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Caregiver Experiences in the Implementation of Learning in Early Intervention for Children with Hearing Loss

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FONTBONNE UNIVERSITY
COLLEGE OF EDUCATION AND ALLIED HEALTH PROFESSIONS

Caregiver Experiences in the Implementation of Learning in Early Intervention for Children with Hearing Loss

A Dissertation
SUBMITTED TO THE DOCTORAL FACULTY
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degree of
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By
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Caregiver Experiences in the Implementation of Learning in Early Intervention for Children with Hearing Loss

A Dissertation APPROVED FOR THE

COLLEGE OF EDUCATION AND ALLIED HEALTH PROFESSIONS

BY

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J.D. for ALWAYS being there for me. We have grown together across the last 23 years together and I can’t wait for the next 23 and the 23 after.

Kat. You are the reason for me to be here. You are my past, present and future.

Mom. Thanks for being the second wife. You keep the business of the family going so that I can think big and dream bigger.

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Uma. You pushed me to think deeper and harder. I knew I would never regret having you with me on this journey.

Here I am, the next NEXT Dr. Lenihan!

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Abstract

While caregivers' personal experiences in the newborn hearing screening and diagnosis period have been documented extensively in the literature, there has been limited investigation into their learning in early intervention. This qualitative study sought to understand the lived experiences of caregivers with young children with hearing loss who took part in early intervention services. To do this, 15 caregivers participated in semi-structured, in-depth, qualitative interviews. From these interviews, six themes were uncovered. The themes were: benefits of intervention, barriers to intervention and carry-over of learning, changes to interactions with child, areas of additional needs and wants, caregiver advocacy, and what-ifs. These themes were further divided into many subthemes that reflected the significant statements of the caregivers. Based on the findings, an organizational improvement plan was created to strengthen the areas of need as reflected in the study data.

Chapter One

Study Introduction

Introduction

Imagine you have just given birth to your first baby. Today is the most wonderful day of your life. You have been waiting and planning for this baby for months. You finally have her in your arms, and you couldn’t be happier. The nurse comes and tells you that she is taking her away to the nursery to run a few more tests while you try to take a short nap, she states that it shouldn’t take more than 30 minutes. When you awaken you notice it has been much longer than half an hour and you wonder where the nurse is with your bundle of joy. The nurse walks in after almost 90 minutes and looks very grave as she hands you your sleeping daughter. “I don’t know how to tell you this but…your baby is deaf.” Your world comes crashing down. What does this mean? Your little angel is deaf? She will never hear you say, “I love you”? She will never be able to sing a song? The only sign language you know is the alphabet that you learned from Sesame Street when you were a child. You have never even met a deaf person before. What are you going to do? How are you possibly going to raise a child who cannot hear or speak? How can you possibly communicate with this baby that you love so much? This is the situation that thousands of parents of babies diagnosed with hearing loss face each year.

Through early intervention services, including parent coaching, the families facing such a situation can learn skills to build language in their child with hearing loss. Many families are successfully able to do this, changing their interactions based on their learning, while others seem to struggle (Kemp & Turnbull, 2014; Noll et al., 2021).

National Context

Each year nearly two in every thousand babies born in the United States are diagnosed with a significant hearing loss (*2019 summary of National CDC EHDI Data*). Most of these children are identified at or near birth by the Universal Newborn Hearing Screening- UNHS (see Table 1) program. Over 95% of their parents have typical hearing and have no experience with hearing loss (Kushalnagar et al., 2011). These families are thrust into a new world of learning about hearing, amplification, language development, and early intervention services. They must quickly make decisions about language modalities, intervention programs, amplification technology, and much more. These decisions will impact their child's development for years to come.

Table 1

Terms, Acronyms, and Definitions

Term	Definition
Universal newborn hearing screening- UNHS	A federally mandated program that requires states to enact a system to screen newborns for hearing loss within one month of birth.
Early intervention	The services (e.g. physical, occupational, and/or speech therapy) and supports (e.g. nursing, social work, etc.) that are available to babies and young children with developmental delays and disabilities and their families from birth to age 3. Services referred to within this paper are provided by certified Teachers of the Deaf or Speech Language Pathologists with the specific purpose of developing listening and spoken language in a child with hearing loss.
Amplification	Personal hearing technology fitted on a child with hearing loss. These devices could include a hearing aid, cochlear implant, and/or a bone conduction hearing aid.

Term	Definition
Hearing aid	A device designed to improve hearing by amplifying sound audible to make it audible to a person with hearing loss
Cochlear Implant-CI	A surgically placed electronic device that stimulates the auditory nerve through electrodes placed in the cochlea through surgery. Rather than amplifying sound, it works by bypassing the inner ear. It gives the ability to perceive sounds to those for whom hearing aids are not powerful enough.
Bone conduction hearing aid-BAHA	A hearing device that works by transmitting sound vibrations through the bones in the skull. It is used as an alternative to a traditional hearing aid for those with hearing loss in the outer or middle ear.
Language modality	The communication mode chosen by a family to communicate with their child with hearing loss. Modalities can include a signed or listening and spoken language or a combination of both.
Listening and spoken language-LSL	An intervention outcome based on the understanding that children with hearing loss can learn to speak, listen, read and write the language of their home through the use of 11hearing technology and early intervention services. Also known as “auditory-oral” or “auditory-verbal” practice.

Legislative History of Early Intervention

In 1975, the United States Congress passed Public Law 94-142, titled “Education for Handicapped Children Act” which required “all states and local educational entities” to provide a “free and appropriate education which emphasizes special education and related services designed to meet their unique needs” to all children with disabilities ages three to 21 and provided protections for them and their parents Before this law took effect only one in five children with a disability were educated in public school and many states had laws excluding children with conditions such as blindness, hearing loss, or a cognitive delay (Department of Education, 2023). Within the first full year after PL 94-142 was passed, 3,694,000 eligible students were educated in public schools, and in 2019, over 64% of children with disabilities were educated in the general education setting with their typically developing peers (Department of Education, 2023) for more than 80% of their school day. In 1990, the name of the law was changed from “Education for All Handicapped Children Act” to “Individuals with Disabilities Education Act " or IDEA.

Table 2

Terms, Acronyms, and Definitions

Term	Definition
IDEA- Individuals with Disabilities Education Act	The federal law that mandates a “free appropriate public education” for children with disabilities in the United States and ensures special education and related services to those children.
EHDI- Early Hearing Detection and Intervention Program	The state-level systems that execute the UNHS programs.

With the 1984 reauthorization of IDEA, Congress began to address the needs of very young children with disabilities and their families. This law sought to “enhance the development of handicapped infants and toddlers and to minimize their potential for developmental delay” as well as to enhance the capacity of families to meet the special needs of their infants and toddlers with handicaps" (Individuals with Disabilities Education Act, PL 99-457, 1984). It was with this law that a system of early intervention services began nationwide. It is within this legislation that the requirement for services that support parents and provide for family training began. Additionally, it called for “early identification, screening, and assessment services” (Individuals with Disabilities Education Act (IDEA), PL 99-457, 1984).

History of Universal Newborn Hearing Screening

While the IDEA law required early intervention services for children identified with disabilities, most children with hearing loss were still not being diagnosed until nearly three years old and those with a mild or unilateral hearing loss not being identified until entering school (Commission of the Deaf, 1988). Starting in 1990, the Joint Commission on Infant Hearing (JCIH) began recommending that all "high-risk" infants be tested for hearing loss before leaving the hospital and after the National Institutes of Health (NIH) Consensus Development Program pushed to expand that recommendation to all infants in 1993, the JCIH followed suit. The first states to legislate UNHS were Hawaii and Rhode Island in 1990 and 1992, but only 3% of neonates in the United States were screened in those early years. By 1999 the number had risen to just under half. In 2009, when all states and territories had implemented a UNHS program, that number had ballooned to 98% (Gaffney et al., 2014).

The rationale for an EHDI system came from early work in Colorado. They followed a cohort of children with hearing loss who received early intervention services and compared their language outcomes at age three and age five. Children who were identified by six months of age had significantly better language skills at both age points (Yoshinaga-Itanoet al., 1998, Yoshinaga-Itanoet al., 2001). As more very young children have been screened, diagnosed, and received early services, the hypothesis that timely intervention impacts outcomes has been proven again and again (Canale et al., 2006; Sahli, 2019; Yoshinaga-Itano et al., 2018).

In fact, data have revealed that infants who are diagnosed by three months, fitted with appropriate hearing technology, and enrolled in an intervention program by six months are more likely to obtain speech and language skills equal to their hearing peers (Yoshinaga-Itano et al., 1998; Yoshinaga-Itano et al., 2017; Yoshinaga-Itano et al., 2018). However, the outcomes are still variable (Jackson & Schatschneider, 2014; Lederberg et al., 2013; Morini et al., 2017). The question then becomes, why hasn't early identification and intervention led to all children with hearing loss reaching their full potential? Why do some children not make expected progress, even when they meet those criteria? Are there things that families that struggle have in common?

Situational Context

The early intervention system of services for young children, aged birth to three years, is a state and federally funded program through IDEA. Early intervention focuses on helping eligible babies and toddlers learn the skills that typically develop during the first three years of life. If an infant or toddler has a disability, developmental delay, or certain medical diagnoses (such as hearing loss) that may impact development, that child will likely be eligible for early intervention services. Those services must be tailored to meet the child's individual needs. The law that currently governs the administration of early intervention is Part C of IDEA (IDEA PL 114-95 § 303.344, 2015)

Part C requires that states and local districts serve the children who meet the definition of exhibiting a "developmental delay" and are eligible for services. It also requires that all eligible children must be identified and served. In addition to the evaluation and assessment requirements, Part C also stipulates that the family is to be the focus of all planning and that parent education and training are integral pieces of the Individual Family Service Plan (IFSP).

The IFSP is a legally binding document that must be created by the IFSP team, which must include the family of the child being served, the service coordinator (the professional who will be responsible for ensuring implementation of the services identified in a child's IFSP), and any other team member (such as direct service providers). The IFSP must contain information about the child's disability or developmental delay, a statement of family priorities and areas of concern, measurable outcomes based on assessments of the child and family goals, and what early intervention services will be provided to help the child and family meet the established goals (IDEA PL 114-95 § 303.344, 2015). An IFSP must be reviewed every six months to determine if adequate progress is being made toward the stated goals or if revisions are needed. While federal law determines the general content of an IFSP, the document itself is individualized based on child and family needs. Evaluation and assessment of the child's current level of functioning and the family's desired outcome are detailed within (IDEA PL 114-95 § 303.344, 2015)

For families of children with hearing loss, the purpose of early intervention is to educate them about hearing and hearing levels, partner with them to determine goals for the child and family, provide strategies for language development, and coach caregivers to be the primary language model for the child (Moeller et al., 2013). Caregivers meet with the professional, usually a teacher of the deaf or speech-language pathologist, in weekly sessions at a center-based program, in the family's home or other natural environment (this could include a daycare, a babysitter's home, or any other place the young child spends their time) or via distance technology. These sessions target speech, listening, language, cognition, and/or literacy goals for the child as well as adult education and coach caregivers during their interactions with their child with hearing loss. Caregivers learn about the child's hearing loss, strategies for language development, and the sessions provide an opportunity for practicing skills that are to be used at home.

Caregiver Coaching

The written text of the Individuals with Disabilities Education Act (2004) stipulates that each IFSP contains "a statement of the family's resources, priorities, and concerns relating to enhancing the development of the family's infant or toddler with a disability" as well as plan for providing "family training, counseling, and home visits" (Subchapter 3, Section 1436). This requirement for family education and support launched a new approach to intervention that centered around caregiver education and support rather than direct services with the young child with a disability. This family-centered intervention focused on providing the caregiver with strategies to utilize when the professional is not present to continue to enhance and support the child's development.

In order for this type of intervention to be as successful as possible, caregivers of children with hearing loss must take the information they have learned in these sessions and apply it to their routines and interactions with their child (Sone et al., 2021). This change in adult behavior is the goal of these programs and is what has been shown to lead to improved outcomes in children with hearing loss (Brooks 2017; Nolls, 2020; Roberts, 2019). Yet not all families enrolled in these services are able to make these modifications to their interactions. Even families enrolled in the same intervention program, with children with similar health and hearing histories, can have very different speech and language outcomes (Roberts, 2019). Some families easily learn strategies in their early intervention sessions and then apply them to their interaction with their child with hearing loss while other families seem to struggle. Why are some parents able to successfully engage with their child incorporating their learning from early intervention while others are not?

Personal Context

As a parent of a deaf daughter, I personally experienced early intervention services from the caregiver perspective, and now I am a provider of these services. My only child was discovered to have a progressive hearing loss at the age of 18 months then fit with hearing aids and enrolled in early intervention at 20 months in 2005. I then began the (life-long) process of learning about language, hearing loss, and strategies for helping her develop language even outside of our visits with the professionals. This process sparked my love for deaf education and was the first step toward this dissertation.

Today I work full-time as a parent-infant advisor in the birth to three program in a private listening and spoken language school for children with hearing loss. I support parents and caregivers of very young children newly identified with hearing loss. I teach them information and demonstrate various approaches for language stimulation, but my main role is to coach caregivers on how to incorporate the things they are learning into their daily interactions with their child with hearing loss. I help them develop skills that will aid their child in meeting their speech, language, listening, and literacy goals.

I have the opportunity to observe firsthand the difference that effective parental learning in early intervention can make in the life of a child with hearing loss. Children who have the benefit of diagnosis in infancy, paired with involved parents and qualified professionals are able to develop speech and language skills equal to their peers without hearing loss (Yoshinaga-Itano et al., 2018) as well as having improved literacy (Geers et al., 2017; Geers et al., 2019; Lederberg et al., 2013), and long-term educational and vocational opportunities (Archibold & Mayer, 2013).

Notwithstanding, these services often do not create the change in interactions between caregiver and child sought. Some families struggle with the implementation of strategies taught to them and often this is then reflected in a poorer spoken language outcome for the child with hearing loss. The inquiry process for this problem of practice thus began with several questions including: what are the differences between the families that are able to implement the learning from their early intervention sessions and those who do not? Are there specific barriers that families face to learning or using the learning from sessions in their daily life? If caregivers are asked to reflect on their participation in early intervention, can they help us learn about the lived experiences of families with young children with hearing loss?

Problem of Practice

The job of an early interventionist is to work with the parent or caregiver who has chosen a LSL outcome to help them learn ways to facilitate language growth in their baby with hearing loss using technology such as a CI, hearing aid, or BAHA, to learn the spoken languages of their home through listening. Because of universal newborn hearing screening, families are getting referred to programs very early, often before three months of age. However, not all children are making the language growth expected. Even though these families are attending intervention and participating in their sessions, they aren't able to carry over the things they are being taught into their daily lives and that means their children aren't reaching their potential (Ching, 2015).

Caregiver Emotions and Support

The families that I serve come from varying cultural, ethnic, and socioeconomic backgrounds but in my practice as well as in the literature we find that nearly all families are surprised by the discovery of hearing loss in their child (Kurtzer-White & Luterman, 2003, Russ et al., 2004). The diagnosis is a source of grief as well as emotional and practical challenges but early identification and enrollment into services were seen as positives by nearly all parents with early and late-diagnosed children (Gilliveret al., 2013). Many families report feeling overwhelmed and unsupported during the early days after the identification of their child's hearing loss (Young & Andrews, 2001, Russ et al., 2004, Roberts et al., 2015, Scariniciet al., 2018). However, families who had regularly scheduled, specific supports related to aiding them in developing language in their child with hearing loss indicated a more positive outlook (Brown et al., 2006, Fitzpatrick et al., 2007). The purpose of early intervention is to provide this emotional support in addition to knowledge and information.

Caregiver Engagement in Early Intervention and Implementation of Learning

There is no one definition of engagement in early intervention in the literature but much of it revolves around participation in therapy and the carry-over of learning into daily routines (Dirks & Szarkowski, 2022, Houston & Bradham, 2011, Moeller, 2000). While most of the families in my practice attend their weekly appointments, there remains a portion who do not or are unable to modify their interactions with their child with hearing loss based on my coaching and the information shared in our sessions together. I wondered if there were patterns or commonalities among the families who struggled with making these changes and if there were additional supports that could be added to allow these caregivers to become more successful.

Conclusion

In this dissertation, the lived experience of caregivers who had participated in early intervention with their young child with hearing loss and how they were or were not able to implement their learning in early intervention sessions into their daily lives and routines was explored. The literature regarding early intervention in deaf education, caregiver coaching, and the role that caregiver participation in intervention has in language outcomes, as well as the theoretical frameworks underlying the need for caregiver education in early intervention will be reviewed in Chapter 2.

Chapter Two

Literature Review

Introduction

Early identification of hearing loss has led to better speech, language, and listening outcomes for many young children with hearing loss (Yoshinaga-Itano et al., 2018; Sahli, 2019). This improvement has been linked in the literature to early enrollment in intervention programs that utilize parent education and parent coaching. However, not every child gains the expected benefit (Jackson & Schatschneider, 2014; Lederberg et al., 2013; Morini et al., 2017). In this literature review the research looking into the impact of early identification and intervention, parental participation in said intervention, and parental efficacy on listening, language, and speech in young children with hearing loss will be examined.

Literature Review

As a result of Universal Newborn Hearing Screening (UNHS), hearing loss is the most common disability diagnosed in infants. As was stated in Chapter 1, between two and three out of every thousand babies are found to have some level of loss (Centers for Disease Control and Prevention Early Hearing Detection and Intervention Hearing Screening and Follow-up Survey, 2017; U.S. Department of Health and Human Services, 2021). The average age of identification has declined from a mean of 26 months to 2 ½ months (Dedhia et al., 2013; White, 2008; Hoffman & Beauchine, 2007; Harrison et al., 2003) since the year 2000.

Because of this early identification, enrollment in intervention programs that support and coach caregivers of deaf or hard of hearing infants and toddlers have increased (Joint Committee on Infant Hearing, 2007). The overwhelming majority of those enrolled in these intervention programs have no experience with hearing loss because 90% of children born with hearing loss are born to two parents who have typical hearing (Mitchell & Karchmer, 2004). It is through early intervention programs that these families partner with skilled professionals to learn strategies to facilitate the language development of their very young child with hearing loss (Decker & Vallotton, 2016; Moeller et al., 2013)

As the age of this intervention has lowered, speech, language, and listening outcomes have improved (Ching, 2015; Ching et al., 2017; Hayes, 2008; Yoshinaga-Itano et al., 2017). The impact of early intervention begins almost immediately and continues for many years (Davidson et al., 2021; Geers et al., 2019). Vohr et al. (2008) found that children with hearing loss who enrolled in early intervention services at or before three months of age had significantly higher scores for the number of words understood, words produced, and early, later, and total gestures, at 12 to 16 months of age, when compared to those enrolled later than three months. In 2017, Yoshinaga-Itano et al. saw that children meeting the Early Hearing Detection and Intervention (EHDI) goals of screening by one month, identification of hearing loss by three months, and enrollment into intervention by six months, had significantly higher vocabulary quotients between 8 and 39 months of age when compared to children who did not meet the guidelines. When specifically examined, age of enrollment in an early intervention program also explained up to 11.4% of the variance in receptive vocabulary at age five and showed that the children enrolled in EI before 11 months of age scored in the average range on the vocabulary measure, regardless of the degree of hearing loss (Moeller, 2000).

Factors that Have Been Shown to Influence Outcomes

While the impact of early intervention is undeniable, there remains a large variance in child language outcomes. There are a multitude of components that influence the listening, language, and vocabulary achievement of children with hearing loss including that of early detection of hearing loss and enrollment in early intervention services (Çolak 2020; Cupples et al., 2016; Stika et al., 2015; Vohr et al., 2008; Wake et al., 2016; Yoshinaga-Itano, 2003) but these other factors can often contribute significantly to the potential for a child with hearing loss to reach language levels commensurate to their peers with typical hearing. While some of these characteristics are immutable such as the child's hearing levels, family demographics (including race and/or ethnicity, social economic status, and caregiver educational level), and presence of additional disabilities, others can be influenced, and those include hearing technology, caregiver communication skills, and participation in the child's education and intervention.

Child Hearing Levels. The first factor that has been linked to variation within outcomes for children with hearing loss is the level of hearing the child has. Hearing loss occurs in very young children in all degrees and configurations. According to the 2019 Summary of National CDC EHDI Data, nearly 40% of hearing loss in infants is unilateral (see Table 3), and 63% of the children with bilateral hearing loss have less than a severe impairment. This indicates that many children are born with a great deal of residual hearing.

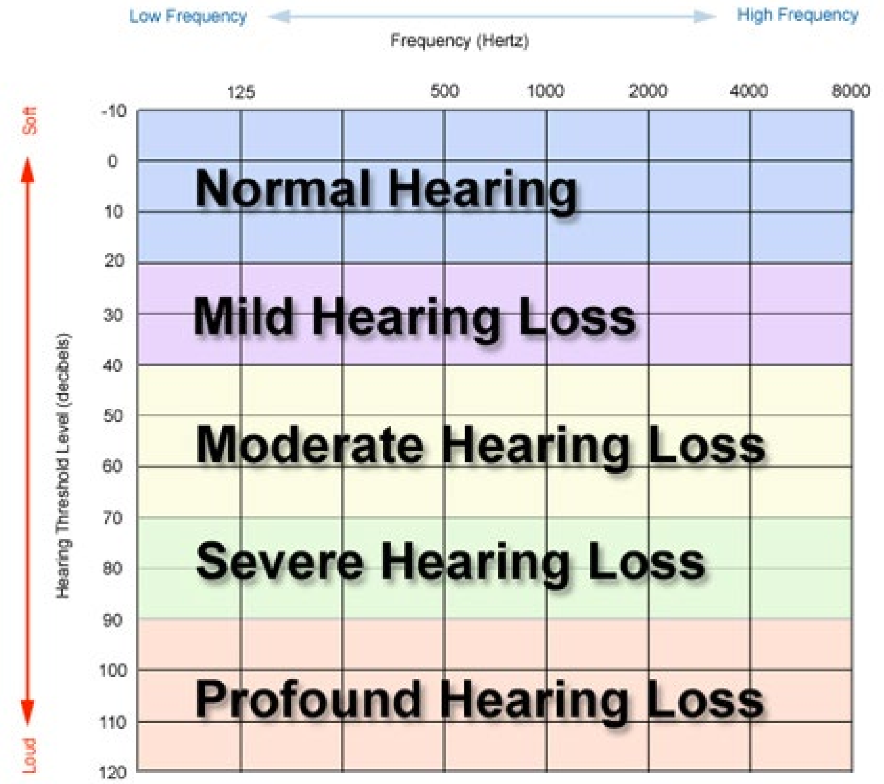
Table 3

Hearing Levels and Definitions

Term	Definition
Unilateral Hearing Loss	Any level of hearing loss that is only present in one ear, the other ear hears within normal limits. Impacts include difficulty localizing sounds and poor understanding of speech in noise. Children with unilateral hearing loss are 3 times more likely to need school supports and have delayed language (Lieu, 2015) compared to children with typical hearing
Residual Hearing	The remaining measurable hearing in an ear with hearing loss (Cole & Flexer, 2007)
Mild Hearing Loss	Hearing thresholds of 20-40 dB. Impacts of this level of hearing loss include missing up to 40% of the speech signal without amplification (Cole & Flexer, 2007), important soft sounds such as ‘s’, ‘th’ and small unstressed words (a, the, is) can be missed.
Moderate Hearing Loss	Hearing thresholds of 40-70 dB. Impacts of this level of hearing loss include missing up to 75-100% of the speech signal without amplification, significantly delayed language, syntax, and speech intelligibility, as well as at least two grade levels behind (Cole & Flexer, 2007) Spoken language would have to be very close to the ear and very loud to be understood.
Severe Hearing Loss	Hearing thresholds of 70-90 dB. Impacts of this level of hearing loss include: Spoken language will not develop without appropriate use of amplification technology and intervention. This level of hearing loss is generally considered to be a cochlear implant candidate (Cole & Flexer, 2007).
Profound Hearing Loss	Hearing thresholds of greater than 90 dB. This level of hearing loss typically gets no benefit from hearing aids and would need a cochlear implant to learn listening and spoken language. They cannot hear speech or environmental sounds without amplification (Cole & Flexer, 2007).

Figure 1

Levels of Hearing Audiogram



Note. From *What is an Audiogram?* [image], by Boys Town National Research Hospital, 2023, BabyHearing.org (https://www.babyhearing.org/what-is-an-audiogram).

Much of the data show that children with less severe hearing losses were able to develop better speech, listening, and language skills compared to those with more significant hearing loss, especially before cochlear implantation in infants (Cupples et al., 2016; Goldberg & Richburg, 2004; McCreery & Walker, 20022; Moeller et al., 2007; Tomblin et al., 2020). While cochlear implants have improved the skills of severely and profoundly deaf children (Ambrose et al., 2014; Ambrose et al., 2015; Nicholas & Geers, 2006; Moog & Geers 2003), very early cochlear implantation- within the first year of life, preferably by 6 months- shows even greater promise (Ching et al., 2013; Ching et al., 2017; Cuda et al., 2014; Leigh et al., 2013). It still remains that the more intact the child's access to sound without technology, the more likely the child is to have speech, language, and listening skills within the average range.

Child Demographics. The next component that appears to be a determinant in outcomes for children with hearing loss is that of the family and child demographics. There has been extensive literature reporting the association between being a cultural or linguistic minority or person of color and poorer language outcomes for children with disabilities (Blanchett et al., 2009; Emerson et al., 2015; Morgan et al., 2018) and that appears to be the case for children with hearing loss as well (Davis-Kean, 2005; Marschalk et al., 2015; Yoshinaga-Itano, 2003). Additionally, lower socioeconomic status and caregiver educational achievement appear to be factors that contribute to substandard achievement (Calderon, 2000; Ching, 2015; Cupples et al., 2014; Yoshinaga-Itano et al., 2017) but all of these risk factors appear to be remediated by early diagnosis and intervention (Ching & Leigh, 2020; Mayne et al., 2000; Yoshinaga-Itano et al., 1998).

Presence of Additional Disabilities. Another consideration that professionals must acknowledge when looking at the listening and language skills of children with hearing loss is whether or not the child has comorbid diagnoses or disabilities. Various studies have indicated that the prevalence of additional disabilities in children with hearing loss to be near 40% (Cupples et al., 2016; Gallaudet Research Institute, 2011; Knoors & Marschark, 2014) The presence of disabilities, especially those related to cognition or vision, appears to not have merely an additive effect but instead multiplicative (Van Dijk et al., 2010). While early diagnosis and intervention appear to provide benefits to these children with hearing loss, there remains a significant gap between those children with and without additional disabilities (Ching 2015; Ching & Leigh, 2020; Cupples et al., 2018).

Caregiver Communication Skills. While Cole and Flexer (2008) puts forth the idea that linguistic input, including the number and variety of words, provided to a child with hearing loss will lead to improved speech, language, and literacy skills, the relationship appears to be more complicated than words in equaling words out. While this pattern appears to generally hold true for typically developing children (Hart & Risley, 1995; Hart & Risley, 1999; Hurtado et al., 2008; Suskind, 2013) the compromised signal caused by a child's hearing loss complicates matters.

Nittrouer et al. (2020) found that children with hearing loss were far more influenced by the type and style of caregiver language input when compared to typically hearing peers. They found that this connection increased as the severity of hearing loss increased. Caregiver language input determined vocabulary at age four, which then impacted language and reading skills at age 10. Other researchers have seen that the quantity of words is less important for children with hearing loss than the quality (Ambrose et al. 2015; VanDam et al., 2012). Caregivers of children with hearing loss were found to use at least as many words as those with typical hearing, but they tended to use shorter utterances, more low-level vocabulary, and less variety, especially in situations where a child's hearing loss was more severe (Farran et al., 2009).

Family Involvement. Another contributing factor to success in children with hearing loss is family involvement in educational and intervention programs. Children who have the combined benefits of early enrollment and strong family involvement appear more likely to score in the average range (Stika et al., 2015; Yoshinaga-Itano, 2000). But the effect of highly involved caregivers can even buffer the disadvantage of late intervention, with those rated as having above average participants having children scoring two standard deviations above those who were less participatory, and still within the average range for vocabulary (Moeller, 2000).

A reliable measurement of a family's involvement in an intervention program is difficult to ascertain. One matrix often used is parental-reported self-efficacy (see Table 4; DesJardin, 2006), while others rely on direct observation of parent-child interactions (Bavin et al., 2021; Yoshinaga-Itano et al., 2020), and some look at carry-over of specific skills (Cruz et al., 2012; Desjardin and Eisenberg, 2007; Roberts, 2019). Each of these evaluates different facets of participation, and they all provide insight into distinct components that make up the umbrella term "caregiver involvement". While it appears that engagement within early intervention has a positive influence on the language skills of deaf or hard of hearing children, the actual mechanism for the growth remains unknown.

Table 4

Research Terms and Definitions

Terms	Definitions
Parental Reported Self-efficacy	describes parents' beliefs in their ability to perform a parenting task successfully or parents' estimations of their own competence in parental roles (Ambrose et al., 2020)
Parental Sensitivity	emotional availability and parental responsiveness to the child (Quittner et al., 2013)

Though the literature has been unable to identify exactly what about participation in intervention causes the improvement in language, some aspects of the caregiver-child interactions appear to facilitate better outcomes. Several studies (Holtet al., 2012; Nittrouer et al., 2020) have found that caregivers who use more directive language (telling a child what do to next) and controlling of their child's behavior by having " many set rules and procedures" had significantly lower expressive and receptive language scores. These findings are consistent with those that linked parental sensitivity to improved communication in young children with hearing loss (Desjardin et al., 2008; Jamsek et al., 2021; Quittner et al., 2013). These traits were found to have as much effect on language outcomes as immutable characteristics such as the severity of hearing loss and age of implantation. If professionals who provide intervention to very young children with hearing loss are able to improve family functioning by providing caregiver support and lowering parental stress levels, it may also work to facilitate language growth in these children.

Edwards et al. (2009) reported poorer speech perception in children whose families were noted by the cochlear implant team as having concerns about their ability to provide support. After one year of device use, they were compared to children whose families were rated as likely to provide support and maximize the use of the device. Further, this family support level predicted child speech intelligibility at one, two, and three years post-implant. This points again to the role that parental behavior can have on the development of listening and language skills in a deaf child.

Caregiver Behaviors

There are a variety of specific strategies that caregivers of children with hearing loss can use to develop the listening and spoken language of their children. The research on these specific strategies has shown that some strategies have been linked to higher levels of language than others (Brock & Bass-Ringdahl, 2021; Cruz et al., 2012; Quittner et al., 2013; Roberts, 2018) but often these strategies alone may not be enough. Research by Bavin and colleagues (2021), showed that while certain higher-level language facilitation strategies were linked to better language development in very young children with cochlear implants, they found that the link to higher vocabulary may be closely related to the quality of caregiver-child interactions rather than the specific strategies used.

Some early research (Meadow et al., 1981; Nienhuys & Tikotin, 1983; Spencer & Gutfreund, 1990) indicated that parents of children with hearing loss used less diverse language with their children including more directives and fewer higher-level concepts (Lundy, 2002; VanDam et al. 2012). However, DesJardin & Eisenberg (2007), found that mothers' use of facilitative language techniques (see Table 5) appeared related to children's language outcomes. The use of some higher-level language techniques was positively correlated with better receptive and expressive language skills while lower-level techniques were negatively associated. The same relationship was found by Cruz et al., 2012, between higher-level language facilitation strategies and the growth of receptive language but it was not seen in expressive language. In this examination, the lower-level strategies showed no impact on language at all.

Table 5

Strategy Research Terms and Definitions

Term	Definition
Language Facilitation Strategies	A particular behavior performed in a specific way with the intent of eliciting a predetermined response. A strategy has a specific order or way of implementation (Fickenscher & Salvucci, 2020). These strategies are used by professionals to support the development of language in the child. They are also taught to parents in intervention sessions to be used outside of therapy.
Higher-Level Strategies	Language facilitation strategies that require a child to respond using complete language, model complex language, and/or expand a child's utterance (DesJardin & Eisenberg, 2007). Examples include expansion, open-ended questions, and parallel talk.
Lower-Level Strategies	Language facilitation strategies that do not require a response from a child, use limited or concrete language, or do not expand the child's utterance (DesJardin & Eisenberg, 2007). Examples include labeling, closed-ended questions, and imitation.
Receptive Language	The ability to comprehend the language used by others. This includes the vocabulary and syntax of the language that the child understands (McIntyre et al., 2017).
Expressive Language	The words and combinations of words used by the child. It includes the specific vocabulary, ways the words are combined, as well as the grammatical elements featured in the child's utterance (McIntyre et al., 2017).

These specific strategies seem to play a role in the development of language skills in children with hearing loss, but other factors such as personality, maternal beliefs and sensitivity, and parental efficacy appear to contribute significantly as well.

Familial Factors

Ingber (2018), looked at maternal characteristics that explained the level of a mother's involvement in the early intervention of her child with hearing loss. They constructed a model of factors that explained the level of the mother's involvement in intervention. The model included the personality characteristics of anxiety, curiosity, anger, and motivation as well as two maternal perceptions. First, optimism about their child's potential, and second, the social support that the mother had. These factors may help explain the differences in engagement between families enrolled in the same intervention programs. The engagement differences can also lead to varying levels of efficacy in the carry-over of the skills parents learn in their intervention sessions. Additionally, parents reported that having the opportunity to engage with and practice supporting their child's language growth made them feel more empowered and able to be successful in caring for their child with hearing loss (DesJardin, 2003).

Caregiver Efficacy. While socioeconomic status, age, and parental education level have been shown to impact child outcomes, as previously stated, researchers have begun to look at another measurement that could explain some variability in outcomes as well. Self-efficacy is a measurement that looks at how empowered an individual feels about their ability to complete a particular parenting task (Bandura, 1995; Wittkowski et al., 2017). In the literature, it refers not to whether a person can actually complete a task, but whether or not they believe they have the skills to do it (Bandura, 1977, 1986, 2012).

In the case of mothers of children who are deaf or hard of hearing, DesJardin examined mothers of children with cochlear implants and their reported confidence in developing their child's language skills. She found that mothers who viewed themselves as more knowledgeable and competent used higher-level language development strategies and their children had better language outcomes in the short and long-term (DesJardin, 2004, 2017).

So, how does caregiver self-efficacy improve outcomes for children with hearing loss? Ambrose et al. (2020) found that caregivers who rated themselves as knowledgeable about their child's hearing loss and hearing technology also rated themselves as efficacious. Their knowledge empowered them, and that empowerment was also associated with actively working to improve their child's language and to manage hearing technology. Higher self-reported efficacy was also associated with more complex caregiver language input including length of utterances, variety of words used, and utilization of specific language strategies (DesJardin & Eisneberg, 2007).

While lack of participation, self-efficacy, and caregiver communication skills can be barriers that families face to implementing the learning in their intervention programs, very few researchers have attempted to ask caregivers of children with hearing loss themselves about their learning in early intervention (Alduhaim et al., 2020; Roberts et al., 2015) and/or the hurdles they face to integrate the information they have learned into their daily routines and life (Decker & Vallotton, 2016). This is the gap in the literature which this research attempted to investigate.

Investigation into Caregiver Experiences

While research looking at the caregivers' of children with hearing loss perspective on learning in early intervention is rare, there are data from the professional angle (Ambrose et. al., 2019; Klatte et al., 2019; Moeller, 2000; Young & Andrews, 2001). These studies ask the participants to rate the engagement and efficacy of families based on their interactions but do not ask the caregivers directly. Other research (Ravi & Gunjawate, 2020; Robinson et al., 2022; Scarini et al., 2016; Young, 2001; Young & Tattersall, 2006) sought to understand the lived experiences of caregivers of children with hearing loss related to early identification of hearing loss and cochlear implantation. While a final group centers on other aspects of parenting a child with hearing loss and contains some information regarding participation in early intervention (Flatery, 2015; Gilliver et al., 2013; Hintermair & Sarimski, 2018; Jackson et al., 2008; Russ et al., 2003) there were no studies asking caregivers specifically about their learning in early intervention and how it impacted their interactions with their child with hearing loss.

A qualitative study performed by Roberts et al. (2015) asked caregivers in Australia to reflect on their experiences receiving a cochlear implant for their child with hearing loss as well as the intervention they received pre- and post-surgery. The families discussed themes of “journey(ing) into a new world”, “services meet(ing) some but not all needs”, and “parent connections and relationships”. The participants had children aged one year to 16 years and all were implanted at the same hospital and received services through that program. Alternatively, this dissertation was focused specifically on caregivers of children with hearing loss in the early childhood years and sought a diverse sample with respect to location and service providers.

Within special education research, there are two studies that support the inquiry of this dissertation. Coogle et al. (2013) was a qualitative pilot study that sought to understand the experiences of families of children with autism and their role in early intervention as well as caregiver reported positive qualities of early intervention and aspects they wished to change. These are all questions directly addressed by this dissertation. The results were that caregivers reported that they participated in early intervention sessions through “facilitating child development”, “sharing information with service providers”, “observing their child and the service provider”, “learning new skills” or “participating minimally”. These themes helped inform the analysis of caregiver responses about learning in early intervention in this dissertation as well. Caregivers also reported a number of positive qualities about their early intervention services including “access to resources”, “personal characteristics of service providers”, “opportunities for new skill development”, and “convenience of services to the family”. Again, these themes were instructive when analyzing the data collected from caregivers in this dissertation. Finally, when asked about changes needed, caregivers reported specific issues related to “dissatisfaction with services” including; “wait time”, “inconvenience of time or location”, “ineffective services” or “too few” or “no specialization” of services as well as “dissatisfaction with the service providers” with some families noting that they wanted them to “be better communicators”, “take family concerns more seriously”, or to “be better”.

The other piece of research that touches close to the heart of the inquiry of this dissertation is that of Pighini et al. (2013). Participants were drawn from one Infant Development Program- IDP (the early intervention provider in British Columbia, Canada) and were caregivers of children who had been served during their birth to age three range and had been diagnosed with a disability, a developmental delay, or were considered at-risk for such a delay. The children ranged from three to eight years old. The paper’s research question was closely related to those of this dissertation and was “What are parents’ overall perceptions of their experiences with early intervention?” This study and its results were published but were drawn from a larger unpublished work that also looked at “What are parents’ perceptions of the impact of early intervention on (1) early childhood development; (2) parenting; and/or (3) family dynamics in families with a child at-risk for developmental delays or diagnosed with developmental disabilities?” In addition to the published research question, these three areas of investigation are closely tied to the questions being explored in this research.

Pighini et al. found that families described family-centered practice through IDP helped build close and collaborative relationships between caregivers and service providers. Themes included “one on one relationships with (their) consultant”, “valuing active listening and becoming empowered”, “valuing the inclusion of other family members”, and “valuing joint decision making and knowledge translation”. These caregivers spoke of how their consultant helped them learn to observe and report changes in their child’s development and the skills they were working on as well as working with the consultant to maximize the level of impact, even when they were not present. This is precisely the area of examination within this dissertation.

While not specifically interviewing caregivers of children with hearing loss, both of these pieces of research illustrate the important information that can be revealed if parents are asked to share their experiences with learning in early intervention. That is why this dissertation is needed to help fill that gap in the literature.

General Research Question, Epistemological, and Philosophical Stance

This dissertation sought to answer, “what are the lived experiences of caregivers of children with hearing loss who have recently transitioned out of birth to three services with regard to the implementation of the information learned in early intervention?”

This dissertation research was completed through a phenomenological lens. It sought to describe the lived experience of the group being studied (Creswell, 2013). For this study, that is the experiences of caregivers with a young child who have completed early intervention services in the last three years, designed to develop listening and spoken language skills in their child with hearing loss. Additionally, because each person's lived reality is different, truth and meaning are created through their experiences and must be observed with this in mind. This idea of understanding and reality includes the background and experiences of the researcher (James & Busher, 2009). This view of Constructivism combined with the understanding that all behavior is a result of how individuals interpret the world around them and that the goal of this qualitative, phenomenological research is to consider that of the caregivers interviewed (Crotty, 1998).

Theoretical Frameworks

The beliefs that guided the research in this dissertation included Constructivism including the work of Piaget and Vygotsky, Bandura's Social Learning Theory, and Bowen's Family System Theory as it applies to early intervention.

Constructivism. Constructivism is the idea that learning comes through actual experiences and reflection within the human mind (Mascolo & Fischer, 2005) and therefore, all human knowledge is subjective. The theory posits that an individual's background, culture, and perspective all influence how they learn and the meaning made from any experience (Brau, 2020). Within Constructivism, there are two primary camps with two primary researchers. The first is Cognitive Constructivism with the work of Jean Piaget and the second is Social Constructivism which was led by the research of Lev Vygotsky. While each researcher approached Constructivism from a different lens, both theories influenced the perspective of this dissertation.

In Cognitive Constructivism, Piaget believed that children learn as they grow and move through developmental stages (Piaget & Cook, 2011; Kouicem, 2020). He proposed the idea that particular cognitive milestones must be met before higher-level thinking could develop (Piaget & Inhelder, 1969; Powell & Kalina, 2009). Piaget's view of Constructivism was that the individual is the center of knowledge creation and that the acquisition process was built around that person's experiences. Another basic assumption of his theory was that people are active learners who have a need to match their view of the world with the external realities they face within their surroundings. Other people and the social milieu are considered important elements influencing this environment in Constructivism (Piaget, 1981). He also believed that learning was not a passive process but that as children encounter new experiences it sends them into a state of disequilibrium. They must then make sense of the new information by associating it with existing knowledge or by reorganizing to a higher level of understanding (Amineh & Asl, 2015; Piaget, 1977).

Social Cultural Theory emphasizes the relationship between human beings and their environment. Vygotsky focused on the impact of social and cultural influences on individuals. With Social Constructivism, Vygotsky built on this idea but contended that learning was derived not only through experiences with the world around a child but through interactions with the people around them (Amineh & Asl, 2015; Vygotsky, 1962). Vygotsky explored the impact of social and cultural influences on individuals. He stated that children are affected by the family members who surround them as well as being impacted by the general culture in which they live (Tenkin, 2011). He believed that a child's interaction with their family and with the community was important for their learning and development. Vygotsky believed that a child's first teacher is the family and their first learning takes place in the home and community.

Specifically, Vygotsky spoke of a “More Knowledgeable Other” who could aid in a child’s learning by “scaffolding” or supporting and guiding the child to a higher level of learning (Bigge & Shermis, 2004; Pritchard & Woollard, 2013; Vygotsky, 1978). The caregiver in an early intervention therapy session fulfills both roles at different times. Sometimes they are the learner, being coached by the therapist to integrate new information into their interactions with their child, while other times they model new language structures or otherwise support their child with hearing loss in acquiring new listening, language, or vocabulary skills.

Social Learning Theory. Another fundamental conceptual bedrock to this research was the concept that parental interactions and behavior can change developmental outcomes. This idea is built from a Constructivist lens as well but is more significantly explored in the work of Albert Bandura and his Theory of Social Learning (1977). As a child with hearing loss lives their life and is cared for by adults in their social sphere, every interaction becomes an opportunity for learning cognitive, behavioral, and social norms as well as the language of the home (Knoors & Marschalk, 2013)

Bandura’s Theory of Social Learning also underpins the entire concept of parent coaching within intervention sessions (Allen, 2016). This theory emphasizes the importance of modeling and observation in learning. In early intervention, the professional models the use of strategies and other desired behaviors to facilitate language learning in the child with hearing loss (Maluleke et al., 2020; McCarthy et al., 2010). The parent is able to observe the strategies in action and can apply the learning to their own interactions with their child (Kemp & Turnbull, 2014). The professional then uses positive feedback to reinforce the behavior change (Salisbury et al., 2018).

The other theory from Bandura that runs through the entire investigation is that of self-efficacy. It posits that if a parent believes they will be successful, they will be more likely to be able to make the change needed (Bandara, 1997). People who believe they have the capacity to make change are more likely to attempt that change. It is through their confidence in their own ability that the change is actually able to take place (Bandura, 1977, 1986, 1997). For caregivers of children with hearing loss, the role of the professionals is to build internal self-efficacy related to the daily tasks of caring for their child. These parents need to feel as though they are able to accomplish the goals set in therapy. They need to have belief in their parenting skills as well as the belief that the things that they do will result in changes to their child’s speech, language, and listening outcomes (Ambrose et al., 2020; DesJardin et al., 2006)

Family Systems Theory

While families are made up of individuals and early intervention providers support the emotional needs of the caregivers, it is critical to also see the family as a unit and keep the needs of the entire family centered in the intervention plan (Dunst, 2016). Kerr and Bowen (1988), argued that the family was a “complex social system”, and that the interactions among members influenced each other's behavior. They theorized that changes in one individual within a family influences the entire system and often leads to other changes.

This centering of the family unit and the needs of all is now considered best practices in early intervention (Dunst et al., 2017) and specifically in early intervention for children with hearing loss (Moeller et al., 2013; Rhoades & Duncan, 2017). This approach supports the entire family unit and empowers caregivers to become their child's best teacher by enabling opportunities in their early intervention sessions (Dunst, 2011). This then changes the types and characteristics of the learning opportunities the caregiver and child share (Dunst et al. 2006; Giallini et al., 2021). It is through caregiver coaching in a family-centered approach to early intervention that providers can make the most impact to the child with hearing loss because the caregiver enacts the change and the family unit as a whole is affected (Voss & Stredler-Brown, 2017).

Conclusion

As indicated in the literature review, there remains a dearth of data on the caregiver perspective on learning in early intervention. That holds especially true for caregivers of children with hearing loss. Using a phenomenological approach, this qualitative dissertation sought to construct an understanding of the lived experiences of these caregivers and how the early intervention process affected their interactions with their child with hearing loss.

In Chapter 3 a description of the setting, participant demographics, data collection procedures, and strategies for data analysis will be provided. Additionally, the interview protocol itself will be examined as well as how the specific research sub-questions are aligned to specific inquiries.

Chapter Three

Methodology

Introduction

In the previous chapter, the gap in the literature looking at the perspective of caregivers of children with hearing and their reflections about learning in early intervention was highlighted. Previous qualitative research about the lived experiences of caregivers regarding their early intervention learning was limited to disabilities other than hearing loss (Coogle et al., 2013; Pighini et al., 2013). In fact, a number of the earlier mentioned inquiries specifically call for a more thorough analysis of the caregiver perspective using in-depth qualitative interviews (Davenport et al., 2021; Gilliver et al., 2013; Jackson et al., 2008; Russ et al., 2003; Scarinci et al., 2018; Young & Tattersall, 2007). Thus, the need for this dissertation.

Study Design and Research Questions

A qualitative phenomenological approach was used for this dissertation. This approach provided an in-depth description of the lived experiences of caregivers of children with hearing loss who participated in early intervention. Qualitative methodology has been accepted as an appropriate way to study complex phenomena, and it is used to understand the how and why rather than being interested in measurement (Creswell & Poth, 2018). The phenomenological approach in particular is used to understand the essence of individual experiences and to seek the lived reality and feelings, and then produce in-depth descriptions of the studied phenomenon (Creswell & Poth, 2018; Yüksel & Yildirim, 2015).

As discussed in Chapter two, a social constructivist interpretive framework was used to guide the development of this research dissertation. The ontological and epistemological beliefs were explored because the lived experiences of caregivers of children with hearing loss represent a multitude of realities, which will be explored through this qualitative methodology.

The primary research question guiding this investigation was “What are the lived experiences of caregivers of children with hearing loss who have recently transitioned out of birth to three services with regard to the implementation of the information learned in early intervention?” with the following sub-questions exploring further:

1. What benefits, if any, do caregivers of children with hearing loss report from their time participating in early intervention?
2. In what ways, if any, do caregivers of children with hearing loss report that early intervention sessions changed their interactions with their child?
3. What barriers to using the implementation of learning from their early intervention sessions do caregivers of children with hearing loss identify, if any?
4. What additional services, if any, are identified by caregivers, as possible avenues of overcoming previously identified barriers?

Study Setting

This study was conducted from September 2022 through January 2023. Recruitment began through social media, listservs, and early intervention providers after Institutional Research Board (IRB) approval (see Appendix A). Interviews with caregivers began on November 1st, 2022. All communication between the researcher and participants occurred through email, and all interviews were conducted via distance technology. Interviews were semi-structured using open-ended questions designed to elicit caregiver recollections about their experiences and learning in early intervention (see Appendix B).

Participants

Purposive sampling (Patton, 2015) was used to recruit caregivers of children with hearing loss (Creswell & Poth, 2018). Participants were gathered from throughout North America. They were recruited via social media as well as through digital flyers (see Appendix D) sent to private and public schools with early intervention programs for children with hearing loss. Inclusion criteria included that participants must be caregivers who participated in early intervention to develop language skills in their child with hearing loss in the last 3 years. The children had to have a hearing loss diagnosed prelingually (before language developed) that required the use of hearing technology and be between 3.0 and 5.11 years of age. Caregivers whose home language was other than English were permissible so long as their intervention was conducted in English and they were able to read and understand well enough to complete the informed consent (see Appendix C) and interview in English.

A total of 26 caregivers completed a google form that provided demographic and contact information (see Appendix E). Each of them was then assigned a letter for anonymity and tracking purposes. All 26 were sent recruitment emails asking them to participate in a semi-structured interview via Zoom, the informed consent form was sent with this email as well. Of the 26, 15 responded to the request and were interviewed. The 15 participants were given an alias that correspond to their participant letter. That name as well as the name of their child and provider was assigned based on the most popular names beginning with their participant letter as determined by the Social Security Administration for the decade of their birth. These names were assigned regardless of any other demographic or biographical information. The demographic information for the caregivers who participated in interviews and their children are provided in Tables 6 and 7.

Table 6

Caregiver Demographics

Caregiver Assigned Letter	*Alias*	*Age*	*Sex*	*Race*	*Household Income (in dollars)*	*Level of Education*	*Primary Language in the Home*
A	Ashley	35-44	F	Asian	>150,000	Master's	English
B	Brittany	35-44	F	White	75,000-99,000	Bachelor's	English
C	Courtney	35-44	F	Hispanic	>150,000	Master's	English
D	Dan	35-44	M	White	>150,000	Master's	English
E	Elizabeth	35-44	F	White	>150,000	Doctorate	English
F	Felicia	35-44	F	White	75,000-99,000	Master's	English
H	Heather	35-44	F	White	>150,000	Bachelor's	English
I	Isabel	35-55	F	White	50,000-75,000	Master's	English
J	Jillian	24-35	F	White	>150,000	HS	English

Caregiver Assigned Letter	***Alias***	***Age***	***Sex***	***Race***	***Household Income (in dollars)***	***Level of Education***	***Primary Language in the Home***
R	Rachel	35-44	F	White	>150,000	Master's	English
S	Samantha	25-34	F	Asian	50,000 - 74,999	Master's	English
U	Ursula	35-44	F	White	>150,000	Master's	English
V	Victoria	35-44	F	White	75,000 - 99,999	Bachelor's	English
W	Whitney	35-44	F	White	75,000 - 99,999	HS	English
Z	Zoey	25-34	F	White	>150,000	Bachelor's	English and ASL

Table 7

Child Demographics

Child Assigned Letter	***Alias***	***Cur. Age***	***Diag. Age***	***Inter. Age***	***Sex***	***Race***	***Additional Disabilities***	***A.D. Age***
A	Alexander	60	<1	1-6	M	White	No	
B	Brooklyn	42-48	6-12	6-12	M	Asian	No	
C	Charlotte	48-54	<1	1-6	F	Hispanic	Yes	<1
D	David	48-54	<1	<1	M	White	No	
E	Emma	42-48	1-6	1-6	F	White	No	
F	Franklin	36-42	<1	1-6	M	Black	No	

Child Assigned Letter	***Alias***	***Cur. Age***	***Diag. Age***	***Inter. Age***	***Sex***	***Race***	***Additional Disabilities***	***A.D. Age***
H	Henry	42-48	1-6	1-6	M	White	No	
I	Isaac	36-42	1-6	6-12	M	White	Yes	1-6
J	Jacob	36-42	24-36	24-36	M	White	No	
R	Riley	>60	6-12	12-18	F	White	No	
S	Samuel	48-54	<1	<1	M	Asian	Yes	<1
U	Unity	>60	1-6	6-12	F	White	No	
V	Victor	54-60	<1	1-6	M	White	Yes	<1
W	Willow	48-54	6-12	6-12	F	White	No	
Z	Zachary	42-48	<1	1-6	M	White	Yes	<1

Note. Cur. Age = current age at the time of interview (in months); Diag. Age = age when diagnosed with hearing loss (in months); Inter. Age = age at the start of intervention services (in months); A.D. Age = age when diagnosed with additional disabilities (in months).

Data Collection Procedures

Instrument

In order to obtain rich qualitative data describing the lived experiences of caregivers of young children with hearing loss, interviews were conducted. The interviews were semi-structured and utilized open-ended questions to guide the caregivers' recollections about their participation and learning in early intervention (See Appendix B). The questions were adapted from a pilot study also conducted by the researcher to increase validity and reliability (Sampson, 2004; Creswell, 2013). The pilot study was completed early 2022. The interviewees were three parents of children with hearing loss younger than three years old who were currently receiving early intervention services from a teacher of the deaf. It sought to understand the ways that early intervention promoted learning and provided support for those interviewed. Some changes were made to the wording of questions because the participants in this research had completed their time in early intervention and some sub-questions were expanded to delve deeper into the barriers caregivers may have faced. (For a direct comparison of questions between this research and Jensen, 2022 see Appendix F.)

The interview questionnaire was organized with seven main questions with follow-up queries if the parent did not give adequate information or if clarification or more detail was needed. They were asked questions about their experiences and learning in early intervention such as "Do you believe there were benefits from your time in early intervention?" and subquestions when needed such as "Can you give me some examples of things you learned?" They were also asked about any barriers they faced to their learning and if the things they learned from their provider had made any changes to their interactions with their child with hearing loss. Those questions included: "What do you do with the information you learn?" and "Has it changed your interactions with your child?" Finally, they were asked if they had faced any barriers to using the information they had learned in their daily lives with questions such as, "Have you found it difficult to follow any of the suggestions made by your provider?" For families who indicated on the demographics form that their home language was other than English, or that their child had additional disabilities additional questions were used to delve into how these factors impacted their early intervention experience.

The interviews ranged from 24 to 75 minutes with most being between 35 and 45 minutes. All participants were primary caregivers of the child with hearing loss including 14 mothers (biological, foster, and/or adoptive) and one father.

Data Analysis Procedures

All recorded interviews were reviewed and a transcript was created for each interview. Although the interviews were both audio and visually recorded, only the audio recordings were transcribed by a transcription program. To ensure the accuracy of the transcription of the interviews, the researcher listened to each interview while reading along with the transcription (Burkholder et al., 2020). After each respondent's transcript was corrected for any errors, the transcripts were then emailed back to the participants to review for accuracy and as a reflection of their experiences. They were also asked if they had anything additional they would like to add. This member checking was used to improve the validity of the study (Creswell & Poth, 2018). The participants reviewed the transcripts, and only spelling or grammatical errors were noted with the exception of Isabel who noted that the transcript said that her child "did not fail the newborn hearing screening" while she had stated that he did fail the screening, and Zoey who clarified the difference between her services from birth to 2, and those after age 2. Those changes were made within the transcripts before any analysis began. All other participants indicated that the transcripts reflected their answers to the interview questions.

Once the researcher received the participant's approval or edits, the transcripts were read through again, scrubbed of all identifying information including, removal of any mentions of the caregiver’s, child’s or provider’s names, and changing of a specific location to a broader location. These substitutions were recorded in a document titled “Dissertation Code Book” and kept on a password protected laptop. Transcripts were read through in their entirety a third time. The analysis of the data was an iterative process. First, a deductive approach was used to search for themes. Notes were taken and memoing was done based on previously identified codes (Agar, 1980; Burkholder et al., 2020; Creswell, 2013). Memoing was also done to avoid drifting codes and allow for inductive coding if needed. Epoche, the suspension of any judgment, regarding the experiences of the participants was utilized as significant statements were explored. The researcher searched for particular ideas that numerous participants mentioned, read through and noted quotes shared, and marked any other observations and details during interviews that were relevant to the research questions. The personal experiences of the interviewees were used to develop themes related to parental learning, barriers to participation, and carry-over of skills learned.

Next, the interview data analysis procedures involved uploading the 15 interview transcripts into NVivo. Once all transcripts were uploaded, line-by-line coding was used with an integrated approach. This integrated approach included a deductive and inductive analysis approach (Creswell & Poth, 2018). The deductive codes of “caregiver learning”, “barriers to participation”, “carry-over of skills learned” and “areas of needed supports” were derived from the literature as well as the research questions. Additionally, the inductive codes of “parent-to-parent support”, “expertise of professionals”, “parent research”, “caregiver empowerment”, “caregiver coaching”, “intentionality”, and "strategies learned" were developed through reading the transcripts, noting significant statements, and exploring commonalities.

Threats to Validity and Reliability

Reliability implies that the results of a study are consistent and would be similar no matter how many times the study is performed (Creswell & Poth, 2018). Validity speaks instead to the idea that the researcher measured what they set out to measure (Creswell & Poth, 2018). Peer debriefing (Creswell & Poth, 2018) was utilized with the researcher's Dissertation Committee in order to reframe questions, format the survey, and provide potential participant connections before the interviews began. Validation strategies undertaken in this study included generating rich descriptions including quotations from caregivers, peer debriefing, member checking, as well as considering researcher bias and reflexivity (Creswell & Poth, 2018).

Member checking was utilized as a guard to validity by sending transcripts to the interview respondents as well as aligning the deductive codes with those discovered in previous literature. Member checking was also employed during the interview when the researcher summarized the respondent's answer before asking another question.

Researcher Bias and Reflexivity

The researcher is both a parent of a deaf individual (and thus has participated in early intervention personally) and an early intervention provider. These attachments to the field of deaf education and early intervention are precisely why this dissertation subject was undertaken as discussed in the "Personal Context" section of Chapter 1. However, as this personal affiliation could influence the data collected in interviews as well as the interpretation of it, the researcher's reflexivity was acknowledged and attempted to be controlled for throughout the entire dissertation process by bracketing (Creswell & Poth, 2018). This process was done by acknowledging the researcher's background and biases as well as informing the participants of these connections to deaf education and early intervention. Additionally, the researcher discussed the emotions that interviews and answers given by participants brought up in the research with other professionals in the field of deaf education but not the content of the interviews.

The participants were all personally unknown to the researcher but as the field of deaf education is quite small, it is very likely that they shared connections through colleagues, social media, or parent support groups. The participants were also made aware of the researcher's vocation and relation to the deaf community through parenthood.

Sampling Bias

Because this research utilized nonrandom sampling there could be issues of possible sampling bias (Creswell & Poth, 2018; Burkholderet al., 2020). However, the use of non-probability sampling was necessary to ensure that all selected participants met the inclusion criteria.

Caregivers were recruited from all regions of the United States and were enrolled in a variety of public and/or private intervention programs. Recruitment materials were shared digitally, via social media targeted at caregivers themselves, as well as shared in forums for professionals in the field of deaf education. Furthermore, paper copies of the recruitment flyer were shared with several intervention coordinators to share with their providers and families served. After finishing each individual interview, the researcher used snowball sampling by asking the participants to share the information with other families they knew who might be eligible to participate.

Since the interviewees self-selected their participation in the research, the demographics of the participants do not align with those of the general public or of caregivers of children with hearing loss in general. African American children represent 14.8% of the general population in the United States and 16.8% of children with hearing loss but only 1 participating family indicated that their child was African American, reflecting only 6.6% of respondents. Additionally, Hispanic children account for 14.2% of the general population and 16.3% of children with hearing loss while, again, only 1 caregiver reported being Hispanic/Latin, thus only comprising 6.6% of the sample. White children represent 66.3% of the general population and 63.0% of the children with hearing loss while in this sample the percentage was 73.3% (Scott, 2005).

While income statistics for caregivers of children with hearing loss were not available, the participants in this research could be compared to the United States as a whole. No caregivers reported a household income under $35,000 per year, whereas 25.4% of the population were in the category in 2021 (US Census Bureau, 2021). While only 19.9% of US households reported an income of >$150,000 per year, 80% of the respondents selected this tier of income. This indicated that the population participating in this research were significantly whiter and wealthier than the United States at large. Additionally, since all communication with the participants was digital, families without access to high-speed internet or a reliable device to participate in a Zoom interview were automatically disqualified.

Communication modalities of very young children with hearing loss are often changing and caregivers and professionals may disagree about how to label them. The caregivers in this research were not asked what communication modality they and their child used but were asked the primary language used in the home and in intervention. After each interview, the researcher determined which communication modality was described by the caregiver in their daily lives and the information is shared in Table 8 and compared to national data on language use in early intervention (White, 2018).

Table 8

Communication Modalities

Communication modality	In Research as reported by families (White, 2018)	Reported by parent-number	Reported by parent-percentage	Indicated in interview-number of participants	Indicated in interview-percentages
Listening and spoken language only	49%	13	86.6%	6	40%
Sign Language only	3%	0	0	0	0%
Mostly Listening and spoken language with occasional sign	17%	0	0	6	40%
Mostly Sign language with spoken language support	3%	1	6.6%	2	13.3%

Communication modality	In Research as reported by families (White, 2018)	Reported by parent-number	Reported by parent-percentage	Indicated in interview-number of participants	Indicated in interview-percentages
Equal part spoken and signed language	14%	1	6.6%	1	6.6%
Other	13%	0	0	0	0%

Conclusion

In this qualitative dissertation study 15 caregivers of young children with hearing loss ages who had recently finished birth to three services reflected on their experiences and learning in early intervention through an open-ended, semi-structured interview. These data were analyzed for themes to understand the families' experience, their perceived learning in intervention, and any barriers they faced.

The methodology used in this dissertation was described fully in this chapter. This included the setting, participant demographics, interview protocol, data collection, and analysis procedures. Threats to reliability and validity were also included within. The results of this investigation will be discussed in the following chapter as well as how these findings answered the research questions posed within this dissertation.

Chapter Four

Analysis and Results

Introduction

The previous chapter described the methods and procedures used in collecting and analyzing data obtained for this dissertation. This study used a qualitative, phenomenological research design with semi-structured interviews using open-ended questions for the data collection. The participants were purposively selected for this study based on the recruitment criteria. The participant recruitment, data collection methods, and data analysis procedures were previously enumerated. And finally, the threats to reliability and validity were also discussed.

Analysis Introduction

The entirety of this dissertation was focused on understanding the lived experiences of caregivers with young children with hearing loss and their experiences and learning in early intervention. The data herein seeks to provide an appreciation for these experiences through the words of the participants (Creswell & Poth, 2018). The analysis is organized according to the themes, beginning with the deductive codes based directly on the research subquestions followed by the inductive codes which were derived from significant statements made by a number of the participants. Together this is known as an integrated approach to coding (Creswell & Poth, 2018).

This dissertation illuminated the lived experiences of the 15 caregivers of deaf children interviewed. Several broad themes were discovered as commonalities in the lives of the participants. The deductive codes were based on previous literature as well as the researcher's reflexivity as an early intervention provider. The deductive codes used were:

benefits of early intervention, barriers to intervention and carryover of learning, changes to interactions with their child, and areas of additional need. Additionally, to ensure that the lived experiences of the participants were fully captured, the researcher was open to new codes and an inductive approach discovered the codes: caregiver advocacy and concerns about the future. The following chapter will discuss the six codes determined for this research.

The interviewees discussed the specific knowledge they learned in early intervention (coded as benefits of early intervention) as well as how their learning in early intervention shaped their interactions with their child (coded as changes to interactions). Many of the families also discussed the barriers they had faced to obtaining intervention and to using the things they had learned in their sessions (coded as barriers to intervention and carry-over of learning). Caregivers also shared things they felt might have helped them during the birth to three stage (coded as areas of additional needs) as well as how they had advocated for their child's needs during their time in early intervention (coded as caregiver advocacy). Finally, many caregivers expressed their anguish about how things might have been different for their child if they had made different decisions (coded as what ifs?). The following chapter will outline the data obtained as well as some findings about the experiences of the individuals interviewed in their early intervention program.

Table 9

Themes

Benefits of EI	Barriers to Intervention and Carryover of learning	Changes to Interactions	Areas of Additional Need (wishes/ future)	Caregiver Advocacy	What If's
Caregiver Emotional Support	Lack of Expertise/ professionals	Intentionality	Parent to Parent Support	Caregiver research	What I wish had happened
Caregiver Education	Logistics- scheduling, distances, work, price of services	Specific Language Strategies	Deaf mentors- for all modalities	Choosing new professionals	What could have happened
Connection to other families	Insurance/ bureaucracy	Empowered in habit		Go with your gut	
Professional expertise	Illness/ additional needs				
	Misdiagnosis				
	Caregiver emotions				
	Lack of caregiver knowledge				
	Covid 19 and teleintervention				

Research Questions

General Research Question

What are the lived experiences of caregivers of children with hearing loss who have recently transitioned out of birth to three services with regard to the implementation of the information learned in early intervention?

Reliability of Data Analysis

The data for this research were obtained through 15 in-depth interviews conducted via distance technology, with caregivers of a young child with hearing loss. All of these families had recently completed their participation in an early intervention program designed to develop language in children with hearing loss. The transcripts of these interviews were emailed to the participants for member checking. They were then coded using an integrated approach (Creswell & Poth, 2018). A number of themes were found from both inductive and deductive coding. The deductive codes were drawn directly from the research questions while the inductive codes were derived from significant statements made by a number of the respondents which, when taken together, emerged as meaningful.

Researcher reflexivity and subjectivity always impact the reliability of any qualitative research (Creswell & Poth, 2018; Patnaik, 2013). As both a parent of a child with hearing loss who received early intervention and a provider of those same services, the researcher’s perspective and experiences guided the development of the researcher’s problem of practice as well as this dissertation. However, this background could influence the interpretation of the responses provided. As a check for validity and reliability, a member of the researcher’s dissertation committee and an expert in qualitative interviewing of caregivers served as an auditor. The researcher also bracketed personal feelings about the responses given by interviewees before, during, and after data collection and analysis in order to truly have the voices and experiences of the participants understood (Chan et al., 2015).

Data Analysis Procedures and Results

Interview transcripts were read multiple times and themes were developed based on an integrated approach (see Table 9). The discovery of themes and codes was an iterative process. Transcripts were read and coded a number of times exploring the ideas that were said in a variety of ways by a number of the caregivers. A committee member with expertise in qualitative research acted as an auditor to confirm both the inductive and deductive codes. An integrated approach to coding allowed the researcher to begin with a number of codes derived directly from the research questions, while still allowing other significant statements that may emerge to be coded in order to capture the reality of the experience of the phenomenon (Burkholder et al., 2020).

Research Subquestion One. What benefits, if any, do caregivers of children with hearing loss report from their time participating in early intervention?

Themes About Benefits of Early Intervention

Caregiver Emotional Support. The first and most prevalent theme was that of support. All of the caregivers stated that the thing they appreciated most about early intervention was the support they received as parents. They discussed feeling overwhelmed and “not knowing what to do” but expressed that their early intervention provider was available to give not just knowledge and practical advice but also emotional support and direction. This idea was touched on by every participant, with it being the most extensively voiced by all caregivers.

Dan the father of a son with genetic hearing loss and some additional health concerns stated “So first, is the reassurance. Like, he is doing well, you are doing the right things.” And “Donna spent extra time with us and helped coach us through scenarios, we couldn’t have done it without her support and experience.” Elizabeth, a mother who chose listening and spoken language for her daughter with hearing aids, agreed and said about her early intervention provider:

> She was an ear to listen as I figured things out, as we just needed some support to help Emma best. We didn’t feel like we were alone. We felt like if we needed help we had someone who was informed and could help us.

Even Felicia, who had experience as a provider in the field of children with hearing loss mentioned the support she received from her interventionist, “It was good to have somebody that understood what we were going through a little bit.” Victoria, a mother of a son with a cochlear implant who speaks and signs, said about the Deaf mentor services she received, “I felt like she was there more for me than for Victor, especially when he was a little baby. Sometimes he would sleep through our sessions. So, the mentor was really for me and for my husband.” Ursula, the mother of a daughter with a progressive hearing loss who ended up needing cochlear implants, spoke about support from their entire team, “Being new to all this, just being new to hearing loss, we really had no idea what we were getting into. The (private listening and spoken language program we chose) was like an amazing partner.” Heather, the mother of a son who received both spoken language and sign language interventions, summed up the emotional support provided by her providers like this:

> They were almost like a therapist for me, as a mom too. They have obviously walked this road before with many parents and I was able to ask many questions and they were able to …kind of give me options and direct me, just because this was a completely new journey and path I didn't know anything about. So, yeah, they're obviously offering services to my child, but almost just as much to me as a parent.

Caregiver Education. All of the participants also mentioned the education they received about hearing loss, the coaching from the providers, as well as the specific strategies they learned as benefits of participating in early intervention. Victoria said, "I learned about like, honestly, what a cochlear implant even did…and how they work." Heather learned about cochlear implantation and what was available in their local community expressing:

> I learned from them the process it was going to take to get the cochlear implant surgery and what that looked like and learning about the different options of devices and like, additional resources and playgroups and people to meet up with.

Courtney speaking about her child with additional needs said that the team told her, "Let's follow her lead but we're going to give you the tools to do so." Elizabeth mentioned learning about caring for hearing devices and how to keep hearing aids on a very young child. She said, "She helped us navigate like pilot caps, and we did ear suspenders for a while. And how to get the earmolds in properly and how to clean them."

Samantha, the mother of a child born with a congenital virus that causes hearing loss and additional disabilities and a person from a cultural and linguistic minority, spoke about having help navigating the bureaucracy of insurance and the need for caregiver education about services and even the jargon used by professionals. She expressed, “They really gave me the language needed and…answered those questions.” Ursula also talked of learning the language of the professionals:

> I mean translating it for us…If you’re not, if you don’t have any experience with hearing loss, this stuff is gibberish. They were amazing at talking us through, you know, what kind of hearing loss she has, the level, you know, the degree of her hearing loss, and that sort of thing. But then the parent educator would follow up with us later and ask if we had any follow-up questions.

Whitney, who had to seek out services via teleintervention because there were no local providers, summed up her feelings about the information and education she received from her providers like this, “Now, of course, without them, I couldn’t do anything because I don’t know what to do, you know?”

Caregiver Coaching. Many of the caregivers shared how their provider coached them to develop the skills they needed to build language in their child with hearing loss. Elizabeth described the role of both herself and the early interventionist:

> So, yeah, there was definitely like, technical support and direct teaching to Emma, but…Ella’s role, all the technical training she did was to teach us how to do it. That was how I saw it. A lot of training us as parents.

Heather saw the role of the provider this way:

> She was teaching the parent because we are the ones who have to carry it on the rest of the week when we are not with her. We get one hour with her one time a week and then we are the ones who are really, you know, working with our child to develop these skills. So, she, although was playing with him, was constantly communicating to me the meaning and tactics behind what she was doing.

Brittany, the mother of a daughter who used ASL before her cochlear implants and spoken language after, also expressed her thoughts on parent coaching, “I feel like I would have been very lost without them kind of training me along the way.” Dan discussed his role as the caregiver participating in early intervention sessions this way:

> I feel like our role was to be present and engaged. To provide kind of transparent views as to what we’re seeing and hearing and observing…outside of when Donna would come. And then to ask questions and make sure we are getting as much as we could out of the services.

Rachel, the mother of a daughter with hearing loss due to malformed cochleas who received cochlear implants phrased it like this:

> They would impart to me and then I would interact with Riley…I’m the student and then I’m trying to pass my learning through to Riley…Teaching me, you know, what I needed to know to make sure that Riley was learning.

Not all participants were as pleased with the coaching model of early intervention. Zoey spoke of the services she received via the coaching model:

> They would demonstrate a skill or a technique by doing it with Zachary. But it would always be in the mode of modeling. So, like, you can do it. And then trying to come up with…what do you want to do? What’s your goal for the week? What

> do you want to take away from this session and like, incorporate into your routine? It's just not enough…that isn't helpful.

She was enrolled in a large ASL Deaf school that provided direct services starting in infancy at the campus of the school and she preferred that service delivery model. She explained, "There is heavy teacher of the Deaf interaction with the child, signing directly to the child, helping the child participate in the activities with classroom materials." She attended with her child two mornings a week for three hours a day, as well as having a mentor come to her home as a part of a shared reading program and attended ASL classes for parents two evenings a week. In total, Zoey estimated that she received intervention from the school 30 to 40 hours a month. When asked about services to develop listening and spoken language, she reported that those happened as a pullout service during the sessions at the school. They were also provided as a direct service to the child with hearing loss. Zoey explained, "They would encourage us to do it at home but it wasn't like, 'What are you doing for homework?'...it didn't have the same pressure that the coaching model creates." She ended with this statement about coaching:

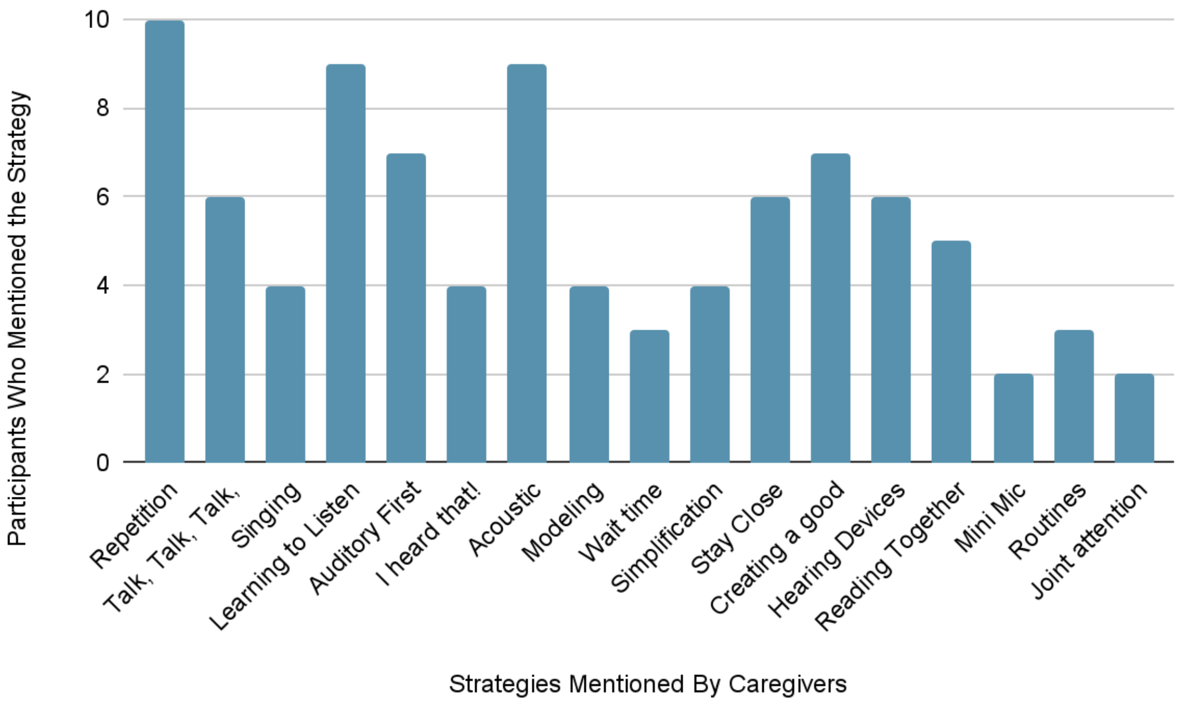
> So, I just didn't find, particularly the coaching model, when it was just her telling us, usually me, like what to do, or giving suggestions. Like it was exhausting and not useful. So, I think that's why we stopped (those) services before they were expired because of age.

Specific Strategies Learned. All the caregivers interviewed were able to share specific strategies they learned to aid in developing language in their child with hearing loss (see Figure 2). It should be noted that the strategies named or described by the interviewees are considered lower-level language facilitation strategies (Cruz et al., 2013;

DesJardin & Eisenberg, 2007). While some used specific names for strategies, such as Whitney and Zoey stating they learned about “joint attention”, others caregivers simply described what they had learned like Victoria when she said, “We learned about different exercises that he can do to practice listening with animal sounds [coded as Learning to Listen Sounds/Ling Sounds]...And even like the phrases to say ‘Oh, I heard that!’ just to model that we were listening and that we were hearing.” Dan summed up his learning in this way, “It really felt like it was to equip us with some of the tools to understand what to look for, how to engage in meaningful ways to help David’s development.” (See Appendix G for explanations of the individual Listening and Spoken Language Strategies).

Figure 2

Strategies Mentioned by Caregivers



Connections to Other Families. Many families indicated that their early interventionists connected them with other parents with children with hearing loss, provided direct opportunities to meet other families with children their age, or referred them to organizations for parent-to-parent support. Out of the 15 caregivers interviewed 10 mentioned being connected to other families in some way. Elizabeth said that the "social component" was vital to her:

> Like Emma meeting other kids with hearing aids and cochlear implants and other devices. I remember early on, asking the private listening and spoken language program we chose if there were any other families who were willing to share their information so that we could do a playdate. Not only for the kids to see each

> other, but for me to have another parent to talk to. Because I didn't have anybody to talk to who was going through what we were going through.

Jillian mentioned that the family connection was part of the purpose of their intervention services:

> Well, for us personally, two things: we want him to have a community, and the one we've gone through is very community-based. They do a lot of events where they try to get the families together. We don't have anyone close to us that we see regularly that has any hearing loss or wears hearing aids or cochlear implants. And so, we wanted to get Jacob into that. So, he would see other people who were also wearing them.

Victoria also had a provider who emphasized the importance of families connecting:

> She (the early interventionist) taught like a baby group, like once a month, where all the families who were in early intervention could go to the center and sing songs and get to know each other and learn different things.

Zoey, who had services from the Deaf school, in a classroom setting, with other families, reiterated how important she found the connections with others:

> But I would be in a classroom with five or six Deaf adults (all the other caregivers and the teacher were all Deaf) where I could just ask any question I wanted. There was space for me to ask how to sign whatever thing. Or anything I've been curious about. How the language works or learn about Deaf culture.

A number of caregivers also mentioned connecting to other families through social media groups. Ashley used a Facebook group to ask about games or activities she could be doing with her child with hearing loss and ended up being referred to a private listening and spoken language school and changing early intervention providers. Brittany said that online parent groups helped her learn information while she was unable to get services during the Covid-19 pandemic. Dan was also connected to a provider through social media and another family of a child with hearing loss. Elizabeth stated that she used a social media group to help with needs like troubleshooting devices or ideas for specific behaviors. Heather mentioned that she was frustrated because she hadn't heard back from the early intervention program after her son was diagnosed with hearing loss, so she searched for parent groups online and within a few hours she was connected with someone in her state's system and assured that she would be receiving services straightaway. Rachel mentioned that she tells families online that if they "have access to an auditory verbal therapist, definitely have one!"

While it is clear that many of the caregivers in this study have found support and family-to-family connection through social media, this trend may be more prevalent in this sample because many of the participants were contacted and recruited through these channels specifically. Therefore, this particular point should be viewed with caution and may not be relevant or applicable to all caregivers of children with hearing loss.

While many caregivers were able to connect with other families of children with hearing loss, not all had the chance. Those who desired that opportunity but were unable to find support will be discussed in the section titled "Additional Supports Needed".

Professional Expertise. The importance of professional expertise and knowledge of language acquisition in children with hearing loss was voiced as important to every caregiver interviewed. The subject was mentioned through the participants identifying that they had either worked with providers who had the proficiency and experience needed to support the family and the language development of the child with hearing loss or that they did not have access to a professional with those skills. Many of the caregivers explained how they began with an interventionist who did not specialize in children with hearing loss but changed later in their journey (see Table 10).

Table 10

Participants' Access to Professional Expertise

Participants who began intervention with a professional with specialized knowledge	Participants who began intervention with a professional without specialized knowledge but changed to a more specialized professional	Participants who never had access to a professional with specialized knowledge locally
Brittany	Ashley	Samantha
Courtney	Felicia	Whitney
Dan	Jillian	
Elizabeth	Rachel	
Heather	Victoria	
Isabel		
Ursula		
Zoey		

Caregivers who had access to a skilled professional from the beginning of their time in early intervention discussed how pleased they were with the quality of services they received. Ursula began their services with both a private listening and spoken language school for children with hearing loss and their local early intervention system. She spoke about the importance of expertise when she stated:

> Even during those meetings with the state early intervention provider system, you know, they cover a wide range of needs for kids, not just hearing loss, so they

> might not be as versed in what she needs. But by having the private school we chose at the table in those discussions, they could say what she needed. We all worked together to get what she needed.

Brittany was offered more sessions if they were willing to meet with someone who did not specialize in working with children with hearing loss. She said:

> The SLP [Speech Language Pathologist] we only saw twice a month. She was the only one in our area that had a LSL [listening and spoken language] background. And so we wanted to be with her even though we could only see her fewer times than… we could be with someone weekly that did not have that background and training. I was totally happy with that decision and was very happy with her. Obviously, I would have liked to see her weekly, but that was her availability. So, we went with as much as we could get her.

Other families were not as lucky. A number of caregivers discussed beginning with a provider who didn't have the knowledge or skills they needed or who didn't meet the needs of their child and family. Ashley felt as though the first provider they worked with was unprepared and their sessions weren't providing any benefit. She put it this way, "When we would leave the sessions, we would kind of like not really know what we actually did or what we actually worked on." But when she worked with her new provider:

> There just seemed to be an overall, like goal. She seemed like she knew what she was doing. She came with a purpose. And if something didn't happen, she was able to pivot. She always had like, one, two, or three plans.

About the first early interventionist, Brittany said, "We don't have any experience with hearing loss, and I don't really know what we should be doing. Like, you need to guide us a little more and let us know what you should be doing."

Zoey chose an ASL Deaf school with a direct service model of service delivery. She had access to other specialized interventions as well, but it was through parent coaching. She eventually declined those services because she did not feel that they met the needs of her family:

> I don't know how much I learned from Zelda. But it didn't, we weren't making any progress towards any spoken language or listening goals. And it got to be too much. So, at some point, we just stopped all that.

While not all caregivers made the same choices about the types and frequency of intervention, they all discussed the need for skilled professionals. All of the participants believed that the knowledge of the providers they worked with and their access to an individual with familiarity with childhood hearing loss and its impact on language acquisition was a benefit they received during their time in early intervention.

Research Subquestion Three. What barriers to the implementation of learning from their early intervention sessions do caregivers of children with hearing loss identify, if any?

Themes about Barriers to Intervention and Carry-over of Learning

The caregivers interviewed identified a number of general and specific barriers they faced to learning skills in early intervention and then using those skills to develop language in their child with hearing loss. These included a lack of access to professionals who understood hearing loss in very young children, the logistics of meeting with professionals on a regular basis, their own lack of knowledge or experience with hearing loss, having a child with additional medical needs or disabilities, misdiagnosis or mistakes made by other professionals, insurance or other bureaucracy, the Covid-19 pandemic, and their feelings and emotions about the diagnosis of a hearing loss in their child.

Lack of Access to Professionals or Expertise. For families who had to seek out a professional with the requisite education, they noted this as a barrier to their learning in early intervention and their ability to utilize the strategies needed to help their child with hearing loss learn language. Brittany spoke about having to change providers because they did not have the required knowledge, “It was almost like a breakup with our local early interventionist. She was so nice, but it really wasn’t working out.” Whereas when she discussed the program that the family switched to she said, “When we learned about her philosophy, we realized that that lined up closer to what our goals were for our child and our family.”

Victoria started with one speech pathologist who had never worked with a child with hearing loss before. She was frustrated because “there were times that I felt like I was educating her”. She finally changed providers saying:

> I’m so glad you’re learning but I don’t want you learning on my son. It took me almost a year to get to the point to say I would like a change in my service provider. Because she was a nice person, but I felt she did not understand how to treat a baby with hearing loss.”

One caregiver realized very early on that she would have to search for knowledgeable professionals outside of the rural area where they lived. Whitney expressed, “Where we live, there’s really like no services. There’s like really nothing. There was no resources, even with her being in the system. They didn’t have any resources so I kinda went out on my own.” She found a system of private listening and spoken language schools and began services with them via distance technology. “So, we had therapy four days a week. Two days it's an hour a piece, the other two days is an hour and a half apiece.” She was able to convince the local school district to contract out and continue with the specialists she was seeing, even after the child turned three.

Felicia discussed the struggle of working with a speech therapist who had no experience with a child with hearing loss:

> She never had any experience with a deaf child. So, she didn’t know any signs. So, I ended up firing her. I felt bad because I don’t like to fire people. I noticed that the speech therapist just brought an iPad and like was having him push a button and say it. I was like, dude, he’s two! That’s not gonna work.

She also noted a mismatch in goals saying, “She was really wanting us to do more sit and drill. And like, she even requested when she came in to have him sitting at the table. She wanted to do, like, table time, at two!”

Mismatch with Professionals. The theme of disagreeing with professionals or professional advice was also mentioned by the participants. Many of the caregivers had examples of times when a professional had made a recommendation that they disagreed with, such as school placement, using sign language, or seeking additional speech and language services. Courtney mentioned that her family had opted not to pursue cochlear implants for her child because of additional health concerns and so some of the providers had pushed against that decision. Ashley, Isabel, Dan, and Jillian struggled with bad advice about hearing devices early on. They stated that they had not understood the importance of wearing the hearing aids all waking hours, but after they received additional information they regretted not starting earlier.

Two caregivers discussed personality clashes with their early interventionists. Ashley said that her first provider was “Really friendly. She just talked too much. I think just her overall, kind of lackadaisical attitude was not beneficial to us.” Brittany also struggled with her provider’s attitude. She related that “There were sometimes when I felt like she was a bit too personally chatty with me…I felt like some of our therapy time would end up eaten up by stuff that didn’t have to do with therapy.” Rachel had the opposite problem with her therapist:

> I think it's just her personality. Rosanne was like, ‘Look, if you want her to succeed, this is what you need to do.’ Some providers come in and they’re so kind and caring, and it just kind of, I don’t know, kind of took us aback, like, she’s kind of harsh.

But Rachel decided that the family would continue with the services because of Rosanne’s expertise. She said that knew of other families who “didn’t continue with AVT services because of (Rosanne’s) strong personality, which is unfortunate because they just didn’t succeed as well because she wasn’t a part of their lives.”

A number of caregivers had professionals who focused on listening and spoken language but the families had chosen to use some sign language as well. They talked about this mismatch in goals being a barrier in some circumstances but overall the interviewees felt as though the decisions of their families were respected by the providers they worked with.

Logistics. The caregivers interviewed also noted a number of barriers to their participation in intervention that were logistical in nature. The hurdles included scheduling times that worked for their family and the provider. Dan stated that the biggest challenge his family faced was “scheduling and coordinating of calendars and sessions.” Elizabeth said that her parent advisor would come “an hour a week in person, she would come to our house” and that “she joined our family dinner a lot of the time.” Ashley had a teacher of the deaf who “would come to our home on, like Saturdays or Sundays and on the weekends. Ideally, she was supposed to come once a week, but we were really only getting services about once a month.” The family chose to continue in this way because of the skill of the provider stating, “She gave us enough and she was just so phenomenal that I felt like it was ok.”

Another logistical barrier was the distance from services. As noted previously, not all caregivers had access to knowledgeable professionals in their local area. Some caregivers dealt with this issue by seeing their providers less often, such as Ashley and Elizabeth, and others such as Isabel and Whitney received all services via distance technology. Ursula put it very succinctly, “We did have to make a lot of sacrifices to get her all the services she needed.”

Other logistical concerns mentioned by participants included being working parents- including one parent who decided not to return to work full-time so that they could attend therapy, the price of services, and just the overall struggle of getting into the system.

Insurance or Other Systemic Bureaucracy. While the purpose of Part C of IDEA is to provide access to early intervention services as soon as a child is found to have a disability or developmental delay, it is still a bureaucracy and a system with many parts and pieces. Samantha discussed the struggles she had in coordinating care for her child while moving across states. “There is a lull because it took six months to just get established. And if I wasn’t pushing or calling every week, and I know it would have been worse.” Samantha and Zoey discussed that many providers run on a school calendar so evaluations and services are only available to happen during those months so services often stop during the summer. Heather noted that the most frustrating part for her was getting into the early intervention system, “As a parent who received this diagnosis and wanted to take quick action, it was really hard, like waiting for, you know, those case conference meetings and the evaluation, and like, getting in the system.”

Additionally, some early intervention systems bill insurance so services may not begin until that paperwork is filled out and approved. Brittany encountered this, “We did start with an SLP but it took a little longer for the paperwork to go through because of the way EI did the billing. And our insurance was a little bit of an issue with that.” Rachel put it this way, “I’d guess probably three months to get in. It was a process to get going. Lots of paperwork. Making sure we’re connected to the right person. So, it took a bit to get going.”

Other caregivers mentioned turnover or having multiple therapists who come and go. Several participants mentioned working with a number of different professionals in the same role across their three years in early intervention. They expressed disappointment about time lost due to changes in staff even when they were otherwise pleased with the services they received.

Additional Medical or Other Needs. Approximately 20-40% of children with hearing loss have additional disabilities or significant medical needs (Cupples et al., 2014). In this sample, five out of the 15 caregivers (33%) interviewed indicated that their child had an additional disability. These ranged from syndromic causes of hearing loss to congenital exposure to a virus that is known to cause hearing loss which often impacts all domains of development. These conditions can often impact the development of language in children with hearing loss (Cupples et al., 2014; Wiley, 2012) and can change the needs of the child and family. While all of the caregivers who reported that their child had additional disabilities stated that their providers understood the impact of their needs on overall development, not just speech and language, none of them felt that these needs added any additional barriers to their learning or the use of the skills and strategies from their intervention.

Still, there were a few families that had added needs outside of their hearing loss that were not disabilities. Felicia and Whitney had adopted their children with hearing loss. Felicia noted that her child's traumatic background meant that they were facing things that weren't always present with other children with hearing loss. When asked if her providers understood the impact of trauma on development she flat out said no. She said she was sure to share his history with his providers but that, "I even still questioned…is this because he's deaf or is this because he went through foster care and trauma? And I'm like, is it sensory or is it trauma? Or is it deafness?" When asked specifically if she felt as though the professionals working with her son had the knowledge and expertise to work with him, she stated, "To find a provider that knew deafness and trauma, good luck!"

Victoria’s son Victor and Whitney’s daughter Willow both faced revision surgeries due to cochlear implant failures, one due to infection, the other related to a recalled internal device. However, they both expressed thankfulness for the knowledge and support that their early interventionists provided during these periods. When asked if she believed that the professionals she was working with understood how the cochlear implant failure and reimplantation affected her child’s speech and language development Whitney emphatically declared, “Yeah, yeah, I would say they probably understand more than we did. Just because they've been there, they've seen it, they've experienced, for us, you know, this is it. We didn't have anything to compare it with.”

While there were a number of families facing additional disabilities or needs during the first three years of their child with hearing loss’s life, these caregivers did not report any additional barriers to learning from their providers or integrating that learning into their daily lives.

Misdiagnosis. All of the caregivers in this dissertation indicated that their child with hearing loss failed the universal newborn hearing screening in the hospital. However, the age of diagnosis of hearing loss varied wildly. Dan’s child was the youngest with his hearing loss confirmed at less than one month of age while Jillian’s child also failed the newborn hearing screening but was not officially diagnosed with hearing loss until a follow-up hearing test when he was nearly three years old. He had already been receiving early intervention services for a speech and language delay before his hearing loss was confirmed and he was fit with hearing aids. This misdiagnosis or late diagnosis of hearing loss was named by several families as a barrier that they faced.

Additionally, some families pointed not to a misdiagnosis but rather professionals early on being dismissive of the failed hearing screening. Elizabeth, Heather, Ursula, and Victoria were all told not to be concerned about the test results and that it was likely merely “fluid in the ears”. Victoria was told that she should follow up in three to six months and that she should not be concerned until her child failed at least three times. Ursula related that this dismissal led to a much stronger emotional reaction when she eventually received the diagnosis. She shared, “I feel like if the providers were more upfront, like after that initial referral, it wouldn’t be as catastrophic for a parent to hear that their child is deaf.”

Caregiver Emotions. Another barrier mentioned was that of overwhelming emotions at the beginning of the process. During the interviews, words like “overwhelmed”, “blacked out”, “drained”, and “depressed” were used to describe the period of diagnosing the child’s hearing loss and entering early intervention. This could be one of the reasons the parents felt as though emotional support was so critical.

Brittany shared, “It was very overwhelming at first but the EI was a huge help to me.” Elizabeth spoke about not grieving early in the journey, “I thought it would be, like, wrong or not loving my child enough or something if I was going to be sad about any part of her.” But she wanted other parents to know all the feelings were valid, “It’s ok to have those feelings, and you kind of have to work through them. You can’t push them down forever and pretend that hearing loss isn’t a deficit.” Ursula mentioned feeling alone, “In some ways, it's pretty isolating. Because, not everyone knows what this is like, or knows the sacrifices, or knows the ways in which your world has changed because you have a child with hearing loss.”

Zoey was surprised at how emotional she was in the beginning. She said that, “I didn’t anticipate how difficult it would be emotionally to do those intake sessions, where you have to go over your whole story and, like, ask you all these questions. It was, like, so draining.” She also indicated that she declined services because it was overwhelming, “We just didn’t have the capacity emotionally [to continue the cochlear implant evaluation] so we just put it on pause indefinitely at that point.”

Lack of Caregiver Knowledge. Since 90-95% of children with hearing loss are born to parents with typical hearing (Curtin et al., 2021) most families are shocked by the diagnosis of their child. All of the caregivers who participated in this dissertation had no family history of childhood hearing loss and their child was their experience with deafness. This often leads to the emotional reactions discussed above, but it often also means that caregivers feel unprepared to parent their child.

Ashley summed up her concerns this way, “Because we don’t have any experience with hearing loss. I don’t know what we should be doing.” Courtney was thankful that she had early services saying “The good thing is that we started early intervention. For us it was a godsend because the whole team pretty much showed me and guided me because we weren’t familiar with (the genetic syndrome).”

When speaking about strategies for reading together, Elizabeth stated, “I don’t know that I would have thought to do that without someone telling me that it is something that would help her.” Many caregivers spoke about previously not knowing how they would be able to help their child learn language but that through the services they received they were given concrete ways, including specific strategies, to assist in the process. Heather remarked that “I’d never been introduced to the world of speech therapy. I, myself, have never received speech services and obviously, I'm a hearing adult as well." Because the interviewee felt they lacked the knowledge and skills to help their own child with hearing loss, it is likely why they also placed such a value on the expertise of those they were learning from.

Covid-19. One barrier that all mentioned was the impact of Covid-19 on their early intervention services. The move to teletherapy, though supported by research (Behl et al., 2017; Constantinescu et al., 2014; Houston & Stredler-Brown, 2012; Kelso et al., 2009; Nelson et al., 2022; Olsen et al., 2012) was seen as a negative by the respondents who began with in-person intervention. Many of the caregivers described their sessions using distance technology using terms from "difficult, "not as good as in-person", and "not helpful" to "exhausting", and "useless". They all mentioned the Covid-19 pandemic as the biggest barrier they faced to learning during their time in early intervention.

Victoria actually went so far as to have her service providers show documentation that learning on Zoom was not successful for her son and, because of his reimplantation, he needed direct therapy. She won her appeal and her providers were able to resume in-person intervention. Many respondents talked about the struggle of keeping their child engaged in front of a computer screen, "It's obviously very hard to engage a little baby on a Zoom session" or "my daughter would kind of shut down at the video meetings" and how they missed out on extra services, such as the music classes at the school Isabel's son attended, "they got rid of that because it's hard…you know, the woman's just on zoom, playing a guitar. Kids just aren't getting anything. So they cut things like that."

The only exception to this was Whitney. Because of her rural location and lack of professionals in her local area, she began with tele-intervention. She had never had in-person services for her daughter. When the pandemic began, she was already receiving all services via distance technology. She said that the pandemic didn’t really change anything for them. “It was three years plus of zoom for us, it's just only been zoom from before she was implanted. As far as her therapy, everything has been on zoom.”

Research Subquestion Question Two. In what ways, if any, do caregivers of children with hearing loss report that early intervention sessions changed their interactions with their child?

Themes about Changes to Interactions with Their Child

The purpose of early intervention services for families of children with hearing loss, especially those utilizing a coaching model, is to give caregivers the skills to help their child acquire language (Noll et al., 2021). This is done by determining appropriate language goals, modeling specific strategies, and encouraging carryover of skills during the time outside of therapy sessions (Nelson et al., 2020). Ashley spoke of the purpose of her intervention like this, “Every single session was kind of like, ‘how do we apply that in our daily lives?’ We’re being taught how to interact with our child and being shown ways that we could facilitate language out of our child.” Courtney put it this way, “It was a lot of homework. Let’s teach. Let's practice. Let’s make sure we understand the homework for the week. But then it was, you know, every day, all day. It was my role to step up.” Jillian agreed, saying “It’s just for us to learn tips and tricks to help him at home so he’s not just doing his speech pathology once a week but that we’re trying to get him to practice when he’s at home.” Whitney summed up the role of the caregiver in language learning, “You know, they give me the tools, but I’m the one who has to do it every day…If I don't do what they told me to do, you know, then she's not going to be able to speak."

The caregivers interviewed shared some distinct ways the learning in early intervention influenced their interactions with their child with hearing loss including being intentional with the choices they made, the specific strategies they used at home, and then how the learning became a part of them and their daily routines and habits long-term.

Intentionality. Several participants spoke about how they had learned to be more intentional in their interactions with their child with hearing loss. Brittany used the word explicitly, "Again, it was just kinda making me more intentional about…speaking that way. I was just a lot more conscious of making it so she could understand me." As did Dan, "I feel like I'm more intentional about putting aside other distractions, more intentional about getting down on his level and making sure I'm confirming that he's hearing what I'm saying." He also asked himself, "What are the things we should be looking for and listening for on a daily basis?" Felicia said, "I was just more intentional about where he could pick up on the language."

Other caregivers explained the same idea with different words. Elizabeth remarked that it was important to, "make my interactions with Emma ones that will help her flourish, like to optimize the time I spend with her." Samantha mentioned the importance of being aware, "Yeah, just being cognizant of sounds he's making and knowing how to correct them." Ursula believed that being aware of her child's needs was equally as important as the specific activities and ideas given in therapy. She said, "So, I know the purpose of those sessions was to, you know, formulate a plan."

Carryover of Specific Skills or Strategies. Additionally, many of the interviewees named particular strategies and skills they learned during their therapy sessions and how they used that knowledge to develop language in their child with hearing loss. As noted in Table 7, the caregivers were able to name some of the strategies they were taught to develop language in their child with hearing loss but, in the interviews, the respondents also discussed how they integrated these skills into their routines.

Victoria talked about using what she learned in her daily life. Her provider explained that she should "do this strategy whenever you change his diaper. Do this strategy when you're feeding him." Ashley spoke about how she remembered to use the skills from her sessions, "So, basically, everything she (the provider) did or told us, we wrote on Post-its and kinda put them all around." Victoria used what she learned in her intervention this way, "So if they were singing a song with Victor (her son), I was singing the same song." Ursula stated, "We can use tools that we have at home to increase her speech or you know, her speech perception." Samantha discussed the role of the professional as well as the caregiver in making sure a family can carry over their learning,

> "So, I think my role is to just really be asking questions and asking for guidance from the professional in developing those routines or whatnot. It was like the professional's job to, like, 'Oh did you think of this? Or 'Did you think of that?' Have you tried this?'."

Empowered into Habit. As families begin to use the strategies they have learned in their sessions and change the interactions with their child with hearing loss, they begin to make the learning a part of themselves. Ashley explained, “We immersed it into our daily life. So every single moment was a listening and spoken language opportunity”. Heather spoke about making the changes part of their lives, “We could easily incorporate like ‘more’, ‘milk’, easily into our routines…Yeah, I think we really just tried to build it as much into our normal routine as possible.” Whitney talked of how the strategies became commonplace for her family, “We put them into our daily routines because we have to do them all day, every day. But really just putting them into our day, every day, you know, to make sure that she benefits the most from it.”

Brittany discussed making the strategies a habit, “We got to the point where I wouldn’t even think about it anymore.” Jillian when speaking about the way her learning carried over into their lives, “It changed how we interact with him and it changed how we help others interact with him.” Ursula stressed that this became “the new normal” saying, “But after a while, it was just what we did with her. It felt so natural.”

Research Subquestion Four. What additional services, if any, are identified by caregivers, as possible avenues for overcoming previously identified barriers?

Themes about Areas of Additional Needs or Wants for the Future

The caregivers interviewed were asked a series of questions about things they thought would have helped them be more successful in early intervention or what additional services or referrals they would have liked. The two subjects that were mentioned consistently were additional peer-to-peer support and having access to Deaf or Hard of Hearing Mentors who were like their child with hearing loss.

Parent-to-Parent Support. As mentioned in the subsection titled, “Connections to Other Families”, many of the participants appreciated that their early intervention experiences allowed them to connect to other families of children with hearing loss. Some stated that there were explicit opportunities such as a “boot camp for families” as Whitney participated in, classes for families like those held at the school for the Deaf that Zoey attended, and parent nights at the private listening and spoken language school Dan’s son attended. There is also a national organization for parent-to-parent support that some of the caregivers participated in. However, even the idea of connecting to other families was overwhelming for Victoria. She said that her providers suggested

> “To join more groups like our state’s parent-to-parent support group. That was suggested to us a lot. And to go to some of their parent events, or the mom, like, sleepover events at the hotels, things like that, I was always encouraged to go to them and I never did. Mostly because of my lack of confidence. That I felt like I’m not…I don’t know enough or I’m not prepared enough”

Caregivers who didn’t have access to these groups or a chance to meet other families of children with hearing loss expressed that it was something they desired. Even though Elizabeth shared that she had been connected individually to another family with a child with hearing loss through the private listening and spoken language school they received intervention from, she still longed for a community. She expressed, “Having, like, other people to talk to who are going through something similar, and then having friendships for Emma, before she was able to start in the school, in the toddler program, would have been helpful.”

Felicia, who had been a deaf education provider before she adopted her son even struggled with not “having a connection with other people who have gone through this…I don't know other families that have experienced this…I wish we had more of, just a connection with other kids or parents who have gone through the same things."

Courtney, the mother whose daughter Charlotte has a syndromic cause of hearing loss that affects her health and development in several ways wants to connect to families with children with additional needs. She said, "I wished I had some, a resource, that is a fit…that is a family…I'm sure that there's kiddos who are deaf and have other disabilities, right? So, I wish we had some kind of resource for that."

Deaf Mentors for All Communication Modes. Felicia and many of the other caregivers expressed that in addition to being connected to other families, they wished they had the opportunity to connect to adults who reflected the life experiences of their child with hearing loss. She explained that there are "no deaf mentors in the city where we live. I would love to just have a deaf mentor."

The Deaf Mentor program is a program where a family is matched with a Deaf adult, fluent in ASL, to teach them the language, Deaf culture, and help them understand how they navigate the world (Hamilton & Clark, 2020). This program is usually supported by a school for the Deaf. Many of the caregivers who had access to these programs were thankful for their role in their intervention. Speaking about her Deaf mentor, Heather said,

> "The benefits of the services were amazing…for deaf mentors, well, being introduced to someone in the deaf community that was completely open and welcoming to our ideas and how we wanted to raise our child, but wanted to still give us another tool to communicate with him."

However, they are not available for all families. Victoria explained, “Yeah, I’m surprised more that more people didn’t have a Deaf mentor. I don’t know how common that is…I don’t hear many people talking about them. I think that was extremely helpful to me.”

Caregivers from families who had not chosen to use ASL felt as though they could have benefitted from mentorship and guidance from adults with hearing loss as well. Ashley, the mother of a child with cochlear implants who had to seek services outside their state, noted that

> “I would love it for children that like have cochlear implants or like hearing aids, if there was like, deaf-aided or deaf CI adults that can kind of mentor you and let you know some of the things that they, you know, that they’ve gone through.”

Brittany, another mother with a child with cochlear implants desired connection with adults with hearing loss as well,

> “It would have been more helpful if the Deaf community in our area was more open to CIs. There is a local Deaf community, but they are somewhat resistant to cochlear implants, so we haven’t done a whole lot with them…That is one thing I do kind of wish we had had a little bit more welcoming of a thing there.”

Themes Based on Inductive Coding

During the iterative process of coding, two additional themes became clear. Many of the participants spoke about the need for advocacy for their child and their family. They sought out additional information, looked for better services, and explained the needs of their child in various situations during these early years. These statements will be discussed under “Themes about Caregiver Advocacy”. Additionally, a number of the respondents expressed concerns and wishes about decisions that had been made in the past and worries about the future. These feelings were coded as "What ifs" and both will be discussed below.

Themes about Caregiver Advocacy

While many of the caregivers indicated that they felt as though they were unprepared for a child with hearing loss and were uninformed about the needs of their child, it became very apparent that even as they were still learning from their early intervention providers, they were seeking out knowledge for themselves as well as making choices to support their child's needs. Felicia said that her primary role with her son Franklin was to, "Just advocate what was best for him and say, 'No, he needs this!' My role was to be his advocate and get him what he needed."

Caregiver Research. Most of the respondents began doing independent research as soon as their child failed the newborn hearing screening. Victoria became an advocate for her son Victor right from the start. She knew it was possible that he had been exposed to a virus in-utero that puts a child at high risk for hearing loss so when he didn't pass the hospital screening, she sprang into action. She related that she asked to have him tested every day they were in the hospital so that he could fail three times and they could begin the process for a follow-up diagnostic test. She then explained,

> So, luckily, we knew about [the virus] because of our experiences with our OB. We were like, nope, we are taking this very seriously. We knew this was one of the leading causes of deafness in children, like, we're not waiting three to six months.

Jillian said that she recommends that families in the early days of diagnosis should begin,

> Just gathering information. I would suggest that you gather as much information as you can…It's helpful to just get as much information from as many people who have the experience as you can. Because then you can ask the questions that, that you need, for your own piece of mind.

Often that began as a google search for schools that serve students with hearing loss as Elizabeth and Zoey did or searching for social media groups for parents of children who use cochlear implants as Helen found on Facebook. Ashley began by asking a Facebook group what kinds of activities other families were doing with their children but eventually was connected to a new provider and school.

Courtney felt as though her daughter needed additional support for her communication skills, so her family began seeking out resources to learn ASL as well as learning how to use the AAC device that her interventionist had provided. Since Charlotte had a genetic disorder, Courtney sought out and found developmental milestones for that syndrome.

Samantha spoke of how her role as an advocate for her son Samuel was uncomfortable for her at first. She said, "Ok, what kind of questions do I need to ask to be able to get the help I need? Because I don't know…Yeah, I'm new to all this. And so, like, me being brave enough to ask them." But as their children grew, the caregivers discussed how their advocacy grew to include their family members, as well as teachers and others in their child's community. Jillian mentioned that she and Jacob's whole family "Always make sure now that we let people know so when he does sports or anything like that, we just let them know that he has some hearing difficulties." Ursula talked about her role even within their own family,

> We have a big family, like, extended family. So, whenever we all get around together, it's loud…If someone is trying to talk to Unity…I knew enough to say, you know, like, you either need to be closer to her or in front of her where she can see your face. Try not to mumble. That sort of thing.

As these caregivers gained confidence in their knowledge about their child's needs, some saw that the professionals they were working with did not have the expertise or competence to help the family meet their goals. This often led to the caregivers advocating for their child by seeking out new providers.

Choosing New Professionals. Not all early interventionists have the skills to help guide parents in helping their child acquire language. Frances was initially assigned an SLP as her primary early intervention provider. She explained that she asked, "Has she ever had any experiences with a deaf educator or a deaf child? She did not." As this professional began to work with her son Franklin she realized that it wasn't a good fit. Frances said, "I had issues with her, ended up firing her. But I felt really bad because I don't like to fire people." She realized that she needed to advocate for her son by making a change in interventionists. Frances then asked to be paired with a deaf educator. She stated,

> So, I think getting a deaf educator made me feel better and had someone to like go, "What do you think about this?", "What do you think about that?" So it was good to have somebody that understood what we were going through a little bit.

Zoey, the mother who chose services at the ASL Deaf school advocated for her son Zachary's needs and her family's desired outcomes with a variety of service providers. The first time she spoke up about their needs was at the very beginning. She said, “He did end up getting a speech therapist, specifically who had a background in working with DHH [deaf or hard of hearing] kids, which I had to insist on because they would have just given us a random speech therapist.” When she believed that listening and spoken language wasn’t working for Zachary she chose to discontinue those services. She was also the only caregiver who disliked the coaching model for building Zachary’s language. She spoke about these services like this, “It was just too much. And he, like, still wasn’t making any progress. So, at some point, I guess…we stopped both.”

But Zoey’s advocacy didn’t always end with getting what she wanted. She knew that her local early intervention program didn’t have the resources to help her son become a fluent ASL user so she decided not to press the issue. Zoey believed that with the support of the Deaf school, the services she was paying for personally, and the Deaf nanny they were using for Zachary that he had enough ASL exposure. She explained, “If we hadn’t had that then like I might have fought for more ASL services. It wasn’t worth fighting for. Like, the county didn’t want to provide ASL services, so not worth fighting about.”

While many families advocated for their children with their early intervention providers, making sure that the professionals they were working with had the skills needed to aid their child’s development, Isabel felt as though something wasn’t working, right from the start. She mentioned that they “didn’t have a great audiologist” and that “For the first almost year didn’t give us great information.” She went to his nine-month well baby check and “Mentioned to the pediatrician, you know, he’s not talking a ton. He’s kind of just making weird noises.” Isabel was also not satisfied with the services she was receiving in early intervention so she decided they needed to make a change.

> So, when he was a year and a few months, we switched services. We went to get a second opinion at the local children's hospital…even like the hearing tests were much improved. They reprogrammed his aids properly and by next week he was already saying different words.

Many of the caregivers spoke about the dichotomy of not knowing a lot about hearing loss but still wanting to do what they felt was next for their child and family. This was evident when they spoke about their advocacy within and outside of the early intervention system. They felt that while they might need strategies and information about language acquisition and hearing loss, they still were the expert on their own family and their child's needs.

Go with Your Gut. When the caregivers were discussing how they decided who to work with and how to implement the knowledge and strategies they were learning in early intervention, a theme emerged that was coded as "Go with Your Gut". This meant that caregivers had an innate understanding of the needs of their family unit and their child with hearing loss even if they didn't have any technical knowledge. If something didn't feel as though it was working, they knew they needed to make a change and advocate for something that would work.

Wilma said, "I pushed so hard from the beginning. I'm like, this is what we want, this is what we have to do." Speaking about changing to work only with professionals via distance technology, because the local service providers didn't understand their goals or have the skills she wanted for her daughter, she said, "I stopped seeing that person because she didn't have experience with deaf children and cochlears. So, I just didn't feel like it was beneficial or helping us any." She felt as though she needed different service to ensure that Willow was able to meet the goals they had for her, so Wilma found providers who were able to align with her goals.

Victoria also pushed back against professionals even before Victor had a diagnosed hearing loss. She explained, “I was very adamant about getting it all [early intervention services] started and... his pediatrician, his audiologist, everyone just submitted all the paperwork for me and said, we know that he’s going to qualify. Let’s get him enrolled and let’s start the process.” She refused to wait the suggested three to six months for a follow-up and diagnosis because she was sure, in her heart that he had a hearing loss and she didn’t want him to fall behind.

Isabel labeled her ability to understand and articulate what Isaac needed as her “mom gut”. She said that while they “got off on the wrong foot”, she knew that with appropriate supports “he would start to figure things out”, so she advocated for a different preschool setting from what others expected. Heather spoke about the urgency she felt to begin services, “I thought we needed to get moving fast.” but once someone from the early intervention system reached out to her “it brought a lot of peace”.

While Frances had a listening and spoken language background as a deaf educator, she felt as though her son Franklin had different needs. “So, I don’t feel like us implementing sign deterred him from talking in any way. I feel like it just gave him more and then decreased frustration for us at home for sure.” She also spoke about following his lead when it came to the trauma he experienced as an adopted child who went through foster care when many others did not. She explained, “They don’t look at it through the lens of what other things he had gone through.”

Ashley talked about what recommendations she would give to families who just found out their child had a hearing loss. She said, “Go with (your) gut. If you feel like you don’t click with a certain provider, or that provider is not meeting your needs, find a different provider. If the person is not a good match, find someone who is.”

This reflection on what advice the caregivers would give to others just beginning their early intervention journey led to the last theme uncovered in the data. A number of the interviewees mentioned anxiety about the choices they had or had not made for their child. These statements were coded as “What Ifs” and could be either how they wished things had gone for themselves and their child or where they believe they and their child would be if they had not received the intervention they did.

Themes about “What Ifs”

What I Wish Had Happened. While most of the interviewed caregivers were pleased with their early intervention services and their child’s current language outcome, there remained with some an undercurrent of wondering if things could have gone better. They wished they had found particular providers sooner or that they had made different choices. These concerns were collectively labeled as the theme “What I Wish Had Happened”.

Jillian, mother of Jacob who had failed his newborn screening but never received follow-up testing until nearly age three wanted a clear diagnosis from the start. When asked what she would change she stated, “I might suggest getting more testing done a little bit earlier so that we could be on top of it more.” and “I just wish we had found it [early intervention] earlier.”

Rachel also had a child who was later identified. She wondered if starting earlier would have improved her daughter's language. She remarked, "You know, I would have maybe done things differently and maybe Riley wouldn't be six months behind…I wish I would have known." and "I feel like maybe had we known as a newborn hearing screening that there was malformation, things would have happened sooner and we may not have had a six-month gap today…but who's to say?'

Isabel's son Isaac was diagnosed while he was still in the Neonatal Intensive Care Unit after a traumatic birth. However, because the family was not connected to providers who matched their goals, she felt as though they missed out on critical time. When she was asked any advice she would give newly diagnosed families she said, "Make sure you are kind of on the right path to begin with. We definitely lost time with Issac by not having the hearing aids in enough." and "We started off sort of on the wrong foot." She also reflected on her feelings about the choices she had made and even though she didn't have the information she still stated, "So, there is a bit of parent guilt on that part."

Ashley also had worries because her son had not achieved full wear-time of his hearing devices. She wondered, "If our son maybe didn't wear his CIs all the time, we still have maybe, like on par language with his peers perhaps? But we would have never known that he would have like better vocabulary than his hearing peers." Ashley's family started with a provider without experience with children with hearing loss and then sought out one with more expertise. This led to her speculating,

> Alexander's doing great but sometimes I'm like, wow, what if we worked with the spoken language school from the very beginning? You know, like, what would his language acquisition be like? What if we had those habits that the

> school instilled in us, like, when he was two months old? You don't really know if they could even have had more language if that's the case.

While these participants asked themselves about how their child's outcome could have been improved with different choices, others were thankful for the excellent services they had access to and pondered where their children would have been if they hadn't been so lucky. These ideas were collected and labeled as "What Could Have Happened".

What Could Have Happened. Elizabeth worked closely with a private listening and spoken language school to help her daughter Emma develop language. She said that, "I think without the early intervention, it would have been much much harder for her and for us." She also said that the knowledge she gained from her interventionists made a difference in Emma's life. She realized, "I wouldn't have thought to do [the strategies] without someone telling me that is something that will help her."

Heather felt as though her family knew enough to start towards their goals for Henry, but still believed that they needed support. She explained, "If it wasn't for the state early intervention provider system we would have probably pushed on and gotten our son the cochlear implants because that was our goal for him…but he'd be way further behind than what he is." She needed aid in how to develop his language, saying "I would have never known where to start."

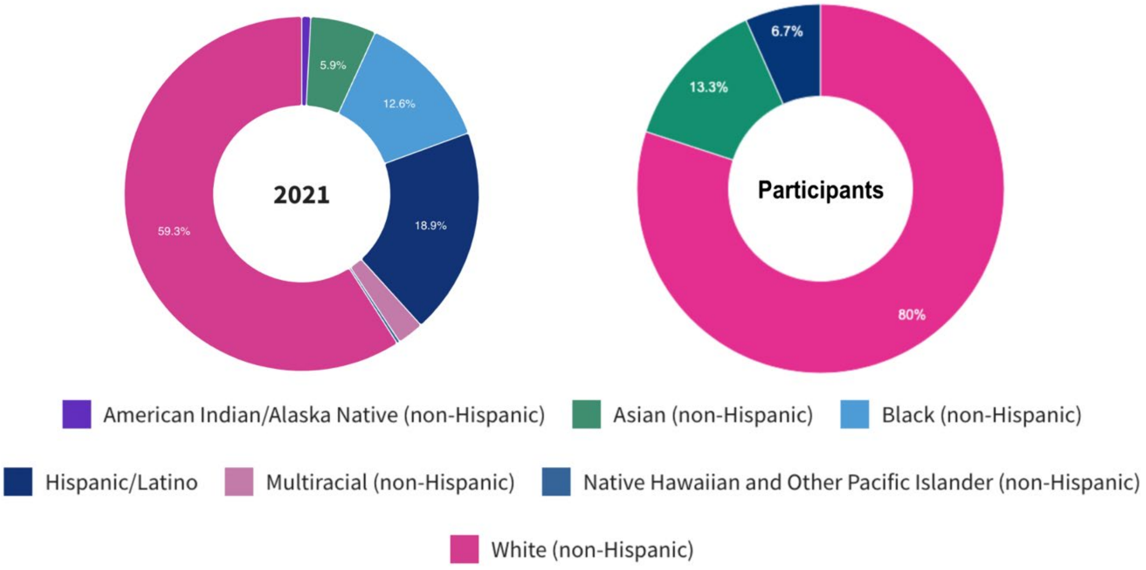
Whitney believed that her daughter Willow's success was due to enrollment in early intervention as well. She stated, "I think, without them, you know, I don't think we would be...without them, I just don't know she would be doing anything like she's doing now." Ursula echoed those feeling saying, "I don't even want to pretend to think about like where we would be without the private listening and spoken language program we chose." She also believed that the services she had received changed not just her Unity but herself as well, "I don't know if I would be the same parent that I am if she didn't have this."

Additional Factors Regarding Results

While the participants in this dissertation varied in a number of demographic features, the sample was still overwhelmingly white, wealthy, and highly educated when compared to the United States population as a whole (see Figures 3 and 4).

Figure 3

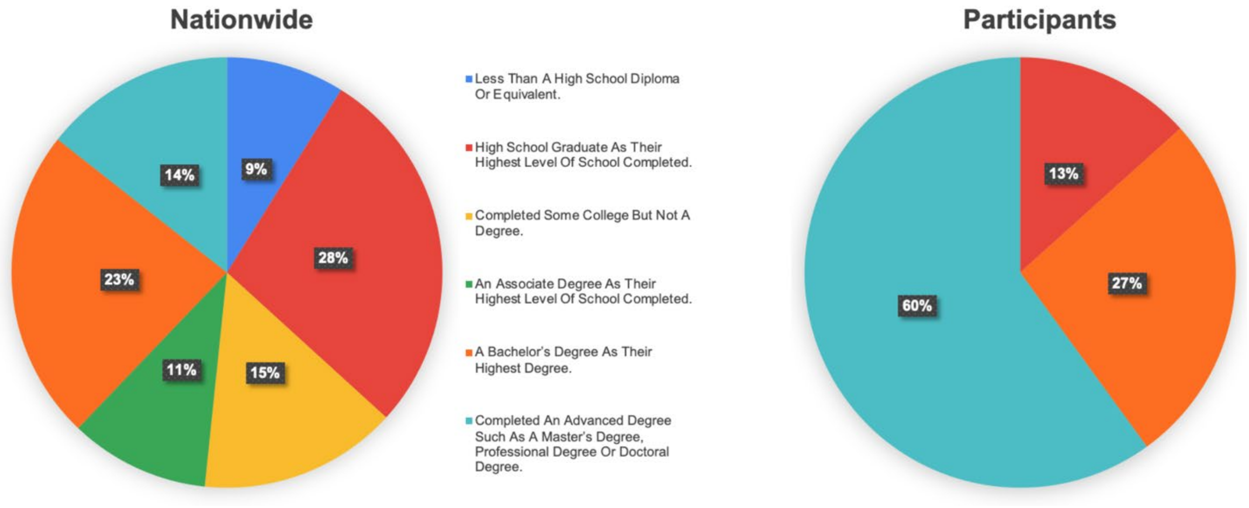
Participant Racial Demographics vs United States Population as a Whole



Note. Adapted from *U.S. Census Bureau quickfacts: United States,* 2022

Figure 4

Participant Educational Demographics vs United States Population as a Whole



Note. Adapted from *U.S. Census Bureau quickfacts: United States,* 2022

Conclusion

The data collected through these interviews with caregivers of young children with hearing loss and their experiences in early intervention uncovered themes that touched on the benefits of early intervention to the child and family (Benefits of Intervention), the barriers to intervention and carryover of learning that the families faced (Barriers to Learning and Carryover), how their intervention led to changes in the interactions they had with their child with hearing loss (Changes to Interactions), areas in which they felt they had additional need or wished for support (Additional Needs), how the caregivers advocated for their child in and outside of the intervention process

(Caregiver Advocacy), and the thoughts and wondering about their child’s outcome based on their choices earlier in the journey (What if’s).

While none of the participants identified barriers that precluded them from using the knowledge they had learned in their daily life, they had some shared struggles and others were very individual. For this group of caregivers, the learning in their intervention sessions was able to be carried over successfully into their daily lives and routines and they used the strategies and knowledge learned in their intervention sessions to change the interactions with their child with hearing loss.

In the next chapter the discussion on how this data relate to the existing literature as well as how it might be applied to the field of early intervention in deaf education. Areas of future inquiry will be highlighted along with an Organizational Improvement Plan.

Chapter Five

Discussion

Introduction

The previous chapter shared the results from in-depth interviews with 15 caregivers of young children with hearing loss who recently finished early intervention. The semi-structured interview process allowed caregivers to share their experiences, both positive and negative, as well as their personal perspectives including desires for supports that could help other families and what they wished could be changed. The qualitative themes uncovered were discussed and example quotations were presented.

In this chapter, the relationship between the data and current literature will be examined, limitations to this study will be discussed, and the application of the findings through an organizational improvement plan will be presented.

Study Overview

Children born with hearing loss are at risk for developmental delays in the area of communication and language development (Lang-Roth 2014; Lieu et al., 2020; Moeller, 2000; Moeller, 2014). However, since the implementation of Universal Newborn Hearing Screening and the passage of Public Law 99-457 and later IDEA 2004, which set up a federal requirement for states to provide early intervention services for children with disabilities, families with children born with hearing loss have been able to access early, specialized services to help them develop language skills in their child (Maluleke et al., 2020; Moeller et al. 2013; White et al., 2010). Best practices in early intervention state that professionals with expertise in language development for children with hearing loss should partner with caregivers to provide family-centered intervention (Moeller et al., 2013). This intervention is to be designed for the goals of the individual child and family and used to support the caregiver to become the primary facilitator and language partner (Noll et al., 2021). These services are meant to provide knowledge about hearing loss, language development, and strategies for the participants to implement in their interactions with their child with hearing loss in their daily routines (Brock & Bass-Ringdahl, 2022; Moeller et al., 2013, Noll et al., 2021). In order to be effective, caregivers must utilize the information presented by their specialized providers. However, this isn't always what happens. Because families have differing access to services based on desired outcomes as well as demographic variables (geographic location, cost of services, etc.) experiences in early intervention programs are highly personal and diverse. These individual stories are essential to understand so that professionals can recognize and better meet the needs of those they serve. That was the purpose and focus of this research.

This qualitative dissertation involved in-depth interviews with 15 caregivers of children with hearing loss using a semi-structured questionnaire. The purpose was to understand and investigate the lived experiences of these caregivers regarding their learning and experiences in early intervention.

Key Findings

General Research Question

What are the lived experiences of caregivers of children with hearing loss who have recently transitioned out of birth to three services with regard to the implementation of the information learned in early intervention?

While each of the interviewees had a unique journey, there were some similarities among the narratives. The first was that as a whole, all of the caregivers were pleased with their intervention services. While some had to search for a program or provider who met their needs, all believed that once they connected with someone who understood their goals for their child, they could receive intervention that helped support them and their child with hearing loss.

The caregivers spoke about how thankful for the intervention they were and how much they felt they had learned. Each of them discussed how their services had changed their lives and that of their child with hearing loss. They felt as though they had learned a great deal about hearing loss, language acquisition, and ways that they could ensure that their child was developing appropriately.

All participants also spoke about a time they needed to advocate for their child's or family's needs. This could look like seeking out alternative professionals, changing goals, educating themselves about a disability, or even standing up for their child with others in their family.

Many of the caregivers also mentioned the importance of having a community that understood their unique position as a typically hearing family with a child with hearing loss. This community often came in the form of parent-to-parent support groups, in person as well as via social media. Participants who had access to associations such as these spoke about their significance in their lives, while those who did not lamented their absence.

Additional themes were discovered and will be discussed under the applicable research subquestion.

Research Sub-Question One. What benefits, if any, do caregivers of children with hearing loss report from their time participating in early intervention?

Themes. Caregivers reported a number of benefits from their time receiving early intervention services. They were first and foremost grateful for the support they received from their providers. Before they ever cited strategies, learning, or any other benefits, the caregivers discussed the emotional support they received from their providers. In the interviews, the emotional impact of the diagnosis of a hearing loss was mentioned time and time again. Words like “devastated”, “shocked”, and “overwhelmed” were used by numerous caregivers. They then spoke of how the professionals were able to help them work through these feelings and work towards a “new normal”.

While emotional support was the first significant theme discussed by the participants, they also found that the information they learned from their providers was critically important. The interviewees voiced how much knowledge they had received about the development of their child with hearing loss. They valued the expertise of the professionals with whom they were working and the coaching and education they received during their intervention sessions. Caregivers were able to point to specific strategies they learned to develop the language of their child with hearing loss. However, it is of note that the data showed that all the participants mentioned only lower-level language facilitation strategies. It is unknown if this was appropriate for the ages and stages of the child with hearing loss or because of the comfort level of the early intervention provider.

None of the participants in this dissertation indicated that they did not derive benefit from their time in early intervention. However, there remains a portion of families who choose to cease receiving services or decline them altogether. Determining the reasons behind the choice to end or refuse intervention would be an important area of additional research.

As previously stated, the purpose of early intervention is to educate caregivers about the needs of their child with hearing loss as well as facilitate changes to their interactions through strategies that can improve access to language. Therefore, it was important to ask the caregivers if they believed that the learning they had stated was a benefit from their time in intervention had an impact on their interactions with their child with hearing loss.

Research Sub-Question Two. In what ways, if any, do caregivers of children with hearing loss report that early intervention sessions changed their interactions with their child?

Themes. When discussing the changes to their interactions with their child with hearing loss, the participants were able to name specific strategies they used to improve their child's understanding and expression of language. They discussed what they had been taught and how they used it in their daily lives. Many of the caregivers spoke about how the services they received aided them in becoming more intentional in their communications with their child with hearing loss. They also discussed the ways they integrated the information and strategies they learned from early intervention providers into their daily routines until they became habits.

While the interviewees expressed almost universally positive feelings about their learning in early intervention, some participants had complaints about particular aspects. Most often, these grievances concerned professionals who didn't understand the needs of their child with hearing loss. There was discussion about a lack of knowledge and expertise with these providers. When these caregivers then sought out more qualified interventionists, their experiences changed and they were pleased with the services they received.

Additionally, all the participants except for Zoey cited the importance of carrying over the learning from their sessions into their daily lives. They expressed how much the coaching from their providers helped them improve the ways in which they communicated with their child with hearing loss as well as the language skills of the child themself. Zoey, however, did not believe that the coaching model of intervention was useful for her family. She and her son Zachary attended a bilingual-bicultural Deaf school program that provided direct instruction to the child, both in the small group ASL instructional periods and the individual speech and spoken language time. She indicated that she believed that the coaching model, along with its necessary “homework” was too stressful and she felt pressured in a way that she found unacceptable. She declined services from several providers who used this model and stated that learning and using ASL at home to communicate with Zachary was the only carry-over that her chosen program expected. It is interesting to note that Zoey was the only caregiver who indicated that ASL was the primary language of their child with hearing loss. Many of the other families used both sign language and spoken language while other chose to focus only on developing spoken language. Investigating whether or not communication modality influences caregiver attitude towards coaching would be another possible avenue of inquiry.

The caregivers were able to express the many ways they used the skills they learned during their time in early intervention. However, there were still barriers they faced in being able to change their interactions with their child with hearing loss. Those obstacles were addressed in the next sub-question.

Research Sub-Question Three. What barriers to the implementation of learning from their early intervention sessions do caregivers of children with hearing loss identify, if any?

Themes. Most of the barriers that the participants expressed were not barriers to implementing the learning from their sessions with providers, but instead hurdles to obtaining and participating in early intervention itself. Caregivers spoke about difficulties due to systemic issues such as insurance referrals or bureaucracy within the early intervention or school systems. Several mentioned the logistical hurdles, including scheduling, price and distance of services, and the time the sessions took, especially in households where all adults were working full time. Many of the participants discussed a lack of qualified professionals in their local area and seven caregivers either had to seek out a provider with a more specialized background for their team, or simply never had access to that level of expertise near them.

All of the caregivers interviewed spoke extensively about their emotions about having a child with hearing loss. They were shocked and some even felt as though they were going through a mourning process. Some participants stated that these overwhelming emotions caused them to be unable to participate in their early intervention services in the way that they would have liked. They also expressed that they felt ill-suited to parent their child and that their inexperience made them unprepared for the things they would be asked to do in their intervention sessions. The caregivers often said that they had no personal experience with speech therapy services, individuals with hearing loss, hearing technology, or language acquisition and therefore believed that this lack of knowledge was a barrier to being effective in implementing the things they learned in early intervention.

The final barrier that nearly all the participants mentioned was the Covid-19 pandemic and the move from in-person intervention to services via distance technology. While a litany of research indicates that teleintervention is as effective as services delivered face-to-face (Blaiser et al., 2013; Behlet al.2015; Houston et al., 2022) and that some aspects of teleintervention actually lead to better coaching and family-centered intervention (McCarthy et al., 2022; Rudge, 2022) caregivers interviewed in this dissertation who began services face-to-face and then moved to distance technology were dissatisfied with those services. It is unknown if the providers who worked with these families were experienced in teleintervention or if this was the first time they were providing services in this manner.

Many of the interviewees spoke about how ineffective their teleintervention sessions were and how they struggled to have their very young child pay attention to the screen. As previously stated, best practices in early intervention call for caregiver coaching rather than direct service provision to the child with hearing loss (Moeller et al., 2017). Teleintervention allows a professional the opportunity to coach a family, in their home, during their daily routines. It also inhibits the provider's ability to “rescue” a parent and to do the activity themself or to allow the parent to opt out of participating in some way. The purpose of these sessions should have focused on parent coaching in the same way that an in-person session would be. It is possible that the practitioners were attempting to provide direct services to the infants and toddlers with hearing loss via distance technology rather than true parent coaching. That would then require that the child “pay attention to the screen” and “sit in one spot” as the caregivers described when complaining about those services.

Interestingly, the two families who had been receiving teletherapy from the beginning of their time in early intervention reported no concerns about the impact of the Covid-19 pandemic on their services. They stated that they loved that technology could provide them access to professionals outside of their local community. They explained that their provider coached them on meeting their child’s goals as well as teaching them specific strategies to implement in their day-to-day life to help facilitate meeting those goals. It is possible that the difference in the caregiver responses to teleintervention is the difference between “proactive teletherapy” and “reactive teletherapy” (U. Soman, personal communication, March 8, 2023).

Proactive teletherapy would be characterized by a professional who has specialized knowledge and training in providing teleintervention working with a caregiver who understands their role as the primary language facilitator for their child with hearing loss. It would feature exclusively caregiver education and coaching. This would consist of joint planning followed by observation of the child and caregiver engaging in a routine. Next, the provider would coach the parent during the action portion to allow for the practice of the new skill or strategy. Then the caregiver would reflect on how the practice went and the provider would provide additional feedback about next steps (Rush & Shelden, 2011).

Reactive teletherapy could be defined as any intervention services that had to be conducted remotely because of health and safety concerns during the Covid-19 pandemic. Providers were forced to move to distance technology with no training and in most places, almost no notice. These professionals may or may not have previously been providing teleintervention services. Expertise in caregiver coaching strategies would have also been variable. It is possible that the providers that worked with the interviewees were uncomfortable with the process of providing teletherapy and that influences their perceptions. All of the participants who criticized the move to teleintervention still indicated that their child with hearing loss continued to make progress during this time. It is possible that the data which show that teleintervention is successful only looks at professionals and families involved in proactive teletherapy. Additional research looking specifically at the efficacy of reactive or emergency teletherapy during the Covid-19 pandemic is needed.

Despite the overwhelmingly positive responses about their experiences in early intervention, all of the interviewees were able to make suggestions about supplementary services or referrals that could have aided in overcoming some of the barriers mentioned or that they believed would have assisted them when they were in their birth to three programs. Those suggestions for additional supports provided by the participants will be discussed next.

Research Sub-Question Four. What additional services, if any, are identified by caregivers, as possible avenues for overcoming previously identified barriers?

Themes. One benefit of access to the early intervention system frequently mentioned by the participants was the opportunity to connect to other families of children with hearing loss. Many caregivers spoke of finding understanding and community with others who were sharing the same struggles. Parent to Parent support groups, on social media as well as in person, were most often the source for this support. Some participants sought these resources out themselves while others were enrolled in programs that actively brought families together socially and for learning. All of the interviewees related that they wished there had been more opportunities to connect to other families, especially those who had children with hearing loss like their own. Caregivers wished to meet others who reflected the journey they themselves were embarking on. That meant that while they wanted to be given the opportunity to meet the other similarly aged children involved in their intervention program, they also wanted to meet older families with children who used the same hearing technology as their child, had the same background, and/or struggled with the difficulties or disabilities. This need was most pronounced in families where the child had specific needs such as late identification, hearing loss in conjunction with other health needs, or additional disabilities.

In addition to desiring contact with other families of children with hearing loss, many of the caregivers spoke of wishing they had the chance to build relationships with adults with hearing loss. While some states and early intervention systems do provide a Deaf mentor program, this service is not available to all families and the adults are primarily ASL users, which is not reflective of the language modality that many families are choosing. All of the participants indicated that they would have welcomed the opportunity to meet with and learn from an adult with hearing loss who was like their child. They wanted to see how they communicated, managed living in an overwhelmingly hearing world, and ask specific questions about their life and experiences using the hearing technology and language modality they had chosen for their child with hearing loss. A longing for understanding the future of their child was expressed by all the participants and became a critical component of the Organizational Improvement Plan portion of this dissertation.

Relationship to Literature

While there is an abundance of research measuring speech, language, and listening outcomes for children with hearing loss (Ching, 2015; Ching et al., 2017; Hayes, 2008; Yoshinaga-Itano et al., 2017) and the impact that early intervention can have on those measures (Davidson et al., 2021; Geers et al., 2019; Vohr et al., 2008), there has been less exploration about the role of caregivers in the intervention process. Some quantitative studies have examined the correlation between higher levels of participation in early intervention sessions and language and vocabulary outcomes (Moeller, 2000; Stika et al., 2015; Yoshinaga- Itano, 2000) while others attempted to measure how parental perceived self-efficacy related to those same outcomes (Ambrose et al., 2020; DesJardin, 2004; DesJardin, 2006; DesJardin, 2017).

Some literature exists related to caregiver experiences in the newborn hearing screening and diagnosis process (Robinson et al., 2022; Scarini et al., 2018; Tattersall & Young, 2006; Young, 2001) or early cochlear implantation (Ravi & Gunjawate, 2020). However, the caregivers participating in the intervention have previously not been asked about their perspective on their own learning in early intervention.

This qualitative dissertation is a follow-up to a mixed-methods pilot study conducted by the author, titled “Parental Efficacy and Barriers to Learning in Early Intervention”. It examined parental self-efficacy from the professional and parental perspective, and how it may be related to whether or not a parent identified benefits from their early intervention services. This pilot study included qualitative interviews with five parents of young children with hearing loss who were actively participating in an early intervention program with a teacher of the deaf. They were asked about their services and any barriers they faced to utilizing the information they learned in their intervention sessions (Jensen, 2022). The results from the small sample led to adjustments to the interview protocol, research questions, and changes to the inclusion criteria to instead focus on caregivers of children with hearing loss who had completed their birth to three services. Additionally, this dissertation was conducted with a phenomenological approach so as to fully illuminate the lived experiences of the participants.

Study Limitations

Although many of the themes uncovered in this dissertation appeared common to all participants there still remains a great deal of individuality in each caregiver's journey. While the sample was drawn from geographically diverse areas of the United States, the local control of early intervention programs means that there is a great deal of inconsistency from one place to another. That means that the experiences of these 15 participants may not be applicable to families in other regions. It would be beneficial to investigate access to professionals and learning in early intervention for caregivers of children with hearing loss in rural versus urban settings or by geographical regions.

Additionally, this sample included families who chose a variety of desired language outcomes. While this is representative of the heterogeneous nature of families enrolled in early intervention services, it is possible that examining the participants by communication modality could illuminate differences in caregiver experiences, additional areas of need, and/or further barriers faces.

Despite the variability in communication modes used by and with the child with hearing loss, all interviewees in this dissertation spoke English as their native language. Although this was necessary in the context of this dissertation, in order to ensure that the results are relevant to a greater number of families with young children with hearing loss, it would be important to seek out caregivers using home languages other than English and hear their perspectives as well. Even with extensive recruitment in public school programs, via the internet (including social media and parent listservs), and through specific professional networks, the sample obtained in this dissertation was heavily skewed white, wealthy, and highly educated. It is notoriously difficult to recruit individuals from marginalized communities including people of color, families in poverty, and cultural and linguistic minorities (Carlson et al., 2014; Yancey et al., 2006). However, it is of critical importance that these families be sought out for their perspectives in any further research.

Depending on the source, as many as 20 to 40% of children with hearing loss have another significant disability (Cupples et al., 2014; Cupples et al., 2016; Gallaudet Research Institute, 2011). While this research included five caregivers who indicated that their child had been "diagnosed with any additional disabilities, health concerns, or special needs", representing 30% of participants, two of those were physical health concerns that did not impact cognition or the development of language. The remaining three represented hearing loss caused by a virus known to have significant impacts on health and development including cognition, meningitis, and a genetic syndrome that causes hearing loss as well as affecting a multitude of bodily systems. Because of the complexity and multiplicative rather than additive nature of disabilities in conjunction with hearing loss, it is difficult to make any conclusions about a group of children with hearing loss and additional disabilities. Therefore, additional research is always needed in this area.

While the qualifications of the early intervention providers were collected on the demographic form completed by the participants, they were only able to select one of the possible choices (Teacher of the Deaf, Speech-Language Pathologist, Special Educator, Certified Auditory-Verbal Therapist, Certified Auditory Verbal Educator, Unknown, or Other). It is possible that many of the interviewees actually worked with a number of different professionals with a variety of titles. This made it impossible to investigate whether caregivers were more likely to indicate certain types of learning or face particular barriers based on the qualifications of their provider. In future research, it could be advantageous to see if participant learning is connected in any way to some specific professional demographics.

Finally, all the caregivers who participated in this dissertation research continued in early intervention until their child with hearing loss turned three and were generally very pleased with the services they received. Even those who changed providers or had to advocate for their child with hearing loss for additional services were extremely positive about their time in early intervention. It is unknown if this is reflective of the majority of families with children with hearing loss or if it was just this sample. A larger sample, with more diversity, could add additional insight. It is also possible that because the children with hearing loss in this study are still relatively young and the caregivers are so thankful for the progress that their child has made, they are more likely to express the positives of their time in early intervention. Additional research using caregivers with children with hearing loss of varying ages could control for this possible area of bias.

Problem of Practice

My job as an early interventionist is to work with the parent or caregiver who has chosen a LSL outcome to help them learn ways to facilitate language growth in their baby with hearing loss using technology such as a CI, hearing aid, or BAHA, to learn the spoken languages of their home through listening. Because of universal newborn hearing screening, families are getting referred to programs very early, often before three months of age. However, not all children are making the language growth expected. Even though these families are attending intervention and participating in their sessions, they aren't able to carry over the things they are being taught into their daily lives and that means their children aren't reaching their potential (Ching, 2015).

The early intervention program in which I am employed provides services for parents of children with hearing loss from birth to age three. It provides parent-focused, child-driven interventions for families. The individual providers work to guide and coach parents to assume the role of the primary language facilitators in order to wire their child's brain for listening. This program is dedicated to counseling parents about hearing loss, hearing technology, and advocacy. Additionally, the parents enrolled learn to implement strategies to develop auditory skills that support spoken language.

Families who choose my program wish to use hearing technology to develop listening and spoken language as appropriate for their child. Approximately 76% of these families have chosen spoken language alone while another 18% use spoken language primarily with occasional signs. The remaining 4% indicate that they are using sign language and spoken language equally. Around 20% of young children enrolled in the birth to three program have another disability or diagnosis that “provides moderate or severe obstacles to speech/language” (Sedey, 2023). Though the parents enrolled are being diagnosed early, provided with excellent services, parent coaching and education, many still struggle to make changes to their interactions and implement the learning from their intervention sessions.

Organizational Improvement Plan (OIP)

The purpose of this action research dissertation was to determine a problem of practice within the author’s area of expertise, investigate that problem of practice, and then using the data obtained, explore the ways this information can be used within the field of early intervention with families of children with hearing loss. The implications of this research will be explained in the context of the author’s OIP.

Parent Coaching. The data collected indicated that caregivers derived a great deal of benefit from their therapy sessions, provided that they were working with professionals who have expertise in language development and parent education. While all providers of early intervention must be certified teachers of the deaf, including those at my school, most do not have any additional training in andragogy or how to work with adult learners. As caregiver coaching and education are the primary focus of early intervention services, as part of the OIP the providers will receive continuing education credits by participating in the early intervention series of courses by the Center for Advanced Study of Excellence in Early Childhood and Family Support Practices. These courses include training in Family Centered Practices, Teaming, Capacity Building in

Caregivers, Routines Based Intervention, as well as a course on Caregiver Coaching by Dathan D. Rush, Ed.D., CCC-SLP, and M'Lisa L. Shelden, PT, Ph.D., authors of *The Early Childhood Coaching Handbook*. This will enable them to better understand the necessary components of Family Centered Intervention and best practices in early intervention. This combined with their expertise in listening and spoken language in deaf education will ensure that the providers in our program will have the skills to be highly effective in their role. This will then allow the caregivers with whom they work to obtain the most benefit from their services.

Proactive Teletherapy. The second portion of the OIP is training in proactive teletherapy. The interviews with caregivers indicated that the switch from in-person sessions to teleintervention because of the Covid-19 pandemic lead to dissatisfaction with services provided via distance technology. However, caregivers who began with teletherapy and continued with the same mode of intervention believed that they were receiving high-quality services and were pleased with the convenience and availability of professionals with expertise who were not available locally. It is theorized that the difference between these two sets of experiences is that of proactive versus reactive teletherapy.

While the majority of families served in my program are within the local region, the school's five-year vision for growth includes providing teleintervention services to families of young children with hearing loss who cannot physically attend on-site sessions. The current model of service provision provides for center-based therapy with the opportunity for one home visit per month and teleintervention as needed. The entire field of deaf education is also moving away from center-based services and expanding reach to more rural areas. While the providers at the OIP focus site had some experience with teletherapy pre-pandemic, there were no specific protocols or training on what makes teleintervention effective and in what ways the approach to caregiver education and coaching is similar or different via distance technology.

In order to provide services to families who could benefit from teletherapy, it will be important to establish best practices in teleintervention. To do this, the providers will view the webinar “Tele-intervention 101 for Providers” presented by the Early Hearing Detection and Intervention (EHDI) National Technical Resource Center and National Center for Hearing Assessment and Management (NCHAM). Following the webinar, the team will establish a protocol for the key components of teleintervention, including the assessments that can be performed via distance technology, who is eligible to receive these services, and expectations for families who will participate in teletherapy. As part of the enrollment process, all caregivers who select teleintervention as a regular part of their early intervention services will be asked to view the NCHAM “Tele-intervention 101 for Families” webinar so that appropriate expectations for participation are established. Many early intervention providers throughout the field need additional training in the area of teleintervention, and the NCHAM would be an excellent beginning resource.

Every caregiver interviewed for this dissertation indicated that they desired more connection to a community. They wished to meet other families with same-aged children with hearing loss, families with older children who could aid them with their experience, as well as the opportunity to be mentored by deaf adults who had a similar profile as their own child. They expressed that they had questions about the lived experiences of others on a comparable journey, which could not be answered by professionals. This longing for community was unrelated to the language modality used, type or degree of hearing loss, or even presence or absence of additional needs. All families wanted connections.

Community and Connection. The final piece of the OIP relates to building opportunities for caregivers of children with hearing loss to network and find the support they need. While the intervention program I am employed with currently hosts a "Parent Group" for both English and Spanish-speaking families, they are, by and large, planned formal events with a presentation on a specific educational topic with caregivers only (babysitting provided). There are also holiday events, at which developmentally appropriate activities and crafts are presented in a casual way to allow families the opportunity to meet and socialize while playing with their children. However, because the families being served are so diverse, it is important that caregivers are given the chance to connect with those whose path is most similar to their own. For this purpose, subgroups for children with significant disabilities, microtia/atresia, and cochlear implants are going to be created.

Two parent volunteers from the school-age program will be paired with a parent advisor and/or an adult with hearing loss to organize monthly parent-to-parent support group activities for each of the subgroups. These particular groups were chosen as pilots for this program because they each have very distinct audiological/hearing technology needs as well as differences in language and developmental trajectories and each represents a significant portion of the overall enrollment in the birth to three program. As previously stated, 20% of the children with hearing loss in the Parent-Infant program have at least one significant additional disability, another 29% currently use at least one cochlear implant, and about 17% have microtia or atresia of at least one ear. Each of these subgroups will be spearheaded by a parent advisor and/or an adult with hearing loss in concert with two parents of older students with hearing loss from the associated school-age program.

These subgroups will be specifically focused on providing parent-to-parent support, building bonds between caregivers, as well as discussing the individual journeys that these families are on. The deaf adult will act as a mentor for the families and will be chosen to reflect the children of the participants. The school already employs deaf adults who can fill this role for the cochlear implant and microtia/atresia subgroups. For the additional disability group, a deaf adult will not serve as a mentor but instead, the focus will be on understanding the impact of the varying disabilities on the children with hearing loss, any siblings in the family, and the family unit as a whole. Whenever possible, families with similar diagnoses will be connected not just in the early intervention program, but with the families in the school-age program as well. The goal is to build a strong internal support system and then expand to include not just families currently enrolled in our program but alumni and eventually state-wide.

Conclusion

The primary research question posed in this dissertation was, “What are the lived experiences of caregivers of children with hearing loss who have recently transitioned out of birth to three services with regard to the implementation of the information learned in early intervention?” Through the interviews of the 15 caregivers of young children with hearing loss, it was possible to understand the benefits they believed they received during their time in early intervention, the barriers they faced to intervention and implementing the learning from their sessions, and how intervention impacted their interactions with their child. They also shared their feelings about what additional services could have helped them during the early days of their journey as well as how they advocated for their child with hearing loss. Finally, they shared their concerns about past mistakes and their worries about the future for their child and their family. By listening to the lived experiences of the caregivers who face raising a child with hearing loss every single day, professionals in the field can gain understanding, empathy, and be better prepared to serve and walk beside these families.

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Appendix A: IRB

Participants:

Ages: 18-50

Number: approximately 10-25

Caregivers (any adult who was a significant participant in the early intervention services provided to the child with hearing loss) of deaf or hard of hearing children between ages 3.0 and 4.11 who were enrolled in the last two years in an early intervention program specifically targeting the development of listening and spoken language skills in the child with hearing loss will be invited to participate in an interview about their experiences and learning in their intervention program. They will be asked about their experiences in early intervention, the benefits they saw in participating in sessions, things they learned, and if and how that learning impacted their interactions with their child with hearing loss. They will also be asked to reflect on any barriers they faced to using the knowledge and skills taught to them. Finally, they will be asked to identify any additional or outside supports that may have been helpful in overcoming the barriers they faced. Possible participants will be recruited through social media groups, listservs, and support groups for parents of deaf and hard of hearing children throughout the United States. They will be invited to participate through email and then by a follow-up phone call.

Email message script:

Dear Mr/Ms. _____,

My name is Melissa Jensen and I am a doctoral student at Fontbonne University interested in learning more about the experiences of parents of deaf or hard-of-hearing children in early intervention. I would like to invite you to join my study by answering a survey and meeting with me via distance technology for a one-on-one interview.

Abstract:

Research has shown that children with hearing loss enrolled in early intervention are more likely to have age-appropriate speech, language, and vocabulary outcomes than those who never receive these services (Ching, 2015; Meinzen-Derr et al., 2011; Yoshinaga-Itano et al., 2017). Programs where caregivers are empowered to be their child's language model are best practices (Moeller et al., 2013) and the children whose caregivers who master these skills have better outcomes compared to those who do not. (DesJardin, 2006; Roberts, 2019; Stika et al., 2015)

While this adult-focused education can improve outcomes, there still remain variations in speech and language outcomes for children with hearing loss, including those enrolled in early intervention programs (Moeller, 2006). In order for these programs to be successful, the caregivers must apply their learning to their interactions with their child. It is this implementation of learning which leads to improved outcomes. Yet not all families enrolled in these services are able to make these modifications. Why are some caregivers able to change their behaviors based on their learning while others are not?

For my dissertation, I will be examining the experiences of caregivers of children with hearing loss who recently transitioned out of birth to three services with regard to their learning in early intervention sessions and the implementation of that learning in their daily interactions. Additionally, I will seek to understand the barriers that those parents face to using the knowledge gained and what supports may have aided in overcoming those hurdles. This study will use a phenomenological qualitative research approach, using in-depth interviews to attempt to understand the experiences of the parents of young deaf or hard-of-hearing children (Creswell, 2014).

Appendix B: Interview Questions

Interview Questions

I want to start out by thanking you for agreeing to participate in this interview. I will be asking you a few questions about your experiences in early intervention. I can repeat or clarify if you have questions about anything I am asking. I would also like to record our conversation today. Do I have your permission to start that now?

1. Can you tell me about your family and your child with hearing loss?
2. Tell me about the early intervention services you received.
    a. Who did you see?
        i. What services did you receive from each of these professionals?
        ii. How did you get connected to these programs?
        iii. How often did you see them?
3. What do you think was the purpose of your TOD intervention services?
    a. What was the role of the parent in intervention?
    b. What was the role of you professional?
4. Do you believe there were benefits from your time in early intervention?
    a. If so, what were some of the benefits for you?
    b. If so, what were some of the benefits for your child?
    c. If not, what were some things that prevented it from being beneficial to you or your child?
    d. If not, what could have made your intervention beneficial?

5. What did you learn in your sessions?
    a. Can you give me some examples of things you learned?
        i. Anything that you applied to your daily lives?
            1. What did that look like in your routines?
        ii. Did you learn specific strategies about how to interact with your child?
            1. Were you able to use them in your daily life?
    b. Were there things that she did that were not helpful to your learning?
        i. Can you expand on that?
6. What do you do with the information you learned?
    a. Has it changed your interactions with your child?
        i. In what ways? Can you give me some examples?
    b. Have you found it difficult to follow any of the suggestions made by your provider?
        i. What made it difficult? Can you give me examples of those things?
    c. Can you tell me any barriers you faced to using the things your interventionist suggested in your daily life and interactions with your child?
        i. What are some specific struggles you faced in making the changes she suggested?
        ii. How do you think that your interventionist could have helped you overcome those obstacles?

            1. Are there any additional referrals or specific services that might have helped you or others facing similar barriers?

7. Is there anything else that you would like to share about how your learning in early intervention shaped your interactions with your child that I have not asked about?

Additional questions for ELL families:

8. What were some ways that your EI provider supported your child's development of your family's home language?
    a. Did speaking a different language from your intervention team create any barriers to understanding the information given to you by your early interventionist?
    b. Did having intervention sessions in a language other than your home language lead to any struggles using the things suggested by your early interventionist?
9. Did your early interventionist provide resources in your home language?
    a. Did your early interventionist provide translation or interpretation services?
10. Did speaking a language other than English impact your ability to participate in your early intervention sessions?
    a. Did speaking a different language at home than the one in your intervention sessions impact your ability to ability to carry-over the things you learned in your session into your daily routines?

Additional questions for families of children with additional disabilities:

11. Did your early interventionist understand your child’s disability and its impact on their language development?
    a. Did she make accommodations for your child’s disability?
    b. Did she provide supports specific to your child’s additional disability?
12. How did having a child with additional disabilities impact your experiences in early intervention?
13. Did your child’s additional disability impact your ability to participate in your early intervention sessions?
    a. Did your child’s additional disability impact your ability to carry over your learning from early intervention sessions into your daily routines?

Appendix C: Informed Consent

Informed Consent Form

You have been invited to participate in a study of caregiver learning in early intervention. I hope to learn about how participating caregivers of young children with hearing loss who have recently aged out of early intervention services feel about the information they learned in their program and their ability to use those things they have learned. You were selected as a possible participant because you participated in early interventions sessions with your child with hearing loss between the age of three and five and have received early intervention using a listening and spoken language approach.

If you decide to participate you will be asked to participate in a one-on-one interview, lasting about one hour, with the researcher (via distance technology) about your experiences in early intervention. This interview will be recorded and transcribed. All data from this study will be de-identified and stored in a password-protected computer.

There are potential risks and benefits to participation in this study. The main benefit of participation is that your personal experiences with early intervention will contribute to the knowledge of professionals about this topic. The risks may be that you may be inconvenienced by the time or that you may feel uncomfortable answering some of the personal questions.

Any information obtained in connection with this study that can be identified with you will remain confidential and will be disclosed only with your permission. All data from study participants will be combined and reported collectively. In any written reports or publications, you will not be identified or identifiable.

Your decision whether to participate will not affect any future relationship with Fontbonne University and the researcher, Melissa Jensen, in any way. None of this information will be shared with your early intervention provider or your current educational agency. If you choose to participate, you are also free to discontinue participation at any time without affecting said relationship(s).

If you have any questions, please ask. If you have questions later, you can contact Melissa Jensen at mjense02909@fontbonne.edu or Dr. Jamie Doronokin at jdoronkin@fontbonne.edu and we would be happy to answer them.

You will be offered a copy of this form to keep.

++

You are making a decision whether or not to participate. Your signature indicates that you have read the information provided above, and you have decided to participate. You may withdraw at any time without prejudice after signing this form should you choose to discontinue participation in this study.

______________________________ __________________________

Signature Date

Email message script:

Dear Mr/Ms. _____,

My name is Melissa Jensen and I am a doctoral student at Fontbonne University interested in learning more about the experiences of caregivers of deaf or hard-of-hearing children and their participation in their early intervention. I would like to invite you to join my study by answering some questions in a meeting with me via distance technology in a one-on-one interview.

Appendix D: Digital Flyer

ATTENTION
FAMILIES OF CHILDREN
AGES 3-5 WITH HEARING LOSS!

WE WANT TO
HEAR FROM
YOU!

WAS YOUR CHILD DIAGNOSED WITH HEARING LOSS AND YOU PARTICIPATED IN EARLY INTERVENTION TO DEVELOP YOUR CHILD'S LISTENING AND SPOKEN LANGUAGE?

TELL OUR RESEARCHERS ABOUT YOUR EXPERIENCE IN EARLY INTERVENTION!

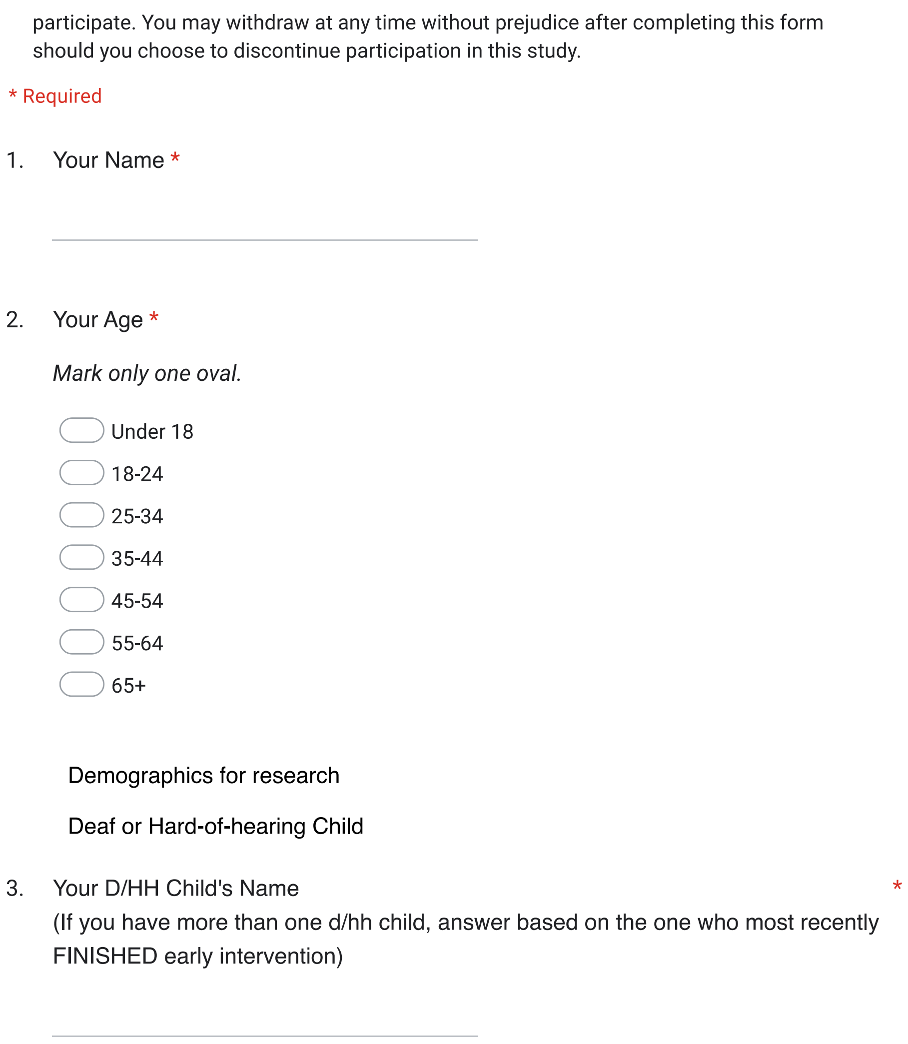
TINY.ONE/EICHILD

JUST A FEW QUESTIONS

Navigate to the link above or scan the QR code to the right to access the research survey and help EI improve!

FONTBONNE IRB FBIUIRB09282023

Appendix E: Demographic Questionnaire



participate. You may withdraw at any time without prejudice after completing this form should you choose to discontinue participation in this study.

* Required

1. Your Name *

____

2. Your Age *

Mark only one oval.

○ Under 18
○ 18-24
○ 25-34
○ 35-44
○ 45-54
○ 55-64
○ 65+

Demographics for research

Deaf or Hard-of-hearing Child

3. Your D/HH Child's Name *
(If you have more than one d/hh child, answer based on the one who most recently FINISHED early intervention)

____

4. Your D/HH Child's Age (in months) *
(Same child as previous question)

Mark only one oval.

○ Less than 36 months (3 years old)
○ 36 to 42 months (3 to 3 1/2 years)
○ 42 to 48 months (3 1/2 to 4 years)
○ 48 to 54 months (4 to 4 1/2 years)
○ 54 to 60 months (4 1/2 to 5 years)
○ Older than 60 months (5 years)

5. Age at Diagnosis of Hearing Loss for D/HH Child (in months) *

Mark only one oval.

○ Less than 1 month
○ Between 1 and 6 months
○ Between 6 and 12 months
○ Between 12 and 18 months
○ Between 18 and 24 months
○ Between 24 and 36 months

Early Intervention

6. Age of Child at Enrollment in Early Intervention (in months) *

Mark only one oval.

○ Less than 1 month
○ Between 1 and 6 months
○ Between 6 and 12 months
○ Between 12 and 18 months
○ Between 18 and 24 months
○ Between 24 and 36 months

7. What was the Qualification of Your Early Interventionist? *

Mark only one oval.

- ○ Teacher of the deaf
- ○ Speech language pathologist
- ○ Special educator
- ○ Certified AVT (Auditory-verbal Therapist)
- ○ Certified AvEd (Auditory-verbal Educator)
- ○ Unknown
- ○ Other: ______________________________

8. Primary Language Used in Early Intervention Sessions *

____

9. Primary Language Used in Your Home *

____

10. Has Your Child Been Diagnosed with Any Additional Disabilities, Health Concerns, or Special Needs? *

Mark only one oval.

- ○ Yes
- ○ No *Skip to question 13*

Additional Disabilities

11. Please List Additional Diagnoses *

____
____
____
____
____

12. Child's Age at Diagnosis of Additional Disability *

Mark only one oval.

○ Less than 1 month
○ Between 1 and 6 months
○ Between 6 and 12 months
○ Between 12 and 18 months
○ Between 18 and 24 months
○ Between 24 and 36 months

Household

13. How Many Adults Live in the Home? *

Mark only one oval.

○ 1
○ 2
○ More than 2

14. How Many Children Live in the Home? *

____

15. Where Does the D/HH Child Fall in the Birth Order of the Siblings? *

____

16. What is Your Approximate Household Income? *

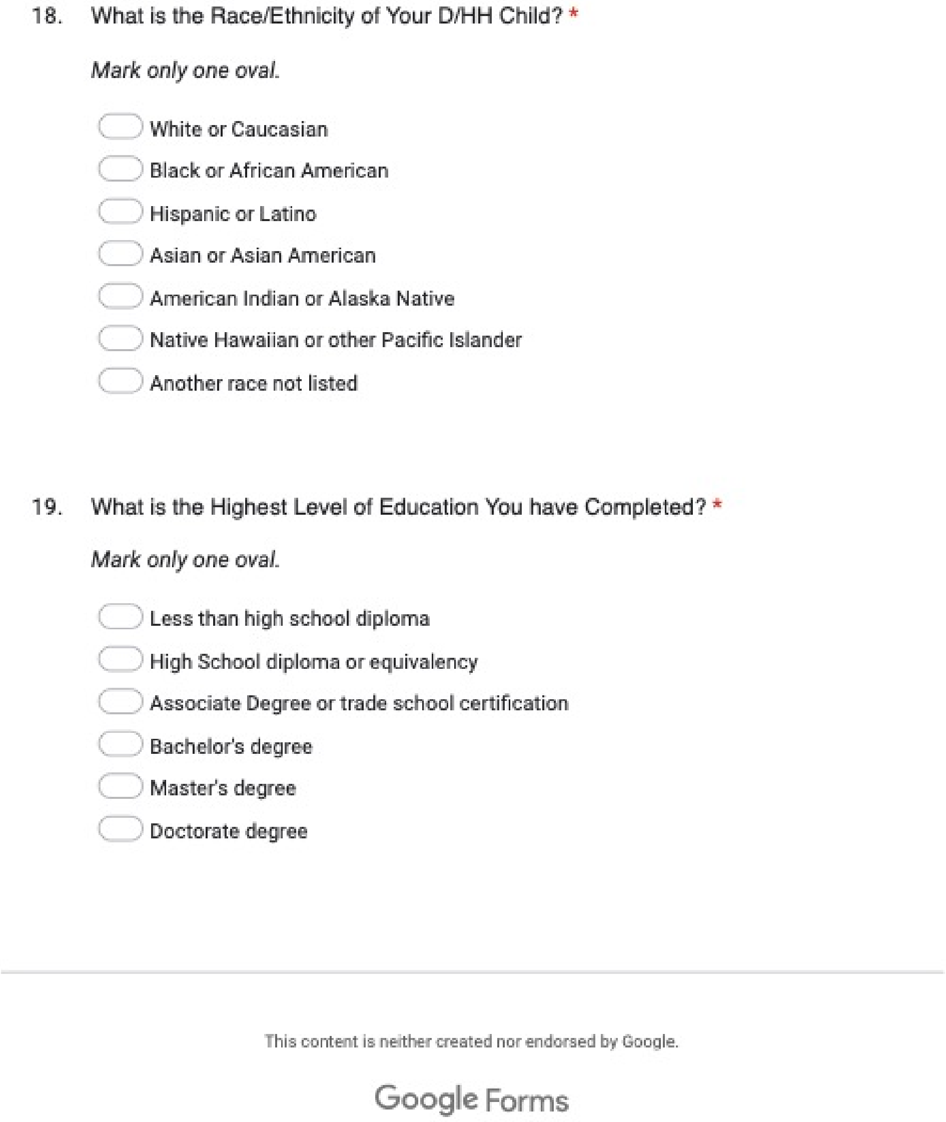
Mark only one oval.

○ Under $15,000
○ Between $15,000 and $29,999
○ Between $30,000 and $49,999
○ Between $50,000 and $74,999
○ Between $75,000 and $99,999
○ Between $100,000 and $150,000
○ Over $150,000

17. What is Your Race/Ethnicity? *

Mark only one oval.

○ White or Caucasian
○ Black or African American
○ Hispanic or Latino
○ Asian or Asian American
○ American Indian or Alaska Native
○ Native Hawaiian or other Pacific Islander
○ Another race not listed



18. What is the Race/Ethnicity of Your D/HH Child? *

Mark only one oval.

- ○ White or Caucasian
- ○ Black or African American
- ○ Hispanic or Latino
- ○ Asian or Asian American
- ○ American Indian or Alaska Native
- ○ Native Hawaiian or other Pacific Islander
- ○ Another race not listed

19. What is the Highest Level of Education You have Completed? *

Mark only one oval.

- ○ Less than high school diploma
- ○ High School diploma or equivalency
- ○ Associate Degree or trade school certification
- ○ Bachelor's degree
- ○ Master's degree
- ○ Doctorate degree

Appendix F: LSLS Strategies

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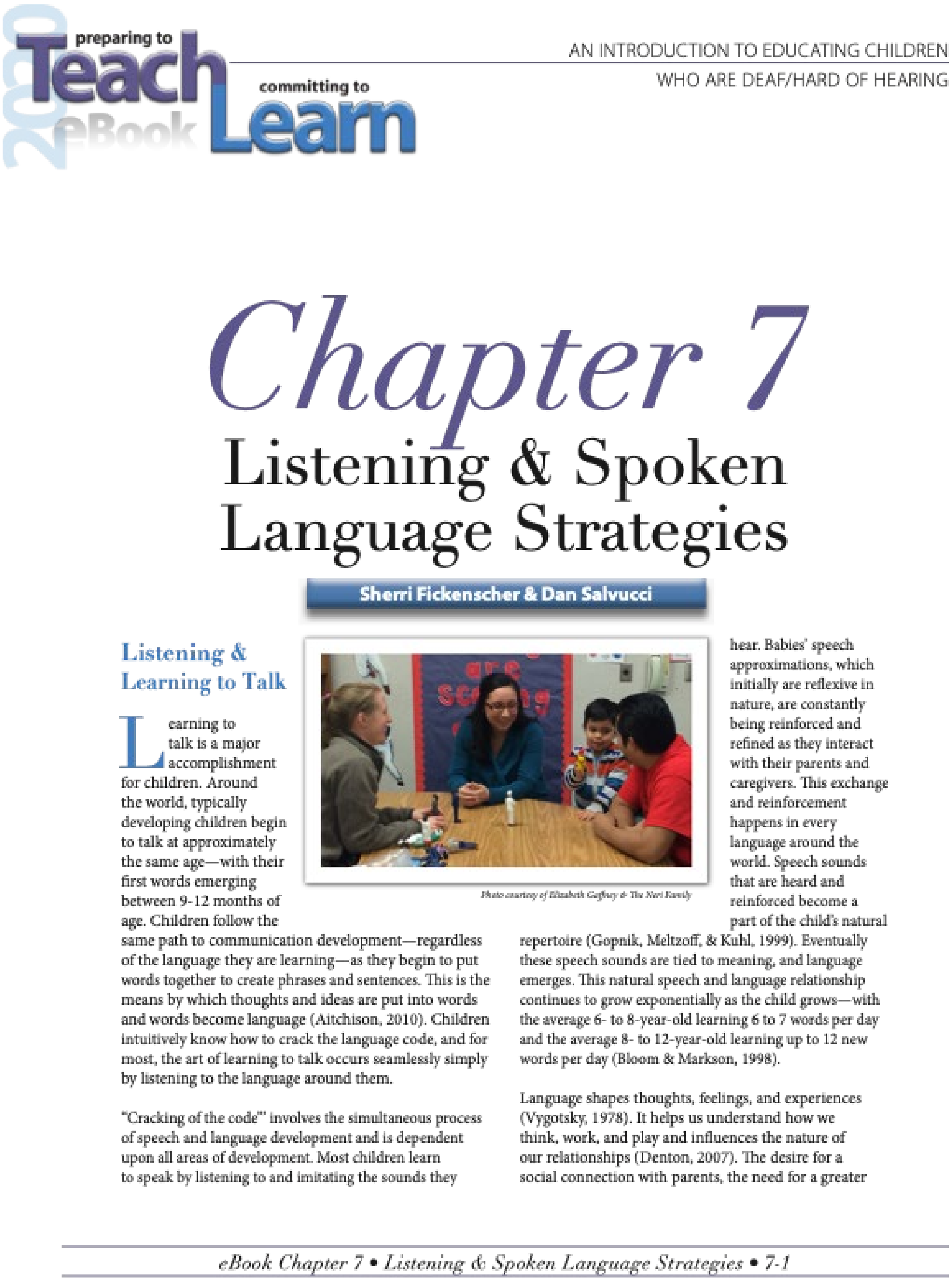


2020 eBook preparing to Teach committing to Learn
AN INTRODUCTION TO EDUCATING CHILDREN WHO ARE DEAF/HARD OF HEARING

Chapter 7

Listening & Spoken Language Strategies

Sherri Fickenscher & Dan Salvucci

Listening & Learning to Talk

Learning to talk is a major accomplishment for children. Around the world, typically developing children begin to talk at approximately the same age—with their first words emerging between 9-12 months of age. Children follow the same path to communication development—regardless of the language they are learning—as they begin to put words together to create phrases and sentences. This is the means by which thoughts and ideas are put into words and words become language (Aitchison, 2010). Children intuitively know how to crack the language code, and for most, the art of learning to talk occurs seamlessly simply by listening to the language around them.

"Cracking of the code"' involves the simultaneous process of speech and language development and is dependent upon all areas of development. Most children learn to speak by listening to and imitating the sounds they hear. Babies' speech approximations, which initially are reflexive in nature, are constantly being reinforced and refined as they interact with their parents and caregivers. This exchange and reinforcement happens in every language around the world. Speech sounds that are heard and reinforced become a part of the child's natural repertoire (Gopnik, Meltzoff, & Kuhl, 1999). Eventually these speech sounds are tied to meaning, and language emerges. This natural speech and language relationship continues to grow exponentially as the child grows—with the average 6- to 8-year-old learning 6 to 7 words per day and the average 8- to 12-year-old learning up to 12 new words per day (Bloom & Markson, 1998).

Photo courtesy of Elizabeth Gaffney & The Neri Family

Language shapes thoughts, feelings, and experiences (Vygotsky, 1978). It helps us understand how we think, work, and play and influences the nature of our relationships (Denton, 2007). The desire for a social connection with parents, the need for a greater understanding of the world, and the need for some control over their environment create the impetus for a child to develop speech and language. This motivates a child to remember and produce chunks of language that they hear from parents and caregivers. Speech (simply vocalizing in the early stages of life) and language becomes a vehicle for the child to get their needs and wants met.

What Happens When a Child is Deaf or Hard of Hearing (D/HH)?

A child who is D/HH can learn language through the same process as a child who does not have a hearing loss—through exposure to the language of their family. For a child who is D/HH and whose family has chosen listening and spoken language (LSL) as their child's mode of communication, there are three key factors that set a solid foundation for the development of spoken language competence:

Early Identification & Diagnosis

Early identification (ideally by 1 month of age) and diagnosis (by 3 months of age) of the hearing loss (JCIH, 2007).

Early Auditory Access

"Immediate and consistent auditory brain access via technology to preserve and develop neural plasticity" (Cole & Flexer, 2020, p. 17). A child must have appropriately fit hearing technology.

Early Intervention

Access to trained professionals who guide and coach parents and caregivers to be the child's primary models for communication development.

Early identification, early auditory access, and early intervention by trained professionals must work in tandem to produce the most effective listening and spoken language outcomes for a child. Each of these factors alone will not provide a child who is D/HH with the skills to be a full participant in a hearing and speaking world. However, with early diagnosis of hearing loss, the use of hearing technology, and guidance from professionals with expertise in spoken language development, a child who is D/HH can begin the natural process of listening and speaking.

Perspectives on LSL Strategies

The field of education of children who are D/HH in the United States has seen many changes over the past 150 years. The roots of what is referred to today as "LSL strategies" began in 1802 with the French physician Jean Itard, who claimed that the deaf could learn to hear words (Pollack, Goldberg, & Caleffe-Schenck, 1997). Since Itard's work in 1802, a multitude of terms have been used to describe what is now known as LSL. A few of these terms are:

1. Acoupedics
2. Unisensory Approach
3. Acoustic Method
4. Articulation Method
5. Auditory Approach
6. Auditory-Oral Approach
7. Auditory-Verbal Approach

The first American attributed with using what is now referred to as LSL was otologist Max Goldstein, who coined the term as the "acoustic method" (Duncan & Rhoades, 2010). Goldstein, who was the founder of Central Institute for the Deaf, then influenced the work of other professionals who are referred to as "pioneers" of auditory-verbal practice: Helen Beebe, Ciwa Griffiths, Doreen Pollack, and Daniel Ling. These pioneers laid the foundation for LSL at a time when children were not identified early and lacked the benefits of today's technology.

A child who is D/HH can learn language through the same process as a child who does not have a hearing loss—through exposure to the language of their family.

LSL in Auditory-Verbal Education & Auditory-Verbal Therapy

As noted, access to trained professionals is key to the development of spoken language for a child who is D/HH. Professionals working to build a child's LSL skills must become proficient in many areas of their practice. The Alexander Graham (AG) Bell Academy for Listening and Spoken Language is the worldwide certifying body for Listening and Spoken Language Specialists (LSLSs). In order to achieve the designation as either a Certified LSLS Auditory-Verbal Educator (AVEd) or Auditory-Verbal Therapist (AVT), a professional engages in a rigorous learning and mentoring process, which covers a 3- to 5-year time period. A professional aspiring to become a LSLS must document 900 hours of professional experience and become competent enough in their practice to pass a written examination that covers nine domains of learning. These domains are:

1. Auditory Functioning
2. Strategies for LSL Development
3. Spoken Language Communication
4. Hearing & Hearing Technology
5. Parent Guidance Education & Support
6. Child Development
7. Emergent Literacy
8. Education
9. History, Philosophy, & Professional Issues

Knowledge, implementation, and coaching of LSL strategies currently covers 14.9% of the certification examination (AG Bell Academy, https://bit.ly/2Mzno6g). The knowledge and application of LSL strategies are critical skills for an aspiring LSLS professional to acquire.

Professionals are aware of and utilize LSL strategies to increase the likelihood of success for the children they serve. It is important, therefore, to continually evaluate the effectiveness of these strategies and the basis for their relevance in our field. The ultimate goal of LSL strategies is conversational competence. The practitioner uses strategies only until the child no longer needs the support of strategies to be a competent conversational partner through natural speech and language patterns. The importance of LSL strategies is critical for successful intervention. Some questions to be considered are:

Access to trained professionals is key to the development of spoken language for a child who is D/HH.

- What are the strategies?
- Where did the strategies originate?
- Why are they so important to LSL outcomes for children?
- How do I know which strategy to use to give a child the greatest opportunity to meet with success?

What Is a Strategy in LSL?

The terms "strategy" and "technique" in auditory-verbal practice and deaf education are often used together and interchangeably. Distinct definitions of these terms are:

Strategy

A plan utilized to achieve a goal. It is a particular behavior performed in a specific way with the intent of eliciting a predetermined response. A strategy has a specific order or way of implementation.

Technique

A way of presenting information or a style of teaching that may vary from therapist to therapist and teacher to teacher. A technique is the way a professional implements the strategies (Fickenscher & Gaffney, 2012). There are many techniques that professionals may utilize that are not considered strategies. Two examples of techniques are:

- Singing
- Planning sessions around daily routines

Professionals and parents use strategies, such as acoustic highlighting or auditory closure, while singing with a child. In this scenario, singing is considered a technique, while auditory closure and acoustic highlighting are strategies. Sessions may involve the daily routine of getting dressed—where a parent can add their own ideas (technique)—with an emphasis on wait time and joint attention (strategies). This particular chapter addresses the strategies that professionals use to develop LSL skills.

> **While the history of LSL is well documented, tracking the history of the use of strategies in LSL is quite a different story.**

LSL Strategies: Where to Start

While the history of LSL is well documented, tracking the history of the use of strategies in LSL is quite a different story. Many instances in early literature refer to teaching strategies or methods of teaching (Pollack, Goldberg, & Caleffe-Schenck, 1997), but literature reviews do not lead to one comprehensive document outlining the definition, use of, or effectiveness of these strategies. There are often different names for the same strategy (e.g., auditory sandwich vs. listening sandwich; focused auditory stimulus vs. auditory bombardment), and a clear lack of which strategies have the greatest impact on the development of auditory, speech, and spoken language skills.

While there is a lack of rigorous, evidence-based research on the effectiveness of strategies in regard to children who are D/HH, the effectiveness of strategies has been driven by evidentiary practice and informed clinical experience and handed down through coaching, mentoring, and training professionals who work with children who are D/HH and wish to develop spoken language.

There is, however, research that the use of specific strategies support the building of healthy brain architecture for the young child. The Center of the Developing Child at Harvard University highlights the concept of serve and return and the significance of responsive caregiving to the overall development of healthy brain architecture. Serve and return interactions are all about the interactions that occur between a baby and his or her caregiver. The Center on the Developing Child goes on to break these important serve and return interactions into five specific steps—or strategies—that when used consistently actually help to grow a child's brain! The good news for LSL practitioners is that these five steps are also strategies that have been considered as cornerstones of LSL practice. Professionals following a LSL approach are uniquely poised to coach and guide parents in the use of these impactful practices.

The five steps outlined by the Developing Child at Harvard are:

1. Notice the serve and share the child's focus of attention.
2. Return the serve by supporting and encouraging.
3. Give it a name.
4. Take turns and wait . . . keep the interactions going back and forth.
5. Practice endings and beginnings.

These strategies are discussed in detail on their website (https://bit.ly/3cSf EK), and the reader is encouraged to investigate this website and the wealth of research available there. Additional links are provided in the *Resource* section of this chapter. There are multiple articles, white papers, and easy-to-follow videos to support learning. The concepts the multidisciplinary team at the Center of the Developing Child present are all supported by research that compels anyone interested in the welfare of a child to not only read thoroughly but to follow the practical recommendations for maximizing strong brain architecture.

Beginning practitioners may want to first become familiar with these strategies as they are evidenced-based and then add additional LSL strategies as their knowledge grows. *Appendix A and B* are worksheets to organize thoughts and create a crosswalk between the *5 Steps of Serve & Return and LSL Strategies*.

There are multiple resources for a more indepth study of LSL strategies, as well as additional resources at the end of this chapter. One of the challenges of discussing LSL strategies is how to group or categorize the strategies for ease of learning.

Strategies are often divided into three categories based on skills the child needs to develop:

1	Auditory Skills
2	Speech Skills
3	Language Skills

A compilation of LSL strategies was written by Fickenscher and Gaffney (2012) with detailed explanations and discussions. *Table 1* is recreated from that document with definitions and additional names LSL strategies may be called. The strategies introduced in this chapter reflect the literature and experience of professionals and mentors. There are other strategies used in the field of LSL development that are not presented in this chapter that may be used in practice or may be similar to the strategies identified but referred to by another term.

Planning for Success

Strategies are chosen based on the desired outcomes for a child. In order for appropriate goals and outcomes to be determined, a professional must evaluate a child's current levels of functioning (CLF) in all areas of learning (Dickson & Caraway, 2012). CLF are determined through formal and informal assessments, observations of a child, discussion with parents and other members of a child's Individualized Family Service Plan (IFSP) or Individualized Education Program (IEP). The areas covered in the CLF may include:

- The age a child was amplified.
- The age when early intervention services began.
- Level of auditory skill development.
- Receptive language development.
- Expressive language development.
- Cognitive development.
- Social development.
- Motor (fine and gross) development.
- Self-help (adaptive) skills.

Through continuous progress monitoring and data collection, a professional knows a child's current levels at any given time, as well as the next targets on their learning trajectory across all domains. A link to a sample CLF form can be found in *Resources for Further Learning on Strategies* at the end of this chapter.

When planning a parent session, individual or group lesson, a professional must consider the long-term goal and short-term objectives and choose activities that are developmentally appropriate for the child based on CLF.

Once a target is identified, the professional then asks . . .

"What strategy will help achieve the desired outcome for this child or student?"

Planning Into Practice

There are multiple theories and frameworks to consider when planning a lesson or intervention session. Generally there are two approaches to consider—directive (didactic) or naturalistic (Law, 1997). A professional may also use a combination of the two. Along the continuum of birth through secondary education, the professional strives to increase their ability to be family centered. No matter the age of the child or young adult, outcomes will be greatest with increased family involvement and support. The planning and implementation of sessions, however, will look different depending on the age of the child and location of services.

In intervention sessions or lessons that are more directive, the professional uses a stimulus-response paradigm by initiating the interaction or stimulus to produce the intended target. A directive approach provides a controlled setting or controlled activity that is often more typical of a school or therapy setting. Directive approach may also be referred to as explicit instruction.

In order for appropriate goals and outcomes to be determined, a professional must evaluate a child's current levels of functioning in all areas of learning.

Table 1

LSL Strategies & Commonly Accepted Definitions for Each Strategy

LSL Strategy *(Also Known As)*	Definition & Potential Target Goals
Auditory Bombardment *(Focused Auditory Stimulation)*	The provision of numerous opportunities for a child to hear the target phoneme, sound, or language (Dickson, 2010). **Target Goals:** *Attention to sound, awareness of sound, integration of listening into a child's personality.*
Auditory Closure *(Pause, Prompt)*	A speaker begins a song, rhyme, or sentence and then stops talking in order to encourage the child to fill in a verbal response. **Target Goals:** *Attention to speaker, response from a child, turn-taking skills, child's use of spontaneous language, expressive language expansion.*
Acoustic Highlighting *(Elongate, Low Light, Pause, Repetition of Specific Sound, Whisper)*	Added vocal emphasis is placed on an identified target. A target can consist of important sounds, words, parts of phrases, or grammatical structures in a sentence. **Target Goals:** *Attention to auditory signal and/or speaker, responses from child, turn-taking skills, expressive language.*
Ask, “What Did You Hear?”	When a child gives an incorrect or inappropriate response, no response, or experiences a communication breakdown, the adult can ask, “What did you hear?” to prompt the child to give back the part of the message that was heard and attempt to repair the breakdown. **Target Goals:** *Attention to auditory signal and/or speaker, confidence in listening skills, repair strategies for communication breakdowns.*
Auditory Sandwich *(Auditory First, Listening Sandwich)*	Information is presented through listening before the introduction of visual or other support information is given to a child. When visual information is needed to assist in comprehension, the information is then put back into the auditory-only presentation. The auditory sandwich is also referred to as the “listening sandwich.” **Target Goals:** *Suprasegmentals of speech, attention to auditory input and the speaker, ability to process language through listening.*
Expansion *(Add Something, Elaborate, Expatiation, Extension, Scaffold)*	An adult repeats back what the child has said and either adds something new or corrects syntax or grammatical structure. **Target Goals:** *Length of utterances, degree of syntactic or semantic correctness, complexity of responses from child, auditory feedback loop.*
Expectant Look *(Sometimes Used in Conjunction With Lean In, Prompt)*	A nonverbal signal is given to a child to indicate a response is expected. **Target Goals:** *Attention to speaker, response from child, turn-taking skills, expressive language expansion.*
Joint Attention *(Follow the Child's Lead, Shared Focus)*	The ability for two or more people to share a common focus (Woods & Wetherby, 2008). **Target Goals:** *Attention to auditory input, build social cognition (Mundy & Newell, 2007), assist development of theory of mind (Gavrilov et al., 2012), increase language development (Brooks & Meltzoff, 2005).*
Model Language & Speech *(Narrate, Parallel Talk, Recast, Rephrase, Self-Talk, Simplify)*	An adult speaks clearly at all times, uses the correct grammar, and gives appropriate and meaningful language in context. **Target Goals:** *Neural connections in the brain (Suskind, 2015), auditory feedback loop, receptive language skills, expressive language skills, appropriate grammatical rules.*
Motherese *(Parentese, Child-Directed Language)*	The singsong voice that parents naturally use when speaking to very young babies. Motherese is also referred to as parentese, baby talk, or child-directed speech. **Target Goals:** *Attention to speaker, repertoire of vowel sounds, cooing, response from child, social-emotional development (Bergeson-Dana, 2012), turn-taking skills.*

Table 1
(continued)

LSL Strategy ***(Also Known As)***	**Definition & Potential Target Goals**
Open-Ended Questions	Questions are asked that require more than a yes/no or one word response (Bond & Wasik, 2009). ***Target Goals:*** *Access to auditory information, length of utterance, turn-taking during discussion.*
Optimal Positioning *(Awareness of "Better Ear," Distance From the Speaker, Get on Child's Ear Level, Listening Bubble, Position for Maximized Auditory Input, Speak Within Earshot)*	Proper position and distance between the speaker and the listener that enables the child with hearing loss to have the most optimal access to spoken language through audition. ***Target Goals:*** *Access to auditory information, auditory attention to speaker, responses from child, access to subtle conversational cues, faint or distant speech.*
Parallel Talk *(Immitate Child's Vocalizations, Mirror Child's Vocalizations, Narrate)*	An adult talks to the child about what the child does, hears, or sees at any particular moment in time. ***Target Goals:*** *Parents' ability to interact with child, receptive language skills, expressive language skills, ability to use grammatically correct structures, conversational skills (Raver et al., 2012).*
Prompt *(Auditory Closure, Create a Need for the Child to Talk, Expectant Look, Lean In)*	The use of a verbal, visual, or physical indicator that increases the likelihood of a correct response from a child. *(For additional information on this LSL strategy, see Chapter 9 by Ellie White.)*
Repetition	An indirect or informal language stimulation technique where a targeted sound, word, phrase, or sentence is said more than one time (Weybright, 1985). ***Target Goals:*** *Auditory feedback loop, receptive language skills, clarification, expressive language, knowledge of grammatical structures.*
Sabotage *(Create the Unexpected, False Misunderstanding)*	Creation of an unusual or unexpected situation with familiar items or routines that is contrary to the child's expectation or understanding (Winkelkotter & Srinivasan, 2012). ***Target Goals:*** *Joint attention, attention to auditory information, length of utterance, expressive language skills.*
Self-Talk *(Narrate)*	An adult talks to the child about what the adult sees, does, or hears at any particular moment in time. ***Target Goals:*** *Parents' ability to interact with child, receptive language skills, expressive language skills, ability to use grammatically correct structures, conversational skills (Raver et al., 2012).*
Take Turns *(Serve & Return)*	Adults learn to encourage a back-and-forth volley between themselves and the child. ***Target Goals:*** *Auditory attention to speaker, response from child, conversational competency, expressive language skills.*
Wait Time *(Pause)*	The pause used between an adult's interaction with a child and the child's expected response that allows the child time to process the auditory information and formulate a response (Dickson, 2010). ***Target Goals:*** *Length of response, speaker's confidence, likelihood of response from a child, communicative intent, turn-taking skills (Cole & Flexer, 2011).*
Whisper *(An Element of Acoustic Highlighting)*	This form of acoustic highlighting is used with voiceless consonants to give acoustic saliency to the targeted consonant. ***Target Goals:*** *Auditory attention, auditory accessibility, auditory feedback loop.*

In early intervention, professionals tend to use a more naturalistic approach. In an intervention session that is more naturalistic, the professional plans to use a given strategy with a naturally occurring activity. In a naturalistic approach, the professional takes advantage of the daily opportunities that occur in a child's life by participating in or simulating the child's daily learning environment. This approach is often used by professionals when working collaboratively with parents in a coaching relationship. When deciding between a directive or naturalistic approach, one is not exclusive of the other but rather part of a continuum to reach the intended target or outcome.

The reader is encouraged to read and reflect on *Chapter 8* by Stredler-Brown and Voss, which describes the following components of a Family-Centered Early Intervention (FCEI) session. One way to relate this process to the use of strategies is shown in *Table 2*.

Table 2
FCEI Session & Possible Questions

Components of a Family-Centered Early Intervention Session	Question to Ask Caregiver Based on Identified Goal
Reconnect & Review	• What strategy did you practice this week? • How did that go? • What was your child's response when you used the strategy?
Address Priorities	• Would you like to practice that strategy more or move on to a different one?
Show the Craft	• Model how to implement strategy or ask caregiver to model how he/she used the strategy.
Assess & Evaluate	• How did your child respond when I used that strategy? • Should we try it again?
Reflect on the Visit	• What would you like to focus on for this week? • What strategies do you think went well during this visit?

Given the significant language needs of children who are D/HH, either the *directive* or the ***naturalistic*** intervention approach becomes the framework for achieving the desired goal. It is the active process of executing the session or lesson that calls for the use of specific strategies in order to meet the intended goal or outcome (see *Table 3*).

> It is important to recognize that no one specific intervention approach is best for all young children.

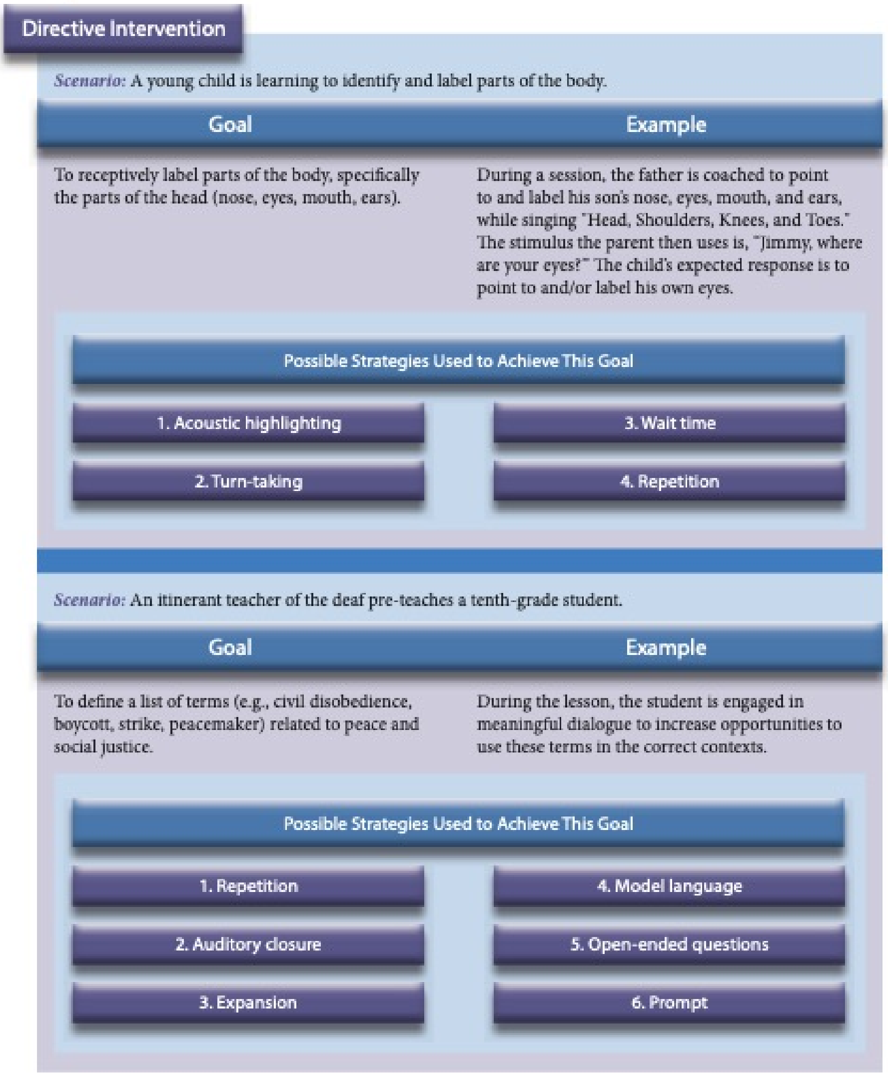
It is important to recognize that no one specific intervention approach is best for all young children. When selecting an intervention approach, it is important for the professional providing the intervention to consider the individual characteristic of the child, the child's stage of language development, and the setting in which the intervention takes place. When the professional is working in the home with the parent, it is imperative that the parent's learning style is taken into consideration and that the intervention is tailored around what activities the parent will follow through on in between sessions. It is important to consider the child's conversational skills and verbal competence when determining whether to use a more directive or naturalistic intervention. Whatever the approach taken, the professional should plan for several possible responses from the child in order to be better prepared for selecting the appropriate strategy to reach the intended target.

Selection & Application of Strategies

LSL strategies are used across all settings that are part of a child's daily life. Strategies are employed in meaningful ways in daily routines and activities by parents, caregivers, teachers (those in specialized as well as inclusive settings), audiologists, speech-language pathologists, and any other professional and hopefully family member with whom the child comes in contact. While strategies do not necessarily follow a developmental order, children do!

The use of strategies to develop a child's auditory, speech, and language skills is not arbitrary. Particular strategies are chosen, because they are linked to the desired outcomes for a child. In order to choose appropriate strategies, the professional must be keenly aware of overall child development and in particular be knowledgeable about auditory hierarchies and typical speech development, as

Table 3
Examples of Directive & Naturalistic Intervention



Directive Intervention

Scenario: A young child is learning to identify and label parts of the body.

Goal	Example
To receptively label parts of the body, specifically the parts of the head (nose, eyes, mouth, ears).	During a session, the father is coached to point to and label his son's nose, eyes, mouth, and ears, while singing "Head, Shoulders, Knees, and Toes." The stimulus the parent then uses is, "Jimmy, where are your eyes?" The child's expected response is to point to and/or label his own eyes.

Possible Strategies Used to Achieve This Goal	
1. Acoustic highlighting	3. Wait time
2. Turn-taking	4. Repetition

Scenario: An itinerant teacher of the deaf pre-teaches a tenth-grade student.

Goal	Example
To define a list of terms (e.g., civil disobedience, boycott, strike, peacemaker) related to peace and social justice.	During the lesson, the student is engaged in meaningful dialogue to increase opportunities to use these terms in the correct contexts.

Possible Strategies Used to Achieve This Goal	
1. Repetition	4. Model language
2. Auditory closure	5. Open-ended questions
3. Expansion	6. Prompt

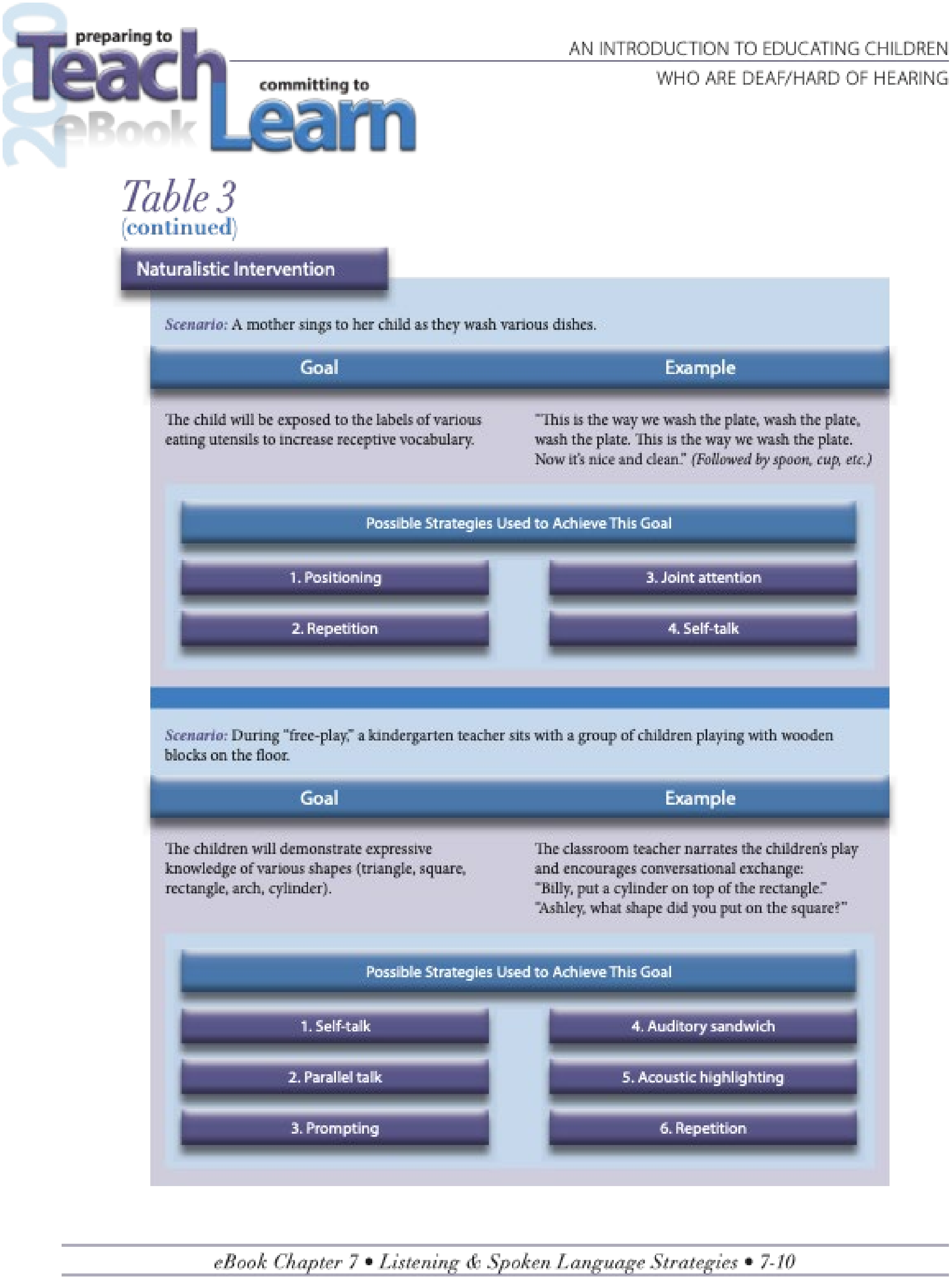


Table 3 (continued)

Naturalistic Intervention

Scenario: A mother sings to her child as they wash various dishes.

Goal	Example
The child will be exposed to the labels of various eating utensils to increase receptive vocabulary.	"This is the way we wash the plate, wash the plate, wash the plate. This is the way we wash the plate. Now it's nice and clean." *(Followed by spoon, cup, etc.)*

Possible Strategies Used to Achieve This Goal

1. Positioning
2. Repetition
3. Joint attention
4. Self-talk

Scenario: During "free-play," a kindergarten teacher sits with a group of children playing with wooden blocks on the floor.

Goal	Example
The children will demonstrate expressive knowledge of various shapes (triangle, square, rectangle, arch, cylinder).	The classroom teacher narrates the children's play and encourages conversational exchange: "Billy, put a cylinder on top of the rectangle." "Ashley, what shape did you put on the square?"

Possible Strategies Used to Achieve This Goal

1. Self-talk
2. Parallel talk
3. Prompting
4. Auditory sandwich
5. Acoustic highlighting
6. Repetition

well as receptive and expressive language development. If a professional is not aware of what typical development looks like, they will not be aware when development is atypical. The professional who is aware of child development will, therefore, be aware of what skills need to be strengthened in an individual child and which strategies should be implemented to meet specific outcomes.

LSL strategies are integral to a child's ability to meet their full potential and master communicative competence.

One of the primary goals of LSL is for a child to achieve conversational competency through listening. Therefore, all strategies are auditory strategies if they are presented appropriately.

In order to choose the correct LSL strategy, the professional must be able to continuously analyze the child's strengths and needs, anticipate the child's response, and implement the correct strategy ***at the correct time***. Knowledge of a variety of LSL strategies is the first step in a learning trajectory for professionals and parents alike. The professional chooses to use a strategy or to proceed with the next strategy based on the child's response or lack of response. If the use of the selected strategy is successful, the outcome has been achieved. If the strategy does not elicit the desired outcome, the professional repeats the strategy used or introduces a new strategy. Some strategies are used for the purpose of exposure (repetition, self-talk, parallel-talk), although the professional is cognizant of the response the child gives to any use of a strategy.

A professional must not only know which strategy to use to reach a determined goal but must have the ability and competency to model and coach parents and other professionals in the appropriate implementation of the strategy. The proper use of LSL strategies requires the professional to be diagnostic in nature. Each and every response a child makes tells the professional something and leads to the decision of which strategy to employ next. Any given strategy may be specific to an activity that targets a goal or part of a classroom lesson, intervention session, or the child's daily living activities. They can be used multiple times within a lesson or session and in different ways.

In addition to LSL strategies, *scaffolding* may be needed to ensure a child meets with success. Scaffolding is support provided in a creative and adaptive manner that enables the child to learn the skills at the most independent level possible. Each child has a skill level that ranges from what they are able to do independently and spontaneously to what they are able to do with maximal assistance. Scaffolding allows the professional to work at a level that maximizes the child's learning potential at any given moment. This range of ability or "Zone of Proximal Development" (Vygotsky, 1978) represents a hierarchy of what tasks or skills a child is able to complete with the highest level of adult support to what they can do independently. As each child builds upon their established LSL skills, they are able to increase the complexity of their communicative competence.

Evaluating the effectiveness of specific strategies is often an in-the-moment process and depends upon a given response by the child. Different children respond in different ways to the use of the same strategy.

Ways to Improve LSL Strategy Repertoire

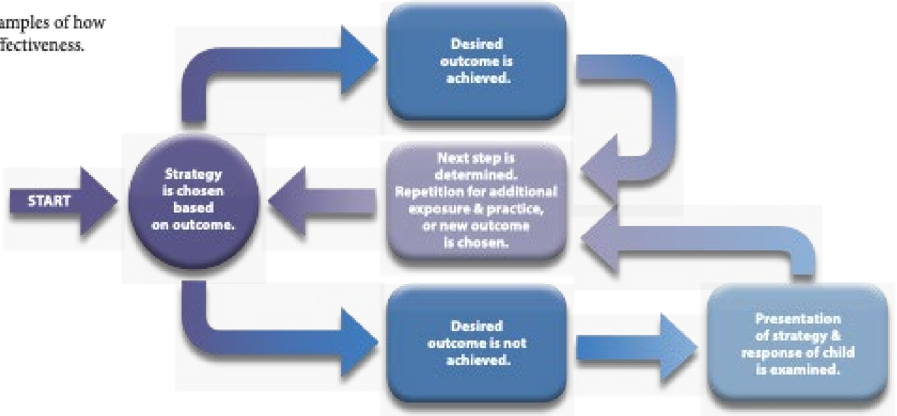
- Videotape sessions for personal, peer, or parent review.
- Partner with a colleague to increase strategy knowledge and skill level.
- Commit to professional learning on LSL strategies.
- Begin the process of becoming certified as an LSLS. Your mentor can be invaluable to your professional growth.

Conclusion

LSL strategies are integral to a child's ability to meet their full potential and master communicative competence. Professionals working with families and children who are D/HH have an obligation, therefore, to become proficient in their knowledge and implementation of these strategies. A professional must be aware of which strategies to choose and how to coach others in the use of strategies, while striving to use a variety of strategies throughout every interaction with a child who is D/HH. Brains are hardwired to learn language through listening (Cole & Flexer, 2020). Today this is possible for almost every child with hearing loss, regardless of the severity of that hearing loss. It is the strategies we employ that strengthen auditory and spoken language skills for a child who is D/HH.

Figure 1
Evaluating Effectiveness of Specific Strategies

The flowcharts are examples of how to evaluate strategy effectiveness.



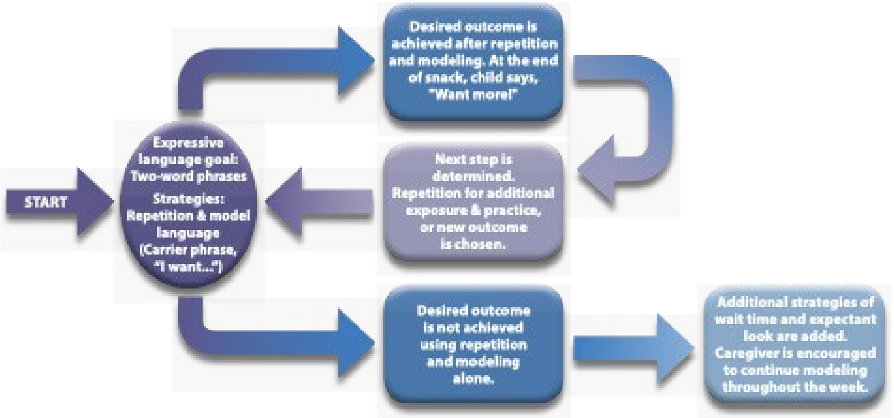
Example

A child has a receptive vocabulary of 60 words. He/she is not yet putting two words together. To encourage the use of two-word phrases, the professional and parent have selected the strategy of *modeling* carrier phrases. They select snack time to implement this strategy, because it is motivating for the child, part of the daily routine, and provides multiple opportunities for practice.

Parent: What would you like—raisins or goldfish?
Child: Goldfish.

Parent: You could say, "I want goldfish!"
Child: Goldfish.

At this point, the parent needs to decide if they can realistically expect more from their child without adding too much frustration, if they should model the language again, or choose a different strategy.



The ability of a professional to identify skill areas that are not part of their working repertoire serves as the catalyst for growth along the continuum of novice to expert.

Developing competence using LSL strategies is a process that takes time. As each strategy is understood and applied appropriately with children in a classroom or a child in therapy, professionals who are learning to use LSL strategies for the first time should use reflective practice to assess when the strategy is achieving the desired outcome. Professionals should also reflect on why or when the strategy used did not have the intended outcome and what the potential reasons may be that the intended outcome was not achieved.

The ability of a professional to identify skill areas that are not part of their working repertoire serves as the catalyst for growth along the continuum of novice to expert. The knowledge, application, and coaching of strategies may be an area of needed growth for many professionals. The ability to coach another in the strategies should be a goal of every professional. This involves the analysis of the skills of another and the ability to take the perspective of the person who may be less competent, and assumes communication skills that will allow for the transfer of knowledge from one individual to another. It should be expected that at multiple times throughout one's career, professionals will identify areas in which they are consciously incompetent and work toward a level of competence (Howell, 1982). Professional competency occurs when a professional has the ability to describe what each strategy is, how it is used, why it is used, and exhibits the ability to coach a parent or another professional to effectively use the strategies.

A Parent's Perspective . . .

"I had no knowledge of hearing loss. You don't really know what you need to teach your child to speak and listen. The strategies and techniques are what was most helpful to me. I'd be lost without them"

—Maria, mother of a 3-year-old child with bilateral, moderate-to-severe hearing loss

Resources for Further Learning on LSL Strategies

Audiology Online, http://www.audiologyonline.com/articles/listening-and-spoken-language-strategies-11245-11245
Auditory Verbal Strategies to Build Listening and Spoken Language Skills, http://www.clarkeschools.org/AVstrategiesBook
Current Level of Functioning Forms by Cheryl L. Dickson, http://www.auditory-verbal-mentoring.com/downloads/downloads.php
Elizabeth Gaffney, LSLS Cert. AVEd, has the following resources specific to LSL strategies, Instagram Account @bridgesavp, http://www.bridgesavp.com
Equal Voice for Deaf Children, http://www.evdcweb.org/lessonsmain/strategies/genstrategies.html
Hearing First, https://hearingfirst.org/learning-growing-lsl/lsl-strategies-techniques
Listen, Learn, & Talk: A Program That Provides Listening Strategies to Parents and Professionals to Enhance Spoken Language Development, http://www.cochlear.com/wps/wcm/connect/in/home/support/rehabilitation-resources/early-intervention/listen-learn-and-talk
LSLS Certification, https://agbellacademy.org/
The Center on the Developing Child at Harvard University Serve & Return Resources, https://bit.ly/3cSf EK

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Appendix A

Reflective Practice for Strategy Implementation

This worksheet can be duplicated and used to build your repertoire of LSL strategies.

Date	Goal	Strategy Used	Activity	What was child's response? Was the strategy successful?	What other strategy could I try?	Can I eliminate the use of the strategy and still have the child meet with success?

Appendix B

Linking LSL Strategies to Serve & Return

This chart can be utilized to watch videos and look for the *5 Steps of Serve & Return* and identify LSL Strategies. One LSL strategy is listed below. What else could be added?

This chart could also be shared with caregivers for them to keep focused on how they are engaging in Serve & Return and the link to LSL Strategies, https://developingchild.harvard.edu/resources/5-steps-for-brain-building-serve-and-return/

5 Steps of Serve & Return	Tally	LSL Strategy
Notice the Serve/Share the Focus		Parallel Talk
Return the Serve/Support & Encourage		Take Turns
Give It a Name		Model Language
Take Turns & Wait/Keep It Going Back & Forth		Wait Time
Practice Endings & Beginnings		Joint Attention