the use of telehealth on a larger scale, either statewide or nationally. A qualitative single case study approach could be used as well as a qualitative, multiple case study approach to compare the difference of perceptions and knowledge across OT programs in different areas of the state or country. There would be likely be differences in knowledge and perception levels about telehealth depending on the location of the OT programs, for example, urban versus rural location of the school. Having geographic diversity would provide a broader perspective on levels of adoption of telehealth. This study would continue to add to the literature about faculty member perspectives on the use of telehealth to assist with adoption of telehealth to curricula on a larger scale.

**OT Clinician Perceptions.** Research with a quantitative approach, that is, surveying OTs who are currently using telehealth, would also be beneficial. This research would provide stakeholders with valuable statistical evidence regarding the number of OTs using telehealth nationally, where they are located, and in what areas they practice. To date, no such information exists, and it would be beneficial to stakeholders regarding programmatic planning at a local level and legislative concerns for OTs on a national level.

In addition, a study using a quantitative approach to investigate overall OT clinician awareness, knowledge level, and perceptions regarding telehealth usage is also recommended. There is currently no available data on this topic. This researcher has interacted with OTs
nationally, and, based on that anecdotal evidence, it is this researcher’s opinion that the majority of OTs practicing are not aware of telehealth and how it can be used in different practice areas. Once again, more comprehensive data would be beneficial for stakeholders in order to plan telehealth adoption at national and local levels, and to create professional development opportunities for clinicians.

There is limited literature regarding the perceptions of OTs who are currently using telehealth. The studies available have been conducted internationally and not within the United States. These studies were, for the most part, looking at barriers and facilitators to adoption of telehealth in practice. All though the information from these research studies can prove valuable to those in the United States, other countries have vastly different health care systems and technological infrastructure than the U.S. Future recommendations would be to expand this research to clinicians working in the United States. It would therefore be beneficial to see how clinicians practicing in the U.S. who are using telehealth approaches perceive telehealth, and if the American healthcare system or technological infrastructure poses similar or different barriers.

Furthermore, research is needed to learn more about what skills are required of an OT to perform therapy in a virtual context. To date, this type of research has not yet been explored by researchers for OTs and would be the first step in creating competencies and practice guidelines for telehealth practice by OTs. Other disciplines have begun the journey to establish competencies (van Houwelingen, Moerman, Ettema, Kort, & Cate, 2016). These studies have produced emerging themes that lay the groundwork for a framework in which those professions could begin to educate students. Similar studies can be conducted, targeting OTs that are currently using telehealth to establish critical competencies for OTs use in telehealth. These competencies can then inform OT educational programs’ standards for dissemination to students.
Once competencies and best practices for OT use of telehealth have been established, then the discussion can occur regarding which of those competencies and which aspects of telehealth would warrant inclusion in an entry-level OT program. There is likelihood that there would be a rich discussion about which of these skills and what level of knowledge should be provided in entry-level education.

**OT Student Perceptions.** Research pertaining to OT student perceptions regarding telehealth would also be beneficial. Discovering whether students feel adequately prepared to deliver care via telehealth or whether this type of delivery method would be considered valuable to students would assist in the adoption of telehealth into OT program curriculum. This research revealed that OT faculty members feel that students would be especially adept at using technology for OT services; however, there is no evidence that students support this service delivery or have the prerequisite foundation necessary to transition to this virtual context easily.

**Champions.** Lastly, as previously mentioned, it would be beneficial to see how champions in the telehealth arena influence adoption of telehealth in both the clinic and educational realm (Shea & Belden, 2016). Researchers in other disciplines have written extensively about the role of champions in the adoption of innovations. Champions or superusers are described in the literature and have been shown to advance the adoption of innovations, specifically telehealth (Rogers, 2003; Reicherter, Gordes, Glickman, Hakim, 2013).

As evident from the result of this current research, faculty members who heard about telehealth from someone who was currently using this delivery method and was passionate about its use were more intrigued by the subject matter. These faculty members chose to further investigate this topic on their own as opposed to other faculty members who only read about it or
saw it being used in other media sources. This is an example how the use of champions on a small scale can help diffuse telehealth in OT program curricula.

**Efficacy and Effectiveness.** Although there is some research regarding the effectiveness and efficacy of services delivered via telehealth compared to traditional in-person treatment sessions, there is substantial need for more research to further support and warrant introduction of telehealth into OT education. Specifically, more research needs to be conducted regarding the impact of telehealth on the interpersonal interaction between OT and patient. This type of research has been conducted in other fields but not in OT (Liu & Sawada, 2007; Terry & Cain, 2016). Results from this current study revealed that faculty members were uncertain about the effectiveness and efficacy of telehealth and uncertain about client-therapist interactions via video conferencing, which may contribute to the lack of adoption of telehealth into their OT program’s curriculum. More research supporting the use of telehealth by OTs will assist in the steady adoption of telehealth into OT curricula as well as in practice.

**Recommendations for future practice**

In order for occupational therapy to become a respected profession in the arena in telehealth, OT clinicians need to be adequately educated in the use of telehealth as a delivery method. There are many nuances surrounding the proper use of telehealth and the techniques and tools available vary from practice area to practice area. Working with clients in a virtual context is different from working with them in an in-person environment. Education of occupational therapists to work with clients using telehealth needs to begin in the occupational therapy educational programs and then supplemented in the continuing education circles for practicing clinicians. If this premise were to be accepted, the next logical step would be to create
competencies and best practices for occupational therapists using telehealth. This concept would be similar to what other professions have created to guide their practices.

In recent years, the concept of Interprofessional Education (IPE) has dominated healthcare educational programs. Telehealth can and should have a role in facilitating interprofessional educational as well as interprofessional practice for students in health profession programs. Educational programs are no longer limited to the health professions within their school. Telehealth can connect students from various health care professions across the country or the world to collaborate on cases in an interprofessional manner. Real patients can be connected with the interprofessional teams via video conferencing, which can open endless opportunities and lessen the travel burden for students and faculty in rural and remote locations who normally have to travel long distances for experiential learning. Having faculty participate in these experiences might also promote faculty investment in both telehealth and interprofessional education.

The American Occupational Therapy Association (AOTA) has begun to share valued resources with its constituents such as a position paper on the use of telehealth (AOTA, 2013a) and a document on ethical considerations (AOTA, 2013c). They have promoted workshops on the topic of telehealth at their annual conferences and facilitated the use of a designated listserv for members to share ideas on the subject. The lobbying arm of the Association (AOTPAC) is working with legislators on a national level to promote occupational therapy’s inclusion in key legislative bills for insurance reimbursement. However, more needs to be done to move this agenda forward. It is not happening on a large enough scale or quickly enough for OTs to stay competitive in the ever-changing health care arena.
State Occupational therapy associations also need to be involved in this platform to educate clinicians in the use of telehealth by providing continuing education to their constituents. There is also a need for them to lobby for OT’s inclusion in legislation for parity in private insurance and Medicaid reimbursement for services delivered via telehealth.

There is a need for champions to emerge in the field of OT to promote OTs’ role in the use of telehealth. Champions have been described in the literature, and evidence shows that champions assist in the steady diffusion of innovation at an individual, group and organization levels (Rogers, 2003; Reicherter, Gordes, Glickman, & Hakim, 2013).

Lastly, increased funding needs to be made available to OT researchers and champions of telehealth so they can be supported and develop a body of evidence to support OTs’ leadership in telehealth. As with many worthwhile research endeavors, funding is severely lacking for telehealth. Evidence will not only alleviate the concerns of cautious OT faculty members and clinicians for the facilitation of the adoption telehealth in OT program curricula, it will support and strengthen the rationale for insurance providers to reimburse OT services delivered via telehealth and at the same rate as in-person services.

Conclusion

Chapter 5, the final chapter of this dissertation, contains a summary of the findings, conclusions, and recommendations that are a product of this research. This research addressed: 1) What is the knowledge level of OT faculty members regarding telehealth usage as a delivery method in practice? 2) What are the perceived barriers of OT faculty members to the adoption of telehealth into program curricula? 3) What are the perceived facilitators of OT faculty members to the adoption of telehealth into program curricula? 4) How can OT faculty be supported in developing knowledge and skills to incorporate telehealth practice into program curricula?
The answers to these questions were derived from qualitative research using a single case study design. The Diffusion of Innovations theory provided the theoretical underpinning for the investigation of the research questions. The Diffusion of Innovations theory did not fully account for the perception of the OT faculty members. The three overarching categories and eight themes identified in this research provided a robust depiction of the OT faculty perceptions, knowledge and the future integration of telehealth adopted into their curriculum.

The final sections of Chapter 5 provided evidence of the alignment, significance, and advancement of the existing body of knowledge that is related to the research topic. Theoretical, practical, and future implications were presented in Chapter 5; Recommendations for future research and future practice were elucidated in the final sections of this dissertation.

Through individual interviews, the result of this qualitative case study revealed that the faculty members at this specific OT program have varying perceptions and experiences regarding telehealth, which impact their level of knowledge on the subject matter. This faculty group lacks the knowledge required to move forward in the adoption of telehealth into their curriculum. A strategically planned professional development series can lay the foundation for future exploration, understanding, and acceptance of this method of service delivery by its faculty members before full adoption occurs. A creation of such a plan will assist in moving forward OTs’ use of telehealth in practice by educating future clinicians and lay the groundwork for other OT programs and the profession at large.
REFERENCES


Telerehabilitation assessment using the functioning everyday with a wheelchair-capacity


APPENDIX A

PARTICIPANT DEMOGRAPHIC QUESTIONNAIRE

Age range ____ 21-30, _____30-40, _____40-50, ____50-60, _____60-70

How many years have you been practicing as an occupational therapist? _____

Are you a full time _____ or part-time faculty member ______? 

How many years have you been teaching as a full-time faculty member? ______

How many years have you been teaching as a part-time faculty member? ______

How long have you been teaching at this institution? _____

What would you say is your primary area of practice? __________________________

Secondary? __________________________

Which practice areas do you teach?

________________________________________________________________________________________
APPENDIX B

INTERVIEW SCRIPT

Thank you for agreeing to participate in my study and allowing me to interview you. I will be asking you a series of open-ended questions; please answer them as candidly as possible. There are no right or wrong answers. The results of my study may be used to assist the program in professional development. I will be audio-recording the interview. You may choose to stop the interview at any time and request that your recording is erased.

How comfortable are you using technology?
How often do you use technology in your daily life? In what way?
Tell me about any technology you might use for teaching currently.
What are your thoughts about the overall use of technology in health care delivery?
Can you tell me what you know about telehealth?
How did you first learn about telehealth?
Has anyone else spoken to you about telehealth?
Have you experienced the use of telehealth as a patient? How?
   If so- what was your experience like?
Have you experienced the use of telehealth as a therapist? How?
   If so – what was your experience like?
How do you feel about the use of telehealth by occupational therapists in the evaluation of clients?
How do you feel about the use of telehealth by OTs to treat clients?

How do you feel about the use of telehealth by OTs to provide consultation?
Can you identify any potential barriers to using telehealth? Can you identify any facilitators to the use of telehealth?
Is telehealth currently being covered in your course? If so, can you tell me how?
What would you like to know more about regarding the use of telehealth by OTs in health care delivery?
What would you find useful for increasing the content of telehealth in the courses you currently teach?
Dear Potential Study Participant:

As a doctoral student completing her dissertation study through the University of New England, I am inviting you to participate in a research study to share your perceptions and knowledge level regarding the use of telehealth in practice by occupational therapists (OT). As an OT faculty member and practicing clinician, you have significant experience and knowledge working in the health care system and with OT students.

The purpose of this qualitative description case study is to examine how faculty members teaching in a master’s level occupational therapy program in the 2017 academic year perceive the use of telehealth in healthcare delivery and how this impacts their ability to teach this content to their students. The findings will identify the needs of your OT program at this program regarding telehealth adoption into curricula. It will also be used to assist in the planning and potential allocation of resources to assist the faculty members in developing curriculum content related to telehealth usage in order to better prepare students in the OT program to work in this context.

Your participation in this research study is completely voluntary. The study includes a one-hour in-person, telephone or video-conferenced interview, which will be audio recorded and later transcribed. A possible follow up might be required to check the accuracy or to clarify transcript data. The study will run from January 2017 - March 2017 with results/findings published by August 2017. Upon your request, I can send you copies of your interview transcript, interview notes, as well as a copy of the completed dissertation. I do not foresee this study presenting any risks or hardship to you other than your time, and you may request to stop the interview at any time.

Your identity will be protected throughout the study and thereafter. Only, I the researcher will have access to your information. Demographic data and written reports will be coded. Your confidentiality will be protected in compliance with the University of New England and XYZ University’s research and human participants’ policies and procedures.

If you have any questions or concerns regarding this study and your participation, you may contact me, the researcher, via email at holly.wasserman@liu.edu or via my work phone number 718-780-4510. You may also contact Dr. Carey Clark my Dissertation Chairperson at the University of New England at cclark14@une.edu

If you agree to participate, a consent form will be provided. Thank you for your willingness to participate in this research study and support my dissertation.

Sincerely,

Holly Wasserman, Doctoral Student
University of New England
APPENDIX D

INFORMED CONSENT FORM FOR HUMAN RESEARCH SUBJECTS

Dear Participant,

You are being asked to volunteer in a research study called *OT Faculty perspectives and knowledge in the use of telehealth as delivery method in practice*, conducted by Holly Wasserman, Occupational Therapy Program Director, Associate Professor, and Doctoral candidate at the University of New England’s EdD program. The purpose of this descriptive qualitative case study is to examine how faculty members teaching in a master’s level occupational therapy program in the 2017 academic year perceive the use of telehealth in healthcare delivery and how this impacts their ability to teach this content to their students.

As a participant, you will be asked to participate in a one-hour, one-on-one, in-person or video-conferenced, semi-structured in-depth interview to examine your perspective and level of knowledge regarding telehealth as a delivery method. The interview will be audio recorded and then transcribed. You may then be asked to check the final transcription for accuracy, or you may be asked short follow-up questions to clarify your answers. You may request to stop the interview at anytime and request to have your recording erased.

The study will not present any known risks throughout the process, other than inconveniencing you for your time to complete the interview (approximately an hour). While there is no direct benefit for your participation in the study, it is reasonable to expect that the results may provide information of value for the field of occupational therapy practice, occupational therapy education and to local programmatic professional development.

Your identity as a participant will remain confidential. Your name will not be included in any forms, questionnaires, etc. This consent form is the only document identifying you as a participant in this study; it will be stored securely in a locked drawer in the investigator’s office and is available only to the investigator. Data collected will be destroyed at the end of a legally prescribed period of time. Coding will be used to identify interview data and associate with relevant demographic data. Participant pseudonyms will be assigned to the participants to allow direct quoting if necessary. Otherwise, results of the research will be reported in an aggregate form. If you are interested in seeing these results, you may contact the principal investigator.

If you have questions about the research, you may contact the investigator, Holly Wasserman, 718-780-4510. If you have questions concerning your rights as a subject, you may contact the Executive Secretary of the Institutional Review Board at XYZ University, Ms. Patricia Harvey at (516) 299-3591.

Your participation in this research is voluntary. Refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled, and you may discontinue participation at any time.
You have fully read the above text and have had the opportunity to ask questions about the purposes and procedures of this study. Your signature acknowledges receipt of a copy of the consent form as well as your willingness to participate.

Consent to Record and Transcribe Your Interview Responses

With your permission, we would also like to record the interview, and transcribe the responses. Please indicate we have (or do not have) your permission and then sign below.

Permission to Audio-record

☐ YES. You have permission to audio-record my interview responses.
☐ NO. DO NOT audio-record my interview responses.

Permission to Video-record

☐ YES. You have permission to video-record my interview responses.
☐ NO. DO NOT video-record my interview responses.

Permission to Transcribe

☐ YES. You have permission to transcribe my interview responses.
☐ NO. DO NOT transcribe my interview responses.

Typed/Printed Name of Participant

______________________________  ________________________
Signature of Participant    Date

Typed/Printed Name of Investigator

______________________________  ________________________
Signature of Investigator    Date