

eBook

preparing to
Teach **committing to**
Learn

An Introduction
to Educating Children
Who Are Deaf/Hard of Hearing

—Susan Lenihan, PhD, Editor

2020

eBook

Preface

My first experience in a deaf education classroom was more than 45 years ago. I was 18 years old and had just started college. I knew I wanted to teach, but I was uncertain about which major to choose. My sister suggested I look into the deaf education program at Fontbonne University. I met with the program director, Sister James Lorene Hogan, who immediately arranged for me to volunteer at St. Joseph Institute for the Deaf in St. Louis, so that I could discern if deaf education was the right career for me. I spent that fall semester of 1971 in the art room working under the guidance of Katie Gray, who was both a parent of two daughters who were deaf and the art teacher at St. Joseph. On my first day, and throughout that semester, I discovered

the joy of teaching children who are deaf. I observed eager students participating in hands-on learning, and I noted the enthusiasm and organizational skills of the teacher. I appreciated the opportunity to interact with the students and share ideas with them. As a teacher, I am always excited to see students learn and grow, and I am challenged to discover the best ways to facilitate that learning through engaging and meaningful experiences.

My varied teaching experiences have included teaching students from preschool through post-secondary in public and private programs and

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Susan Lenihan, PhD, Editor



providing early intervention services to infants, toddlers, and their families. I have taught in a variety of educational settings, including general education schools where students who are deaf or hard of hearing (D/HH) are mainstreamed with hearing peers, specialized schools that focus on listening and spoken language, and residential schools. I have had the opportunity to visit and observe in more than 50 programs providing services for children who are D/HH in the U.S., Germany, Costa Rica, Grenada, and Jamaica. During my Peace Corps experience in Kingston, Jamaica, at the

preschool program, I was given the opportunity to work with teachers in deaf education who were preparing for certification examinations. This experience sparked my interest in professional preparation, and for the past 30 plus years, I have had the honor of preparing future professionals, both teachers and speech-language pathologists, for serving children who are D/HH.

Deaf education has changed dramatically since that first day I stepped into the art class at St. Joseph Institute. Advances in technology, especially newborn hearing screening and cochlear implants, have changed the educational experiences of children who are D/HH. The Individuals with Disabilities Education Act (IDEA) changed the way teachers and families plan for the education of students who are D/HH. Research on practices for developing communication skills, literacy, and academic achievement has provided evidence-based strategies for teaching students and coaching caregivers. These changes require that professionals prepare to teach by studying current knowledge and strategies and applying that learning under the guidance of skilled mentors.

My desire to disseminate up-to-date knowledge and information led to the creation of this eBook, *Preparing to Teach, Committing to Learn: An Introduction to Educating Children Who Are D/HH*. As I have done so often in my career, I turned to my professional learning community colleagues for collaboration on this effort. My experience writing a chapter for the eBook created by the National Center for Hearing Assistance and Management (NCHAM) served as a model for *Preparing to Teach, Committing to Learn*. My goal for this text is that it provides an open source (free) eBook on deaf education that will be available to students and faculty in professional preparation programs. While the focus is on deaf education teachers providing services to students who are D/HH, my hope is that the text is useful to students and faculty in related fields, including speech-language pathology, audiology, and special education. Because the text is introductory in nature, it covers a broad range of topics and does not replace texts that go into more depth on a particular aspect of deaf education, such as literacy. The text includes appropriate references and additional recommended readings and resources for further study. The text addresses the range of communication options used by students in deaf education; however, the emphasis is on listening and spoken language approaches and strategies that have often been only minimally addressed in introductory texts. We include references and resources for further study of approaches that are primarily visual.

There are many benefits to creating this text as an eBook. The eBook format allows students and professionals free access to the content. The chapters may be used as a whole text or individually for particular topics in a course. I followed the model of the NCHAM eBook in having the pages numbered individually for each chapter (e.g., Chapter 4 is numbered 4-1 to 4-10) to facilitate the use of chapters individually. The content may be downloaded to a computer; thus providing a “green” alternative to paper. Since the text is in eBook format, my goal is to update the text regularly to reflect new research and changes in technology and services. The eBook format also allows readers to explore certain topics in more depth through the embedded links. These links will be regularly monitored and updated as needed. The eBook format also allows for the addition of appendices as needed and for the inclusion of video in the future, which will provide examples of many of the strategies and concepts. We hope to add the first set of appendices very soon to provide information on important topics that are not in the text. I am also considering the addition of

author interviews and questions for each chapter that students and faculty could use to enhance learning. I look forward to hearing from readers with ideas and comments for new content and updates.

The contributors to the book have expertise in the chapter topics. The authors include faculty in higher education programs, researchers, and practitioners in deaf education. Five of the contributors are D/HH, and three more have family members who are D/HH. In a number of the chapters, the authors worked collaboratively, and all of the authors participated in the sharing of ideas with me in my role as editor. Most of the authors are professionals that I have known and worked with for many years, but I was also delighted to have a number of young professionals agree to contribute to the project. To learn more about the contributors, see *Chapter 17: Meet the Authors*.

In deaf education, we are always thinking about language and the words we use, and I spent a fair amount of time considering and conversing with contributors about some of the terminology used in the text. In general, I allowed authors to use the language that they are most comfortable using in regard to usage and terminology. I suggested that rather than using he/she, we vary the gender pronouns used for the flow of the text. In my own writing, I use person-first language, such as “a child who is deaf or hard of hearing.” However, some authors prefer to use “deaf child,” so you will see both. In a commentary by Ellen Rhoades (2010), she addresses the challenges of using appropriate terminology to identify the hearing status of individuals, particularly in a time when a person with “audiological deafness” may function as “hearing.” In most chapters, authors use the abbreviation “D/HH” after initially using “deaf or hard of hearing.” It is my hope that the reader will be assured that the language and terminology used in this text is used respectfully and with positive regard for all individuals.

For readers of *Preparing to Teach, Committing to Learn* who are students in professional preparation programs, I hope that you find as much fulfillment and inspiration as I have found in this wonderful career of teaching. For professionals reading this text, I hope that your career has provided you with many opportunities to learn from colleagues, families, and students, and that you have had a positive impact on many lives.

My desire to disseminate up-to-date knowledge and information led to the creation of this eBook.

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Acknowledgements

This project would not have been possible if I had not been awarded a sabbatical from Fontbonne University that provided time to complete the work.

hours to discussing, researching, writing, and editing the content. I am forever grateful to them for their willingness to say “yes” to a request of this magnitude. A special thank you to Mary Ellen Nevins who suggested the creative title for the eBook, which reflects that teachers are lifelong learners.

As the editor of *Preparing to Teach, Committing to Learn: An Introduction to Educating Children Who Are Deaf/Hard of Hearing*, I am keenly aware of the generous support and contributions of so many that made this project possible. My outstanding colleagues at NCHAM, especially, Karl White, Les Schmeltz, Karen Munoz, and Debbie Risk, provided support in conceptualizing, designing, editing, and providing access to the text through the NCHAM website. The authors of the chapters committed endless

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I have learned so much about teaching from my students and graduates, field experience colleagues, and extended professional learning community, especially colleagues at the Alexander Graham Bell Association and the Association of College Educators-D/HH. The opportunity to see them teaching and to share in ongoing professional learning with them is a gift.

I am deeply grateful to my family for the support they have given me in my efforts to teach and to learn.

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Chapter 1

Pediatric Audiology

Stacey R. Lim & Donald M. Goldberg

It is our contention that audiology is the foundation of the auditory-based management of children who are deaf or hard of hearing (D/HH). In addition, we proceed under the framework that the “sky is the limit” for these individuals—as infants, toddlers, and children with hearing loss have the potential to do and be anything on which they set their sights. Excellence in diagnostic audiology and comprehensive audiologic follow-up is absolutely essential in the management of our children with hearing loss. When professionals, such as speech-language pathologists, educators, and audiologists, have a good understanding of the basics of audiology, they are better able to provide services that promote spoken language development. As a result, these children can indeed gain access to the sounds across the speech spectrum and with their hearing sensory technology and early and comprehensive intervention attain greatness!



Photo courtesy of Phonak

To help readers navigate the “acronym soup” of the world of audiology, *Appendix A* provides a lengthy listing of acronyms related to hearing, hearing loss, testing, and audiologic management.

Basic Anatomy of the Ear

The three major sections of the ear include the outer, middle, and inner ear, and the sense of hearing proceeds to the auditory cortex of the brain (see *Figure 1*; <http://www.medel.com/us/anatomy-of-the-ear/>).

In fact many proponents

of listening and spoken language (LSL) teaching follow the masterful mantra of Carol Flexer stating that “we hear with the brain; the ears are just a way in” (Flexer, 2011).

Outer Ear

Major landmarks include the pinna or auricle—made up of cartilage—which forms the outer ear. The bowl-like area of the

Figure 1
Basic Anatomy of the Ear

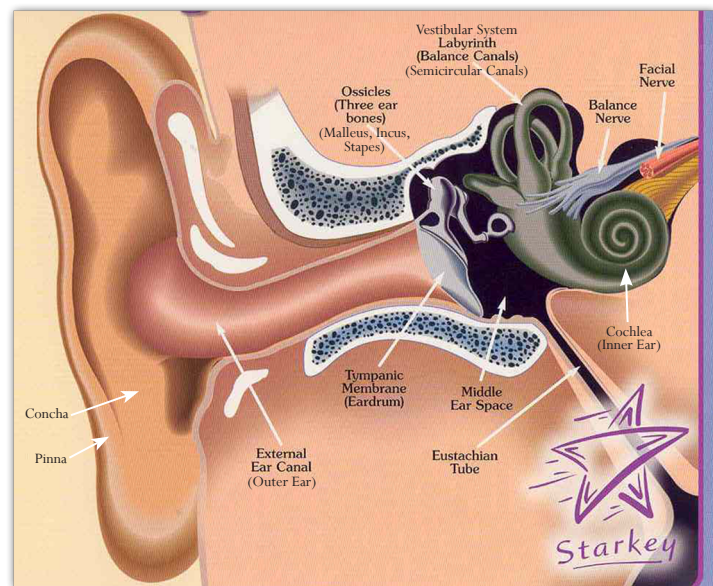


Photo courtesy of NCHAM

outer ear is the concha, which leads into the external auditory canal or meatus. Hair follicles line this pathway and play a role in the extrusion of cerumen or earwax. The canal ends at the tympanic membrane (TM) or eardrum. The TM is the dividing line between the outer ear (OE) and middle ear (ME).

Middle Ear

This air-filled space primarily houses the ossicles or ME bones. These bones are the smallest in the human body and are from the periphery inward the malleus (“hammer”), incus (“anvil”), and stapes (“stirrup”). Traveling from the ME space towards the nasopharynx (back of the throat) is the Eustachian tube. The Eustachian tube serves to regulate the pressure within the ME space and will open and close as a person swallows. The bones make up the ossicular chain and end at the level of the oval window of the cochlea in the inner ear (IE).

Inner Ear

The “sense organ” of hearing, located in the IE, is the cochlea—made up of three channels or scalae (the superior scala vestibuli, the scala media, and the inferiorly located scala tympani). The important cochlear duct—or Organ of Corti—includes thousands of inner and outer hair cells with stereocilia—all of

which are tonotopically arranged. Specifically, the hair cells of the base of the cochlea are tuned for high-frequency acoustic stimuli and then course towards the apex, which is tuned for low-frequency acoustic stimuli. In addition to the cochlea, the other major anatomical parts of the IE include the vestibular system and its three semicircular canals, along with the auditory-vestibular nerve (cranial nerve viii/8). The vestibular system is responsible for balance.

Central Pathway

Beyond the cochlea (retrocochlear aspects of hearing) include the cochlear nucleus and assorted “way-stations” arranged from the inferior to superior orientation of the Superior Olivary Complex, the Lateral Lemniscus, Inferior Colliculus, and the Medial Geniculate Bodies. The ultimate “destination” of the perception of sound for detection through comprehension is Heschl’s Gyrus in the auditory cortex of the temporal lobe of the brain.

Physiology of Hearing

A brief review of “how we hear” with the above-noted anatomical sites follows (Newman, Sandridge, & Goldberg, 2015). The OE functions to funnel sound into the ear canal to the ME. This acoustic or vibratory function is enhanced by the concave shape of the pinna and concha (bowl) of the OE and the natural resonance of the concha and the external auditory meatus (EAM; especially for the higher frequencies; the following videos show this process, <http://www.medel.com/us/how-hearing-works/>; <http://www.medel.com/us/videos/#.WOzzffjChzw>). At the level of the TM and the ME, there is an impedance mismatch between the acoustic signals from the OE and the fluids of the IE. The lever action of the ME bones and most notably the areal ratio (the area of the TM is approximately 17 times the area of the stapes footplate) enhances the transduction of the mechanical energy within the ME space.

At the level of the IE, mechanical energy must be transduced into hydromechanical energy via chemical changes within the cochlea and into neural impulses. Piston-like movements of the stapes moves into the

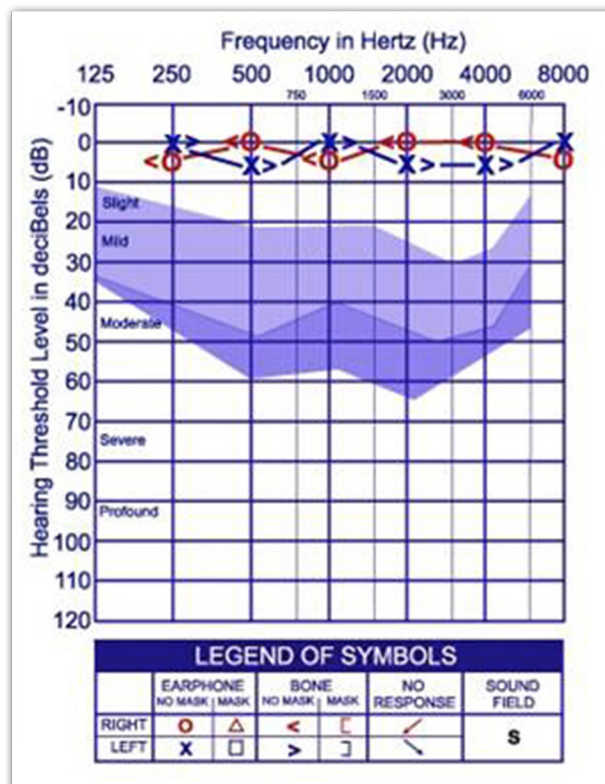
Infants, toddlers, and children with hearing loss have the potential to do and be anything on which they set their sights.

perilymph of the scala vestibuli, creating a traveling wave along the basilar membrane within the Organ of Corti. Fluid movements allow for “shearing” of the stereocilia of the hair cells. The resultant chemical changes excite the hair cells, and electrochemical energy results. With the release of neurotransmitters, auditory-based neural impulses are created and travel from the cochlea to the auditory nerve (Newman et al., 2015, pp. 410-413).

Hearing Testing

The following section will attempt to present “Everything You Always Wanted to Know About Hearing Testing” and is adapted from Goldberg (2015a, 2015b). Another resource is the 2016 document developed by the A. G. Bell Association for the Deaf and Hard of Hearing (AG Bell) and the AG Bell Academy of Listening and Spoken Language titled, “AG Bell Association’s Recommended Protocol for Audiological Assessment, Hearing Aid and Cochlear Implant Evaluation, and Follow-Up” (<https://www.agbell.org/Document.aspx?id=3009>; see Figure 2).

Figure 2
The Audiogram



The Audiogram

An audiogram is a graphic representation of a person’s hearing or auditory responses, specifically thresholds, which are defined as the “softest” sound detected at least 50% of the time. Thresholds need to be repeatable before they are recorded on the audiogram. Across the horizontal plane (abscissa or x-axis) of the audiogram are the frequencies in Hertz [Hz—formerly referred to as cycles per second (cps)]. Frequency information reflects the physical stimuli of sound vibrations with the psychological correlate of “pitch.” A person with “typical” hearing can usually hear sounds between 20 and 20,000 Hz. During hearing testing, however, only the octave frequencies are routinely measured and are considered “frequency-specific” samples (i.e., 250, 500, 1000, 2000, 4000, and 8000 Hz). On the vertical plane (ordinate or y-axis) of the audiogram are labels of “loudness” measured in decibels (dB), with an upper case B to honor Dr. Alexander Graham Bell. On the audiogram, the dB referent is to dB HL (hearing level), whereas the physical measure is dB SPL (sound pressure level). To determine the child’s audiometric thresholds, audiologists use air and bone conduction testing.

Air Conduction (AC)

When testing is completed with insert earphones placed in the patient’s ear canal or when headphones are used, the measurement is called AC testing. The complete pathway for AC includes the “whole system” (i.e., the OE, ME, and IE and beyond to the brain). The thresholds obtained with AC testing are placed on the audiogram as red circles for the right ear and blue Xs for the left ear. In the actual behavioral testing, the audiologist will have selected a frequency (the first frequency often tested is 1000 Hz), and by using an up and down “bracketing” procedure (Hughson & Westlake, 1944) of “louder” and “softer” pure tone or sine wave presentations, a 50% criterion of the “softest” sound level needs to be obtained. That level (in dB HL) is plotted under the vertical (y-axis) on the audiogram—in this case under 1000 Hz) and at the intersection with the horizontal (x-axis) point for the X dB HL number established. Testing is completed at the other frequencies for each ear separately, and a complete AC audiogram is subsequently filled in.

Bone Conduction (BC)

BC testing makes use of a bone vibrator or oscillator that is placed on the temporal bone of a patient—behind and to the side of the ear. Testing via BC essentially bypasses the OE and ME and literally vibrates the bones of the skull and directly measures responses from the cochlea—or sense organ of hearing—located within the IE. Thresholds from BC measures are similarly placed on the audiogram as red (<) or blue (>) brackets (these are placed directly to the left and right sides, respectively, of the vertical line reflecting the frequencies tested (typically only 250, 500, 1000, 2000 and 4000 Hz are measured by BC).

Hearing Loss Severities

As the audiologist evaluates the threshold results, specific guidelines are used to interpret the “degree” or “level” of hearing or hearing loss. Threshold responses for a child that are 15 dB HL or “better” (e.g., 10, 0, or even –5 or –10 dB HL) are all considered to be within normal limits (WNL). In other words, thresholds at the top of the audiogram reflect “good” hearing. As the thresholds need to be plotted further down the y-axis where dB HL numbers are higher, this indicates a more significant degree of hearing loss.

Some professionals characterize hearing loss based on an individual’s thresholds, while others rely on

the numeric average for each ear at 500, 1000, and 2000 Hz called the pure tone average (PTA). Still others methodically characterize the complete audiogram—taking into consideration that rarely are the thresholds completely “flat” across the audiogram and are often more likely at “better” levels in the low frequencies (pitches) and sloping downward in the mid-frequencies, with the “worst” threshold data often in the high frequencies. This helps explain why many individuals have the most difficult time

hearing “weak” sounds with most of their acoustic energy in the high-frequency regions, such as the “f,” “s,” and “th” sounds.

The severity of a hearing loss is typically determined by evaluating the dB level and using various terms to decode the degree of the hearing loss. Most texts use the following “classic” terms to indicate degree of hearing loss:

dB HL numbers of 26-30 as a “slight” hearing loss.

31-40 as “mild.”

41-55 as “moderate.”

56-70 as “moderately severe.”

Numbers between 71 and 90 suggesting a “severe” loss.

Thresholds of 91 dB HL and above are indicative of a “profound” hearing loss.

Most audiologists avoid language that uses terms suggesting a “percent of a hearing loss” for a variety of reasons. Notably, hearing is not a % or a 100% issue. In addition, because we use measures that can reach 120 or 130 dB HL—and the audiogram scale is logarithmic—the transfer of, for example, a 75 dB HL hearing loss cannot be interpreted as a 75% hearing loss.

Types of Hearing Loss

There are three primary types of hearing loss, which are based on the three classifications of conductive, sensorineural, and mixed hearing loss.

Conductive Hearing Loss

By definition, a conductive hearing loss involves a problem(s) with the “conduction” of sound to the cochlea. In conductive hearing loss, the site of lesion (or the anatomical location of the problem) is in the OE and/or ME. An example might be a combination of earwax in the ear canal at the same time the child is experiencing a buildup of ME fluid. Fortunately most conductive hearing losses can be reversed, corrected, or improved.

Sensorineural Hearing Loss

A sensorineural hearing loss (SNHL) involves the cochlea and/or the auditory nerve (the eighth cranial nerve or the auditory-vestibular nerve). In actual practice, few individuals ever have “nerve” deafness or involvement of the auditory nerve. SNHLs are typically permanent and nonreversible—resulting from heredity, birth disorders, assorted disease and disorders (e.g., meningitis), damage to the hair cells of the cochlea from medications (referred to as “ototoxic”), noise exposure, or the aging process.

Mixed Hearing Loss

A mixed hearing loss represents a combination of a conductive and SNHL loss. The site of lesion reflect the OE and/or ME **and** the cochlea/IE and/or the auditory nerve. For many of our children with a permanent SNHL, when they also come down with otitis media with effusion, this would be reflected in a mixed hearing loss; that is a hearing loss with additional sensitivity loss due to the conductive component being added to the cochlear loss.

As the audiologist evaluates the threshold results, specific guidelines are used to interpret the “degree” or “level” of hearing or hearing loss.

Behavioral & Electrophysiological Hearing Testing

A range of behavioral and electrophysiological tests of hearing have been developed and are regularly administered by audiologists. Although the behavioral tests detailed in *Table 1* are of great importance, it is important to point out that if these tests do not quickly lead to information about the presence of hearing loss, as well as regarding the ear-specificity of the data (that is, right ear only and left ear only threshold measurements), a prompt referral must be made for followup with an audiologist with significant experience in completing auditory electrophysiologic measures—also described in *Table 1*.

Physiological Tests

While behavioral tests provide a great deal of information about an individual's auditory perception, there are other types of objective tests that can provide the audiologist with more information about the child's auditory functioning (see *Table 2*).

Technology Options

Currently there are different options of hearing technology available for those who are D/HH. Although these technologies work differently, they have the goal of providing a full range of sounds across the frequency spectrum. As a result, children have the opportunity to access speech sounds essential for spoken language development.



Photo courtesy of Cochlear Americas

Hearing Aid

The most prevalent hearing technology worn by children with hearing loss are hearing aids. Every child identified as D/HH is considered a candidate for hearing aids (American Academy of Audiology, 2013). Hearing aids have the goal of making sounds audible. Hearing aids collect sound via a microphone. Most current hearing aid technology converts this analog sound energy into a digital signal. This digital signal, which is converted back into an electrical signal, is sent to the receiver (speaker). This amplified sound is sent to the ear.

Cochlear Implant

Children who have more severe or profound SNHL may derive more benefit from cochlear implant technology. A cochlear implant consists of an internal and external component. The electrode array of the internal component is surgically implanted into the cochlea. After the incision has healed, the child will receive an external speech processor device that is placed on the child's head during waking hours. Sound is collected by the microphone of the external component, transformed into electrical signals, that are then transmitted through the skin to the internal component. The electrodes send electrical signals that stimulate the areas of the cochlea that correspond to the frequencies of the sound that was collected. These signals then travel to the auditory processing centers of the brain.

Bone Anchored Hearing Aid (Baha™)

Often referred to as bone anchored hearing aid (Baha™; trademarked to Cochlear Corporation), an implantable bone conduction hearing device (IBCHD) or auditory osseointegrated implant system (AOIS) are options for children who have conductive hearing loss, mixed hearing loss, or single-sided deafness (SSD). The IBCHD consists of an implanted titanium component and external sound processor. The microphone on the external sound processor collects the sound and is converted into mechanical, vibratory energy. This vibratory signal is transmitted to the titanium component through the skull—vibrating the cochlear structures. These devices are typically not implanted until the child is 5 years of age to allow for greater maturation of the skull. Children who do not yet meet the age requirement may wear a soft headband that is coupled to the external sound processor.

Table 1

Behavioral & Speech Perception Tests

Behavioral Observation Audiometry (BOA)

BOA, as the name suggests, is contingent upon careful observation of a patient's behavior and notably his/her face in response to the presentation of sound stimuli. The child—often under 6 months of age—is typically seated on a parent's lap, and a pediatric test assistant should be situated in front of the patient and

parent. As narrow band noise (NBN) stimuli or frequency-modulated/FM (warble) tones are presented to a loud speaker in the field or test booth, the audiologist and the test assistant should agree upon any repeatable response observed (e.g., head turn, eye brow raising, etc.). The responses may more likely be

a minimal response level (MRL)—that is may not be a true threshold but a response slightly above “true” threshold. An important caution with testing of hearing in the soundfield is that unless headphones or ear inserts are used, when sound is delivered to loud speakers, the “better ear” is being tested, if a better ear exists.

Visual Reinforcement Audiometry (VRA)

VRA is based on the testing paradigm model of B. F. Skinner. In hearing testing using VRA, the patient is typically situated between two speakers that have been equipped with toys or characters that can be illuminated and made to move. As sound is delivered to the speaker, and the VRA equipment lights up and moves, the child is directed to that speaker and told, “I heard that!” Each of the speakers should be used, and the patient eventually should demonstrate the stimulus-response control of a head turn with the sound

and lighting/animation. Then the testing proceeds to the presentation of the sound alone to one speaker, and immediately following the head turn behavior (should it occur), the character/toy lights up and is set in motion as a reinforcement to his/her response. Threshold testing then proceeds at a variety of frequencies. VRA is often dependent upon quick testing behaviors and a collaborative working relationship of the audiologist and test assistant in an effort to obtain as much data as possible. Another key component of VRA

testing is to keep the child at midline, so that random head turns toward the speaker/toys are not interpreted as response behaviors when they more likely reflect a child interested in seeing the toy light up and move! Patients undergoing VRA testing are often in the age range of 7 months to 2 years. As with BOA, the better ear is being tested, if a better ear exists, if the VRA testing is completed in the free field or soundfield in contrast to when headphones or ear inserts are used, which does result in ear-specific threshold data being obtained.

Conditioned Play Audiometry (CPA)

Once the child is willing to allow for ear inserts or headphones to be used—provided the patient can be reliably taught to “drop a block” or put a ring on a spindle immediately after the presentation

of sound stimuli—complete ear-specific threshold data can be compiled. Although many suggest a child be 2 or 2½ years old, it is our recommendation that CPA testing techniques be attempted as early as

possible—even when the youngster is just over 1 years old. A key component of CPA testing is the ability of the test assistant to keep the child interested in the materials being used for the “drop” task.

Speech Audiometry

As people are not only asked to hear frequency-specific “beeps,” the use of speech stimuli is also an important component of a

comprehensive hearing evaluation. Typically the testing will include a speech recognition threshold (SRT) for the right ear and left ear and the

determination of speech perception for each ear with stimuli presented at a comfortable listening level, the word recognition testing (Goldberg, 2015b).

Speech Recognition Threshold (SRT)

Using spondee words (two-syllable words with equal stress, i.e., hot dog, baseball, cowboy), the audiologist will first familiarize the patient with a list of these words and then determine the “softest” level that 50% of the spondaic words can be heard. The SRT number is reported in dB HL (i.e., 15 dB HL). If needed, instead of

repeating back the spondee words, a child might be asked to point to the item named via a picture spondee board. The SRT is “acoustically” most closely matched to low-frequency hearing levels (e.g., 500 Hz) and the suprasegmental (melodic) characteristics of the stimuli. The SRT is often compared to the same ear’s PTA as an interest

reliability check (the SRT should be within + 6 dB of the PTA) and is used to determine the internal reliability by the patient for each ear being tested. The SRT was developed as an auditory-only threshold test or task, so that information obtained reflects the ability to perceive auditory versus auditory and visual cues.

Word Recognition Testing

The other commonly administered “speech” test is a word recognition measurement or word recognition score (WRS) often involving phonetically balanced (PB) words. These words are made up of sounds that are reportedly reflective of the frequency of occurrence of various phonemes used in spoken English. The most commonly used speech sounds are therefore predominant in sounds that make up monosyllabic PB words. The testing is completed at the patient’s most comfortable loudness level and reported as a percent correct at its specific presentation level. The intensity level must be reported and should be “interpreted” for the family (e.g., a presentation level

of 45 to 50 dB HL approximates the “loudness” of conversational speech). Like the SRT testing described above, word recognition testing should also be based on auditory-only word presentation, so that the information reflects auditory abilities versus one’s access to both auditory and visual cues.

For younger children, a word recognition task might involve asking the child to point to his belly, touch her nose, and point to his shoulder. For slightly older toddlers and preschoolers, picture books (e.g., Northwestern University Children’s Perception of Speech—or NU-CHIPS—by Nelson, 1970; or the Word Intelligibility by Picture

Identification—or WIPI—by Ross and Lerman) are commonly used. The child scans the four (or six) pictures on the page and is asked to “point to dress,” for example. For older children and most adults, the prompt is for the individual to repeat back the last word in the carrier phrase, “Say the word _____” from an open set of words. A score on a 0 to 100% scale is calculated. As noted above, the intensity of the stimuli for the presentation level must be reported, or the utility of this score would be minimal (again 45-50 dB HL would be an “average loudness” level; however numbers, such as 65-70 dB HL, reflect quite “loud” levels).

Other Pediatric Speech Perception Measures

In addition to the SRT and WRS testing described above, many pediatric clinicians also make use of tools to allow for the determination of auditory functioning on the “hierarchy” of detection (presence/absence of sound), discrimination (determination of same/different), recognition (selection of a named item or pointing to a named picture

in a field—closed set), identification (the repeat back of a named item), or comprehension (understanding of information). Long versus short could be determined with a rabbit going “hop hop hop” versus a train going “chooo chooo.” The Early Speech Perception (ESP) test (Moog & Geers, 1990) allows for the determination of pattern perception,

as well as subtests with spondee and word recognition measures. The familiar Ling Sound Test (Ling & Ling, 1978) that makes use of the auditory-only presentation of sounds that reflect the acoustics from low- to mid- to high-frequency (specifically, /oo/, /m/, /ah/, /ee/, /sh/, /s/) can also be used to determine specific hearing abilities of young patients.

Table 2

Physiological Tests

Acoustic Immittance

This is a test that measures ear canal volume, tympanic membrane function, and acoustic reflexes. While acoustic immittance is not a test of hearing ability, the results provide a great deal of information, and it is an integral part of an audiological evaluation.

A small probe tip is placed in the child's ear canal. As air pressure is changed in the ear canal, a tone is presented, and the reflected sound is measured. The eardrum mobility (i.e., stiff, compliant) and stapedius muscle contractions (acoustic reflexes) are measured in this

non-invasive test. One example of ME dysfunction commonly experienced by children, which can be observed in acoustic immittance results, is otitis media. Depending on the severity of the otitis media, the TM may be less mobile.

Otoacoustic Emissions (OAEs)

OAEs are a test of outer hair cell function and have been used for screening purposes (e.g., newborn hearing screening programs) and as part of a diagnostic battery. Evoked OAEs, such as transient-evoked

OAEs (TEOAEs) or distortion product OAEs (DPOAEs), are low-level sounds that are generated by the cochlea in response to tones or clicks presented via a probe tip. This procedure is noninvasive and can

help the audiologist determine if a hearing loss is sensory or neural in nature. ME function must be normal (as determined through acoustic immittance measures) to ensure that the test results are accurate.

Auditory Brainstem Response (ABR)

An ABR is a test of peripheral auditory system integrity where sound is presented via headphones, ear inserts, or a bone oscillator, and responses are measured through electrodes that are placed on the scalp and earlobes. These responses are generated by electrical activity produced by neurons in the auditory nerve (8th cranial nerve) and brainstem for the first 10 milliseconds after the presentation of a sound. An automated ABR (AABR) is a screening tool commonly used in newborn hearing screening. A screening level is selected (e.g., 35 dB HL), auditory stimulus is presented via inserts/headphones, and the results of AABR is a pass or refer for further audiological evaluation.

In a threshold ABR, responses are collected at various intensity levels, and the audiologist will interpret the resulting waveforms. The level at which the lowest visible response is present is the ABR threshold. With a threshold ABR, the audiologist can determine degree of hearing loss, the presence or absence of a conductive component, and some frequency-specific information. However, behavioral testing yields greater frequency-specific information and more information at higher intensity levels. Threshold ABR can be administered for a variety of reasons, such as to determine degree and type of hearing loss in infants or in those who may not be able to give reliable results, to

assess the integrity of the auditory pathway, such as in evaluating for Auditory Neuropathy Spectrum Disorder (ANSD).



Photo courtesy of NCHAM

While cochlear implants, hearing aids, and IBCHD have been options for many children with hearing loss, there are some children who have more complex needs, such as an absent or cochlear nerve deficiency that results in fewer or no auditory nerve fibers traveling from the cochlea to the brain with variable auditory preservation (Coletti, Coletti, Mandalà, & Colletti, 2014). This results in poorer speech perception. Some of these children may receive an auditory brainstem implant (ABI), which consists of an electrode array placed on a cluster of neurons in the cochlear nuclei (Schwartz, Otto, Shannon, Hitselberger, & Brackmann, 2008). Although ABI is less widespread, it is important to be aware of this hearing technology.

Hearing Assistive Technology Options

In addition to hearing technology, such as hearing aids, cochlear implants, ABI, and IBCHD, children with hearing loss can benefit from other types of hearing assistive technology (HAT), such as wireless remote microphone systems. These include:

Frequency modulation (FM) systems that use radio waves to transmit the desired speech signal

Digital modulation (DM) systems that use digital signals to transmit the speaker's voice to the child.

Both FM and DM systems provide additional help in more challenging listening situations. Although HATs can be used by individuals across all age groups, this chapter focuses on those that have the most application to school-aged children, and those students who have transition plans.

A challenge in educational settings is that classrooms are not ideal listening environments. There are several factors that make classrooms a more challenging listening environment for children who are D/HH. One factor is a poor signal-to-noise ratio, which is the relationship between the signal (speaker's voice) and background noise (Smaldino & Flexer, 2014). In other words, the teacher's voice should be of a higher intensity than the background noise.

While cochlear implants, hearing aids, and IBCHD have been options for many children with hearing loss, there are some children who have more complex needs.

Another factor is speaker distance—or how far the speaker's voice travels to the child's ears. The greater the distance sound energy travels, the more it diminishes in energy and overall intensity. Reverberation (the persistence of sound energy), which is very similar to an echo, is an additional challenge. This occurs due to sound energy persisting and reflecting off hard surfaces, such as walls or linoleum floors. These reflections interact with each other and makes it more difficult to clearly hear the teacher's voice. In classrooms, these three factors tend to interact with each other.

As a result, children who are D/HH may expend more energy focusing on the teacher's message—potentially

missing or misunderstanding classroom content. Hearing access technology, such as FM systems/wireless remote microphone systems, are coupled to the child's hearing technology, and the teacher wears a transmitter. These systems have the goal of increasing the signal-to-noise ratio and reducing the impact of distance and reverberation. In other words, these help increase the intensity level/loudness of the speaker's voice approximately 10-15 dB above the background noise—making the speaker's voice clearer to the child (Rhoades, MacIver-Lux, & Lim, 2016).

In addition to FM systems/wireless remote microphone systems, there are other types of HAT that are available for school or home use. Some examples of these may be those that are alerting devices, such as flashing fire alarms and flashing/vibrating alarm clocks. These types of devices are important for safety issues, as well as helping the child develop the skills for independence (e.g., using an alarm clock to wake up in the morning). Technologies that can also be useful are items such as closed captioning/subtitles. Video materials presented for educational purposes should include captions/subtitles, so that the child has complete access to materials used for teaching.

Educational Audiology Needs

Although FM systems/wireless remote microphone technologies can provide a child with greater access to the teacher's voice, there are other educational considerations that can be made. Some of these would be included in an individualized education program or plan (IEP)

or a 504 plan (see the *Educational Settings* chapter for more detailed information on IEPs and 504 plans).

A child with hearing loss will need additional support to ensure that he/she has equal access in the classroom. Typically an educational audiologist will work with the school to ensure that the child has access to auditory information in the classroom. The educational audiologist may, for example, select, fit, monitor, and maintain the child's FM system/wireless remote microphone system. He/she may also collaborate with other members of the child's team, such as the teacher(s), school speech-language pathologist, auditory-verbal therapist, parents, and other school professionals, to develop an IEP, individual family service plan (IFSP), 504 plan, or transition plan that is appropriate for the child.

As mentioned previously, classrooms are noisy, reverberant environments. Some ways the impact of reverberation can be reduced is by acoustically treating the classroom with items that absorb some sound energy. Examples of these can include using rugs on linoleum floors, hanging drapes over windows, acoustic tiles on ceilings, placing corkboards and posters on walls, and placing books on shelves.

Other ways the child can be supported are through different instructional strategies and accommodations. Examples of some teaching strategies that can support learning of **all** children in the classroom, whether or not they have typical hearing or are D/HH, can include the following:

1	Rephrasing questions and responses from other students.
2	Summarizing or providing transcripts of PA announcements.
3	Providing transcripts of items that may not be captioned/subtitled (e.g., song lyrics).
4	Placing oneself in a visible spot (i.e., not with one's back facing a window).
5	Making sure one's back is not facing the class when speaking.
6	Ensuring that the child's attention is focused on the speaker.
7	Implementing a "buddy system."
8	Communicating with the child's parents/guardians about material that is taught or will be taught in the classroom, so concepts can be reinforced at home.

A long-term goal can also include a focus on developing self-advocacy skills. Educators can facilitate this development by encouraging the child to problem solve, take care of their own hearing devices, and use good communication repair strategies. These self-advocacy skills are lifelong skills that can be instilled starting at a young age. A helpful resource with suggestions for providing good support for children with hearing loss in the educational environment is Success for Kids with Hearing Loss (<http://successforkidswithhearingloss.com/>).

Conclusion

Hearing loss has been known to affect different areas of a child's life. These can include auditory development (Sharma, Dorman, & Spahr, 2002) and spoken language acquisition (Moeller, 2000), which can then affect different skills, such as reading (Moeller, Tomblin, Yoshinaga-Itano, Connor, & Jerger, 2007; Parault & Williams, 2010), theory of mind (Ziv, Most, & Cohen, 2013), and socio-emotional development (Greenberg & Kusche, 1993). A child whose hearing loss was identified early and who receives appropriately fit hearing technology (Sharma, Dorman, & Kral, 2005), an auditory-based early intervention will have the best opportunity for stimulated growth of the auditory and language centers in the brain.

With an understanding of a child's hearing, hearing loss, hearing technology, and how to support the child in the classroom setting, an educator can best support the child's learning. It is with the skills and knowledge of excellent educators, as well as other support personnel (e.g., audiologist, auditory-verbal therapist, auditory-verbal educator, and speech-language pathologist), that the child can grow as a student and individual.

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 understanding
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Resources

- Alexander Graham Bell Association for the Deaf and Hard of Hearing & the AG Bell Academy for Listening and Spoken Language, www.agbell.org
- American Academy of Audiology (AAA), www.audiology.org
- American Speech-Language-Hearing Association (ASHA), www.asha.org
- Boy's Town National Research Hospital, www.boystownhospital.org
- Centers for Disease Control and Prevention (CDC), www.cdc.gov/ncbddd/hearingloss/index.html
- Early Hearing Detection & Intervention—Pediatric Audiology, www.ehdipals.org
- Hands & Voices, www.handsandvoices.org
- National Center for Hearing Assessment & Management (NCHAM), www.infanthearing.org

Hearing Aid Manufacturers (Pediatric Focus)

- Phonak, www.phonak.com
- Oticon, www.oticon.com

Cochlear Implant Manufacturers

- Advanced Bionics Corporation, info.us@AdvancedBionics.com, www.advancedbionics.com
- Cochlear Corporation, www.Cochlear.com/US
- MED-EL, implants.us@medel.com, www.medel.com

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Appendix A

Acronym Soup

AAA	American Academy of Audiology	Baha™	Trademarked to Cochlear Corp. <i>NOT</i> Bone Anchored HA
AABR	Automatic/Automated ABR	BC	Bone Conduction
AAO-NHS	American Academy of Otolaryngology - Head & Neck Surgery	Bi-Bi	Bilingual-Bicultural
ABG	Air:Bone Gap	BOA	Behavior Observation Audiometry
ABI	Auditory Brainstem Implant	BSER	Brainstem-Evoked Response
ABR	Auditory Brainstem Response	BTE	Behind-the Ear (HA)
AC	Air Conduction	CCT	California Consonant Test
AD	Auditory Dysynchrony	CI	Cochlear Implant
ADA	<ul style="list-style-type: none"> Academy of Doctors of Audiology Academy of Dispensing Audiologists Americans with Disabilities Act 	CIC	Completely in-the-Canal (HA)
AEP	Auditory-Evoked Potentials	CMV	Cytomegalovirus
AG Bell	Alexander Graham Bell	c.n. vii	Cranial Nerve 7 (Facial Nerve)
AI	Acoustic Immittance	c.n. viii	Cranial Nerve 8 (Auditory-Vestibular Nerve)
ALD	Assistive Listening Device	CNC	Consonant-Nucleus-Consonant (Words)
AN	Auditory Neuropathy	COR	Conditioned Operant Reinforcement
ANSD	Auditory Neuropathy Spectrum Disorder	CPA	Conditioned Play Audiometry
A/O	Auditory/Oral	CS	Cued Speech
AOIS	Auditory Osseointegrated Implant System	CT	<ul style="list-style-type: none"> Computerized Axial Tomography Computed Tomography (CAT)
APD	<ul style="list-style-type: none"> Auditory Processing Disorders (C)APD - Central APD 	daPa	Dekapascals
AR	<ul style="list-style-type: none"> Aural Rehabilitation Acoustic Reflex 	dB	Decibel
ARA	Academy of Rehabilitative Audiology	dB HL	dB Hearing Level
ART	Acoustic Reflex Threshold	dB SL	dB Sensation Level
ASHA	American Speech-Language-Hearing Association	dB SPL	dB Sound Pressure Level
ASL	American Sign Language	D/HH	Deaf or Hard of Hearing
ASSR	Auditory Steady State Response	DM	Digital Modulation
A-V	Auditory-Verbal	DPOAE	Distortion Product OAE
BAER	Brainstem Auditory-Evoked Response	EAC	External Auditory Canal

EAM	External Auditory Meatus	Jerger Type B tymp	No Measureable/Absent TPP/No Measurable/Absent/Reduced Compliance
ED	Early Detection	Jerger Type C tymp	Negative Air Pressure TPP/Normal Compliance
EHDI	Early Hearing Detection and Identification	Jerger Type A_s tymp	Normal Air Pressure TPP/Reduced Compliance
EI	<ul style="list-style-type: none"> • Early Identification • Early Intervention 	Jerger Type A_d tymp	Normal Air Pressure TPP/Abnormally High Compliance
EOAE	Evoked OAEs	LDL	Loudness Discomfort Level
FF	Freefield	LE	Left Ear
FM	Frequency Modulation	LL	Lateral Lemniscus
HA	Hearing Aid	LSLS	Listening Spoken Language Specialist
HAT	Hearing Assistive Technology	LSLS Cert. AVEd	LSLS Certified Auditory-Verbal Educator
HH	Hard of Hearing	LSLS Cert. AVT	LSLS Certified Auditory-Verbal Therapist
HR/HR Register	High Risk	MCE	Manually Coded English
Hz	Hertz	MCL	Most Comfortable Loudness Level
IA	Interaural Attenuation	ME	Middle Ear
IBCHD	Implantable Bone Conduction Hearing Device	MGB	Medial Geniculate Body
IC	Inferior Colliculus	MLV	Monitored Live Voice
IDEA	Individuals with Disability Education Act	mm	Millimeter
IE	Inner Ear	MRI	Magnetic Resonance Imaging
IEP	Individualized Education Plan/Program	MRL	Minimal Response Level
IFSP	Individualized Family Service Plan	MS	<ul style="list-style-type: none"> • Mainstreaming • Multi-Sensory
IHC	Inner Hair Cell	NF-2	Neurofibromatosis-2
IR	InfraRed	NIHL	Noise Induced Hearing Loss
ITC	In-the-Canal (HA)	NR	No Response
ITE	In-the-Ear (HA)	NRT	Neural Response Telemetry
JCIH	Joint Committee on Infant Hearing	NU-6	Northwestern University PB Words (for Adults)
Jerger Type A tymp	Normal Air Pressure TPP/Normal Compliance	NU-CHIPS	Northwestern University Children's Perception of Speech

OAE	Otoacoustic Emissions	ST	Scala Tympani
OE	Outer Ear	SV	Scala Vestibuli
OHC	Outer Hair Cell	TC	Total Communication
OM	Otitis Media	TEOAE	Transient-Evoked OAE
OME	OM with Effusion	TM	Tympanic Membrane
OW	Oval Window	TPP	Tympanometric Peak Pressure
PB	Phonetically Balanced	TROCA	Tangible Reinforcement Operant Conditioned Audiometry
PB-K	PB Words Kindergarten	TT	Text Telephone (Formerly TTY)
PE	Pressure Equalization (Tubes)	TTS	Temporary Threshold Shift
PET	Positron Emission Tomography	UCL	Uncomfortable Loudness Level
PTA	Pure Tone Average	UHL	Unilateral Hearing Loss
PTA 1	PTA (500, 1000, 2000 Hz; same as PTA)	UNHS	Universal Newborn Hearing Screening
PTA 2	PTA best 2 of 500, 1k, 2k Hz (same as “Fletcher” Average)	VRA	Visual Reinforcement Audiometry
PTS	Permanent Threshold Shift	VT	Vibrotactile
PVT	Physical Volume Test	VU	Volume Unit (as in VU Meter)
RE	Right Ear	WDS	Word Discrimination Score
RM	Remote Microphone	WIPI	Word Intelligibility by Picture Identification
RW	Round Window	WNL	Within Normal Limits
SAT	Speech Awareness Threshold	WR	Word Recognition
SC	Static Compliance	WRS	Word Recognition Score
SDT	Speech Detection Threshold	X-axis	Abscissa
SEE-2	Signing Exact English	Y-axis	Ordinate
SF	Soundfield		
SIG	Special Interest Group—ASHA	Symbols	
SLM	Sound Level Meter	∅ threshold	
SM	Scala Media	< RE BC threshold	
SNHL	Sensorineural Hearing Loss	> LE BC threshold	
SNR	Signal-to-Noise Ratio	O RE AC threshold	
SOAE	Spontaneous OAE	X LE AC threshold	
SOC	Superior Olivary Complex	(AU) Both Ears	
SR/LR	Speechreading/Lipreading	(AD) Right Ear	
SRT	Speech Recognition Threshold	(AS) Left Ear	
SSD	Single-Sided Deafness	NR = No Response	

Chapter 2

Communication Options

Stephanie Gardiner-Walsh & Susan Lenihan

Historical Perspective & Current Demographics

The history of education for children who are deaf or hard of hearing (D/HH) includes many stories of children and families learning to communicate in a

variety of ways (see the *Origins of Deaf Education: From Alphabets to America* chapter). The decision regarding communication mode is often a difficult one for families (Eleweke & Rodda, 2000; Li, Bain, & Steinberg, 2003; Meadow-Orlans, Mertens, & Sass-Lehrer, 2003). Over 95% of parents of children who are D/HH are hearing, and many of these parents have never met an individual who is deaf. With newborn hearing screening, many parents are learning about their child's hearing loss in the first months of life. As families explore the various communication options, they may encounter strong



Photo courtesy of Phonak

opinions in professionals and individuals. Families have the right to make an informed decision for their children regarding communication modality, and they need resources to support the decision-making process. Several organizations provide useful information in learning about communication choices (see Table 1).

There continues to be much controversy regarding the choice of using spoken language, American Sign Language (ASL), or a sign system with children who are D/HH.

There continues to be much controversy regarding the choice of using spoken language, American Sign Language (ASL), or a sign system with children who are D/HH. In 2015, the American Academy of Pediatrics published an article presenting the varied views of a panel of professionals and parents (Mellon, 2015). Gravel and O'Gara (2003) stressed that there is no available evidence that one communication option is optimal for all young children who are D/HH and listed the needs of families related to choosing a communication option for their child, including the need for unbiased, objective information from knowledgeable individuals regarding all communication options; arranged contacts with families who are successful users of each communication option; and regular assessment of the child's progress using the chosen approach.

Table 1 Organizations That Provide Resources on Communication Options

Organization	Description of Purpose from Organization Website
Alexander Graham Bell Association for the Deaf and Hard of Hearing (AG Bell) https://www.agbell.org/	AG Bell helps families, health care providers, and education professionals understand childhood hearing loss and the importance of early diagnosis and intervention. Through advocacy, education, research, and financial aid, AG Bell helps to ensure that every child and adult with hearing loss has the opportunity to listen, talk, and thrive in mainstream society.
American Society for Deaf Children (ASDC) http://deafchildren.org/	ASDC is committed to empowering diverse families with children who are D/HH and youth by embracing full access to language-rich environments through mentoring, advocacy, resources, and collaborative networks.
Beginnings http://ncbegin.org/	BEGINNINGS for Parents of Children Who Are Deaf or Hard of Hearing, Inc., was established to provide emotional support and access to information as a central resource for families with children who are D/HH, age birth through 21. The mission of BEGINNINGS is to inform and empower parents as they make decisions about their child.
Hands & Voices http://www.handsandvoices.org/	Hands & Voices is a nonprofit, parent-driven organization dedicated to supporting families of children who are D/HH. We are nonbiased about communication methodologies and believe that families can make the best choices for their child if they have access to good information and support.

Initiatives, such as The Radical Middle (<http://radicalmiddledhh.org/>) and the Common Ground Project (<http://ceasd.org/child-first/common-ground-project>), encourage cooperation among professionals to support parents in making decisions for their children.

The mission of The Radical Middle is “to create a community of practice among researchers, teachers, parents, and the deaf community around a common goal of philosophical partnership as it applies to communication choices and educational options for children who are D/HH.”

The Common Ground Project is a collaborative effort between the OPTION Schools (<https://optionschools.org/>), which support listening and spoken language (LSL), and the Conference of Educational Administrators at Schools for the Deaf (CEASD, <http://ceasd.org/>)—the organization of state schools for the deaf that primarily uses ASL for instruction to help all infants, children, and youth who are D/HH succeed.

While complete information on the communication mode primarily used to teach students who are D/HH is not readily available, Table 2 shows data for 37,351

students from the 2009-2010 Gallaudet Annual Survey of Deaf Children and Youth (Gallaudet Research Institute, 2011). Based on this data:

53% of those students were taught with spoken language.
27% were taught with sign language only.
12% were taught with sign-supported spoken language.
5% used spoken language with cues.

The survey also reported that 23% of families regularly signed in the home and less than 6% reported using ASL in the home. This survey includes data on approximately half of the students who are D/HH in the U.S. (38th Annual Report to Congress on the Implementation of IDEA, 2016) and reflects a larger number of students in self-contained deaf education settings than in the data from the IDEA report.

Data gathered in North Carolina reflects an increasing number of families choosing an LSL approach for infants and toddlers who are D/HH (Alberg, 2011). In 2001, 69% of families chose an LSL approach, and in 2011, 90% of families chose to use LSL with their children.

Table 2
Information on Communication Mode from the 2009-2010 Gallaudet Annual Survey

Communication Mode Primarily Used to Teach Students	Nation	
	Number	Percentage
Total Known Information	37,351	100.0
Spoken Language Only	19,805	53.0
Sign Language Only	10,228	27.4
Sign-Supported Spoken Language (SIMCOM)	4,514	12.1
Spoken Language with Cues	1,872	5.0
Other	932	2.5

Communication Options

Originally published in 1989, Sue Schwartz (2007) wrote a guide about communication choices for parents of children who are D/HH that was updated in 1996 and 2007. Much has changed in the ten years since the third edition was published, but the format of that text provides a model for presenting information about each communication mode used by children who are D/HH that we will use in this chapter. For our description of communication options, we will use a framework that looks at approaches that primarily use LSL and approaches that primarily use a manual approach (see *Table 3*). While many terms are used to describe approaches, we will use the terms below for this chapter and describe related terms in the text.

Table 3
Communication Modalities Used in Deaf Education

LSL Approaches
<ul style="list-style-type: none">Auditory VerbalAuditory Oral
Manual Approaches
<ul style="list-style-type: none">Cued Speech (CS)Manually Coded English (MCE)American Sign Language (ASL)

A number of models have been published that reflect a continuum of the various communication approaches (Geers & Brenner, 2003; Gravel & O’Gara, 2003; Nussbaum, Waddy-Smith, & Doyle, 2012). These approaches vary in the emphasis placed on using hearing assistive technology, various forms of sign language, or cues to clarify spoken language. Some children will use a combination of approaches, and some individuals may change the approach they use at different stages of their lives and in different settings.

LSL

Historically, a variety of terms were used to identify approaches that primarily focused on developing spoken language without the use of sign language. Written accounts of these approaches can be found in the literature going back several centuries (see *Origins of Deaf Education: From Alphabet to America* chapter for a description of deaf education using various communication modes). Today with the advances in hearing technology, the term “LSL” is most often used to describe the communication mode that focuses on the development of spoken language without the use of sign language.

Some children will use a combination of approaches, and some individuals may change the approach they use at different stages of their lives and in different settings.

According to Hearing First

"The LSL approach teaches a child spoken language through listening" (www.hearingfirst.org).

When children who are D/HH are identified early, have appropriate hearing technology, and learn to listen through LSL techniques, they learn spoken language in a similar way to their hearing peers. The approach is developmental and follows milestones for skills at ages when children are most primed to learn.

The principles of an LSL approach or auditory-verbal practice were originally developed by Doreen Pollack and have been revised and adapted periodically. *Table 4* provides the current principles of the LSL specialist (LSLS) Auditory-Verbal Education from the AG Bell Academy. Descriptions of strategies used in an LSL approach are provided in the *Listening & Learning to Talk* chapter.

Professional Preparation

Professionals prepared to facilitate the development of LSL need to acquire specialized knowledge and skills to be effective. White (2006) noted that only eight teacher preparation programs focused on preparing teachers to use an LSL approach. While some of those programs have closed and others have begun, the current eight programs continue to represent less than 15% of the teacher preparation programs in deaf education. The Consortium of Teacher Preparation Programs for

Listening and Spoken Language includes preparation programs that emphasize this approach (see *Table 5* for universities in the consortium). While some public school programs and private school programs that belong to the Option Schools (<https://optionschools.org/>) are able to provide quality field experiences for future professionals aspiring to use an LSL approach, it can be challenging for future teachers and speech-language pathologists to receive preservice field experience with strong support for LSL.

Professionals prepared to facilitate the development of LSL need to acquire specialized knowledge and skills to be effective.

Table 4 Principles of LSLS Auditory-Verbal Education (LSLS Cert. AVEd™)*

An LSL educator (LSLS Cert. AVEd™) teaches children with hearing loss to listen and talk exclusively through LSL instruction.

1	Promote early diagnosis of hearing loss in infants, toddlers, and young children—followed by immediate audiologic assessment and use of appropriate state-of-the-art hearing technology to ensure maximum benefits of auditory stimulation.
2	Promote immediate audiologic management and development of LSL for children as their primary mode of communication.
3	Create and maintain acoustically controlled environments that support listening and talking for the acquisition of spoken language throughout the child's daily activities.
4	Guide and coach parents** to become effective facilitators of their child's LSL development in all aspects of the child's life.
5	Provide effective teaching with families and children in settings such as homes, classrooms, therapy rooms, hospitals, or clinics.
6	Provide focused and individualized instruction to the child through lesson plans and classroom activities while maximizing LSL.
7	Collaborate with parents and professionals to develop goals, objectives, and strategies for achieving the natural developmental patterns of audition, speech, language, cognition, and communication.
8	Promote each child's ability to self-monitor spoken language through listening.
9	Use diagnostic assessments to develop individualized objectives, monitor progress, and evaluate the effectiveness of the teaching activities.
10	Promote education in regular classrooms with peers who have typical hearing as early as possible when the child has the skills to do so successfully.

—Adopted by the AG Bell Academy for Listening and Spoken Language®, July 26, 2007.

*An auditory-verbal practice requires all ten principles.

**The term "parents" also includes grandparents, relatives, guardians, and any caregivers who interact with the child.

Table 5
Teacher Preparation Programs with an Emphasis on LSL

University	Location
California Lutheran University	Thousand Oaks
Fontbonne University	St. Louis and Northeast Collaborative
John Tracy/Marymount	Los Angeles
University of Southern Mississippi	Hattiesburg & Jackson, MS
University of Texas Health Science Center—San Antonio	San Antonio & Houston
Utah State University	Logan
Washington University	St. Louis

The AG Bell Academy for LSL sets standards for the knowledge and skills of LSL professionals in deaf education and is the certifying organization. The rigorous process of becoming an LSLs includes mentoring, professional development, and successful completion of an exam. According the AG Bell Academy website (2017), “LSLS certified professionals are licensed audiologists, speech-language pathologists, or educators of the deaf who have voluntarily attained a high level of specialty education and experience in LSL theory and practice.” LSL professionals focus on education and family support to promote optimal acquisition of spoken language. They coach caregivers in developing spoken language through listening and in advocating for inclusion in general education. As of October 1, 2018, there are 820 certified LSLs.

Families Choosing an LSL Approach

A valuable way to learn about the LSL approach is to read or listen to the stories of families who have chosen this approach for their children and from individuals who are D/HH and using LSL. Several family stories can be found at the AG Bell website (<http://www.agbell.org/Tertiary.aspx?id=1227>). Lydia Denworth chronicles the experience of her family and her son in *I Can Hear You Whisper: An Intimate Journey through the Science of Sound and Language* (2014). *Journey with Our Children*, published for the 10th anniversary of the Moog Center for Deaf Education, and *Auditory-Verbal Therapy and Practice* (Estabrooks, 2006) include accounts of children and families using LSL.

Educational Programs for Students Using an LSL Approach

Both public and private schools serving children who are D/HH provide LSL education and related services. The Option Schools organization is comprised of 40 private LSL programs and schools. Some of these programs receive funding from public school districts whose students attend the programs. Some public school districts have strong LSL programs staffed by certified LSLs. Families who choose an LSL approach for their children often advocate with school districts to provide LSL services and may decide to relocate in an effort to access quality LSL programs.

One example of an Option Schools program that provides LSL services is St. Joseph Institute for the Deaf (SJID; <https://sjid.org/>). SJID has been serving the individual needs of children who are D/HH since 1837. As leaders in the educational field of LSL, the program provides a wide variety of services focusing on children, ages birth to 18, with a primary focus on young children. The school works directly with families to assess, educate, and prepare children to transition into a mainstream, traditional school with their siblings and community peers. The staff is a group of highly trained professionals with the sole mission of helping young children

A valuable way to learn about the LSL approach is to read or listen to the stories of families who have chosen this approach for their children and from individuals who are D/HH and using LSL.

While many families and professionals consider CS to be an LSL approach to communication, it also uses the support of visual cues.

learn to listen, speak, and develop academically and socially with the intent of preparing them to transition into their local school with great success. Over 75% of the staff is certified or in the preparation of becoming an LSLS CertAVED or LSLS Cert AVT. With campuses in Indianapolis and St. Louis, SJID provides educational and audiological services for children in early intervention, center-based preschool, and primary classes, as well as mainstream services. Since 2011, the innovative iHear telehealth program, using unique

video conferencing software, provides one-on-one, real-time therapy sessions with an SJID educator. iHear serves children across the U.S. and around the world.

Among public school programs available for students who are D/HH, Bergen County Special Services District in New Jersey is one example of a pre-K through 12th grade program located in a school district that offers families the choice of LSL services. The students receive center-based services in local public school settings allowing for inclusion opportunities and interaction with age-appropriate, typically hearing peers. Audiological and auditory-verbal therapy services are provided individually, in small groups, and through classroom language infusion. These supportive environments involve parents in auditory verbal sessions at the pre-K level and evening group sessions.

Two more programs in the region provide services for children who are D/HH. The Sound Solutions program provides itinerant services and therapies to students in their local public and parochial schools throughout northern New Jersey. Workshops are regularly provided to school personnel to provide guidance in the optimal use of hearing assistive technology (hearing aids and/or cochlear implants), maintenance of the best possible listening environment, and the impact of hearing loss on learning. The STARS Early Intervention program in Bergen County partners with area medical centers to provide services to families and their infants/toddlers through consultations, direct services, evening groups, infant and toddler groups.

Another example of LSL services can be found in the *Listening & Spoken Language Preschool Programs* chapter, which includes a description of early childhood deaf education services at Central Institute for the Deaf.

While many families and professionals consider CS to be an LSL approach to communication, it also uses the support of visual cues, so it will be described in the following section on manual approaches.

Manual Approaches

When considering the approaches to manual communication, there is a distinction between languages and systems. For this reason, manual approaches need to be categorized as something other than “signing,” as signing implies sign language, which is not the only manual method of communication for D/HH. A sign system refers to invented simultaneous methods of speech and sign, such as Signing Exact English. For this reason, the term “manual approaches” will be used to describe languages and codes that rely heavily on the use of visual methods of communication. Manual approaches in the U.S. include:

ASL

Cued Speech (CS)

MCE/Sign Systems:

- Conceptually Accurate Signed English (CASE)
- Pidgin Signed English (PSE)
- Seeing Essential English (SEE 1)/Morphemic Sign System (MSS)
- Signing Exact English (SEE 2)

In this chapter, sign language refers to ASL—a visual language that differs from an invented sign system. Historically, the Rochester Method—a code using fingerspelling—was also used, but this system is no longer used as a primary mode of communication. Sign Systems are often called Manually Coded English, Sign Supported Spoken Language, or Simultaneous Communication. The term *Signed Exact English* is also found in the literature, often referring to Seeing Essential English and/or Signing Exact English. The term *Total Communication* has been defined in a variety of ways. In this chapter, Total Communication is defined as a multimodal form of communication that includes visual, auditory, tactile, written, and symbolic communication. The authors have made every effort to accurately use terms, but the reader should be aware that professionals use these terms in a variety of ways. It is important to clarify the terms as used. Although tools, such as *See the Sound Visual Phonics*, can also be considered an access method, the tool is not used as a primary method of communication, so it will not be included in this examination.

These manual approaches to communication can be examined on a spectrum from “heavily dependent upon English” to “unique language from English” (see *Figure 1*). This spectrum will allow us to categorize communication on a continuum of visual support. The definition and research related to each of these is provided in *Table 6*. Later in this chapter, the use of multimodal approaches will be discussed.

Professional Preparation

The preparation for using ASL or sign systems for preservice teachers varies drastically from program to program. For example, programs that have a focus on LSL will likely have minimal, if any, coursework in manual communication, although many children who use LSL also pair speech with a sign system. Comprehensive deaf education university preparation programs are likely to have two to three courses in sign systems. However, mastery in any manual system of communication in as little as three semesters is rare.

Bilingual-bicultural programs that focus on ASL as the primary mode of communication are likely to have intense coursework in ASL but may not have mastery in other sign systems. Few university programs focus on coursework in

In a technology-driven society, there are more ways to access manual methods of communication than ever.

CS—though many integrate exposure to CS as a speech tool in their coursework. Like the variation in program preparation, the level of mastery required to complete teacher preparation programs also varies. While some universities require assessments, such as the American Sign Language Proficiency Interview (ASLPI) issued through Gallaudet University, others require the National Technical Institute of the Deaf’s (NTID) Sign

Language Proficiency Interview (SLPI). Still others require in-house proficiency or only coursework completion. Evaluations may focus on just one communication system and count as an evaluation for all manual systems.

Families Choosing Manual Methods

In a technology-driven society, there are more ways to access manual methods of communication than ever. The best language opportunities come from direct interaction with proficient modality users. Though not recommended as the primary method of ASL instruction by the National Association of the Deaf, many families use video and online resources to learn sign-based systems. Gallaudet University provides a resource center with a vast array of curriculum and resources for families using sign-based systems (<https://goo.gl/MI622d>). Likewise, the National Cued Speech Association provides families interested in learning CS

Figure 1
Manual Communication Options

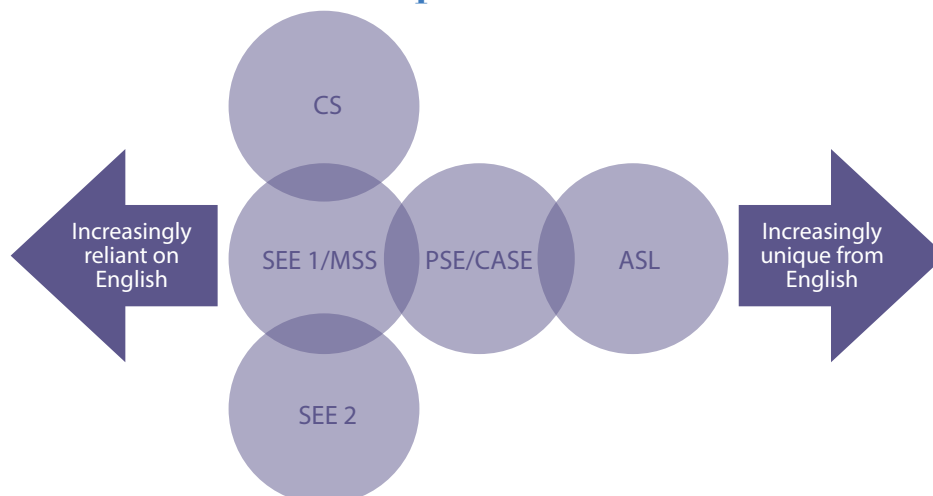


Table 6
ASL and Sign Systems

Manual Approach	Definition	Expressive/ Receptive Language	User & Family Role	Positive Aspects	Challenges
ASL	A complete language with all features, including phonology (cherology), morphology, semantics, syntax, and pragmatics. This approach to communication relies fully on visual communication. As there is no written form, English is instructed through bilingual and second language acquisition methods. Sign languages, including ASL, are not a universal language and vary by region and country.	<p>Expressive. ASL is only expressive directly through the air and has no written form. Written English will need to be learned.</p> <p>Receptive. Receptive language is fully visual. Use of printed language will be as a second language user.</p> <p>Role of Hearing & Speech. No use of residual hearing or speech is required.</p>	<p>User. The user is a native deaf person with full expressive and receptive language in ASL. They will be bilingual in ASL and English (or another written language).</p> <p>Family. Families must learn or use ASL at all times for access to communication. Families must integrate deaf user into deaf community activities and events for full inclusion in cultural identity.</p>	<ul style="list-style-type: none"> Deaf persons who use ASL are fully accepted into a culture that emphasizes pride in their identity and natural language. There is no requirement of speech or hearing, allowing all D/HH persons access to modality. ASL is a full language that does not interfere with English development (Hoffmeister, 2000). Rate of transmission is natural to perceptual and motor capabilities (Bornstein, 1990). ASL has a natural prosody that is not present in other sign systems (Hoffmeister, 1990). 	<ul style="list-style-type: none"> 95% of children who are D/HH are born to hearing families and will not have a native user as a language model. Weak language models result in lower academic outcomes (Calderon & Greenberg, 2003). Students will function as English language users, as ASL does not translate to English directly (Hoffmeister & Caldwell-Harris, 2014). Lack of qualified interpreters (Schick, Williams, & Kupermintz, 2006). Continued societal belief that signing will disable the user and/or rejection of inclusion because of need for interpreters (Hall, 2017; Humphries et al., 2017). Because of the interaction of hearing and deaf users, few deaf people use a pure form of ASL; most use some contrived system of blended ASL with manual English systems (Bornstein, 1990). Outside of residential schools, teachers self-report lower ASL abilities than those teachers serving students in the more restrictive environment (Allen & Karchmer, 1990).

Manual Approach	Definition	Expressive/ Receptive Language	User & Family Role	Positive Aspects	Challenges
CS	A visual code for phonology of a language (e.g., English) that combines hand shapes (consonants) and placements (vowels) with mouth morphemes (speech reading) to provide exact transliteration of spoken language. CS is uniquely paired to distinguish mouth morpheme homophones through cues and places.	<p>Expressive. Expressive CS users may use voice only with no cues or use mouth movements paired with cues.</p> <p>Receptive. Receptive CS requires speech reading paired with cues. Many users receptively use speech reading only when conversation partners do not cue. Hearing is not necessary but is commonly used in conjunction with cues.</p> <p>Role of Hearing & Speech. Hearing and speech are not required. However, speech reading and mouth morphemes are necessary. Pairing with hearing assistive technology is common but not required.</p>	<p>User. The user is responsible for using cue receptively and expressively in partnership with their native spoken language and speech reading.</p> <p>Family. The family must learn the cue system through a workshop or individual training (~8-18 hours) and then use the system consistently to build fluency.</p>	<ul style="list-style-type: none"> • Long-term commitment to communication method by families (Kipila & Williams-Scott, 1990). • Ease of access to multiple languages (Kipila & Williams-Scott, 1990). • Directly relates to the phonemic structure of language, providing word-attack strategies (Bornstein, 1990). • Early CS users perform more similarly in early literacy skills to hearing peers than with other modalities (Koo, Crain, LaSasso, & Eden, 2008; LaSasso, Crain, & Leybaert, 2003). 	<ul style="list-style-type: none"> • There are fewer users of CS than any other modality, resulting in fewer communication partners. • There is a shortage of CS transliterators (interpreters). • CS is rejected by the deaf community as being an “audist approach” to communication (Blume, 1994). • A majority of the research on CS is from French users and may not be generalizable to English-speaking populations, though trends are similar.

Manual Approach	Definition	Expressive/ Receptive Language	User & Family Role	Positive Aspects	Challenges
CASE/PSE	<p>A flexible use of ASL and English to bridge the communication barriers between users of MCE and ASL. CASE is often used by interpreting professionals. It is a form of PSE that tends to use a wider variety of ASL concept signs in conjunction with English order.</p> <p>Often described as “contact sign” that is resulted from the interaction of the contact between deaf native users and hearing English users (Reilly & McIntire, 1980).</p>	<p>Expressive. Expressive language may be sign only, sign and speech, or speech only. Expressive language is in English word order but may not contain all morphemes. Conceptually accurate signs are encouraged.</p> <p>Receptive. Receptive language is typically visual, though pairing is common between visual and auditory methods, including speech reading.</p> <p>Role of Hearing & Speech. Hearing and speech are not necessary but frequently occur as supplements to bridge oral and signed communication. Hearing assistive technology is common.</p>	<p>User. It is the responsibility of the user to modify language to meet the needs of non-native users of sign-based system. Though ASL may be language used with deaf persons, modifications are made for communication needs of nonusers of ASL.</p> <p>Family. Family must use signed language for communication. Family may or may not participate in deaf community.</p>	<ul style="list-style-type: none"> Easier for hearing parents to learn than a full language (Bornstein, 1990). 	<ul style="list-style-type: none"> The application of English features to ASL results in constructions that are incongruent to native users of either language (Bornstein, 1990).

Manual Approach	Definition	Expressive/ Receptive Language	User & Family Role	Positive Aspects	Challenges
SEE 1 & SEE 2	Two similar systems of MCE that use English grammatical order with the loan of signs. SEE 1 and SEE 2 differ in that SEE 2 breaks words at the morpheme level (BUTTER+FLY+S), while SEE 1 breaks words at the affix level (BUTTERFLY+S). Both rely heavily on initialization. See Rendel, Bargones, Blake, Luetke, & Stryker (2018) for recent information on Seeing Exact English.	Expressive. Expressive language is in English word order using a variety of English phonemes and affixes. Signs may or may not be conceptually accurate. (The same word may be used for “run” in all cases, though signs may be different.) Expressive language matches printed dominant language.	User. User must visually process all conversation. User may or may not also be required to process spoken language. Family. Family must learn sign system.	<ul style="list-style-type: none"> • The use of affixes directly translate to printed English (Bornstein, 1990). • Increased knowledge of morphological structures of English (Neilsen, Luetke, McLean, & Stryker, 2016). 	<ul style="list-style-type: none"> • Transmission/ translation time is unnatural and elongated compared to other sign forms (Bornstein, 1990). • Inconsistencies in the application of affixes is frequent (Bornstein, 1990). • Excessive breaking up of words, over-initialization, irresponsible creation of signs, improper inflection, overuse, lack of prosody, omissions, lack of consistency (Gustason, 1990). • Dissynchrony of speech and sign signals impacts speech and speech reading (Bornstein, 1990).



Photo courtesy of Centers for Disease Control and Prevention

with a variety of in-person and online tools to learn CS (<http://www.cuedspeech.org/resources/learning/>). Modern Sign Press provides an online subscription dictionary to support families using SEE as a primary mode of communication (<https://www.signingexactenglish.com/>). The SEE Center (<https://seecenter.org/>) provides virtual classes and an app in SEE. Additionally, Gallaudet provides a comprehensive list of publishers that have printed and digital resources available related to D/HH communication needs (<https://goo.gl/FtcaZU>).

Educational Programs for Children Using Manual Methods

Most residential state schools use an ASL approach, but local public schools, charter schools, and private schools also use an ASL approach. Specific programs, such as the Kendall School and Model Secondary School at Gallaudet University in Washington, DC,

serve as prime models of ASL bilingual-bicultural models. These programs offer a critical component in the development of manual modalities: peers and role models. Programs, such as the Northwest School for Deaf and Hard of Hearing Children in Washington State and the SEE Center in Alamos, CA, offer programs and training for families using Signing Exact English. Comprehensive programs, including CS use, such as the Illinois School for the Deaf and the Alexander Graham Bell Montessori School, both in Illinois, offer programs incorporating simultaneous

communication with a specific supplement of CS. A list of many programs for D/HH, including their educational philosophy, may be found at <http://goo.gl/tqY4aG>. This list is continually evolving and may be modified through the feedback option to the author.

Multimodal Approaches

While LSL approaches and manual approaches are addressed here as differing methods of communication

for children who are D/HH, it is important to consider that these methods are often not used exclusively. Many children using the LSL approach learn to sign as adults. Many children using SEE learn ASL at some point in their lives. Nor are these options always at odds. In Seattle, for example, all three options exist, and administrators of the programs support finding the most appropriate option for families. Historically in the field of deaf education, there is a great divide between the modalities of LSL and manual modalities. Contextually, it is vital to recognize that this divide continues and originates in discrimination. It is unjust to downplay the long-lasting impact of the Milan Conference of 1880, which declared sign language an “inferior” and “handicapping” form of communication. Likewise, it is foolish to ignore the improvement of technology in the 21st century to provide auditory stimulation that has never been possible in earlier history. While the 20th century saw a great declaration of “us vs. them” or “sign vs oral,” as professionals, we must acknowledge the research that provides insight into the benefits and problems with each mode.

ASL provides a community unlike any other modality of communication. It provides a rich history and an ever-present voice of self-worth and pride in one’s deaf gain. Unfortunately because of the reality that 95% of deaf children are born to hearing families, ASL—unless fully learned by families—also proves to be a barrier in familial relationships—though it does not have to be. Cochlear implants and hearing aids help to bridge that communication barrier in families and workplaces—providing for direct auditory and verbal communication. However, the reality that is faced is that the deaf person is forever responsible for filling in the vast system of communication that is still missed, because hearing assistive technology is not perfect.

Many deaf users of hearing assistive technology paired with LSL report that they are still isolated from the hearing world—as at the end of the day, they are still deaf and struggling to decipher the spoken word. CS is an often forgotten modality that provides rich access to spoken language through a manual modality—seeming to be the best of all worlds. However, CS is rejected by the deaf world, has limited skilled professionals in the educational world, and remains relatively unrepresented in research. English-based sign systems provide the structure of English that is favored in the academic world, but like ASL comes with the difficulty of language role models and communication in a predominately

ASL provides a community unlike any other modality of communication. It provides a rich history and an ever-present voice of self-worth and pride in one’s deaf gain.

hearing family or workplace. In short, it seems that all communication modalities have positive features and challenges. Each case of deafness is unique and should not be analyzed on a “one-size-fits-all” model. Families may use a combination of approaches.

Research can demonstrate the positive and negative aspects of each communication modality. In the words of Spencer and Marschark (2010), “Our inability to ‘prove’ a best method can be seen as a negative finding but also can be interpreted in a more positive light: Some children have been shown to achieve relatively rapid and high levels of language development in each of the approaches surveyed” (p. 80). Even in ideal visual environments or with perfect hearing assistive technology, children have struggled to develop communication and required a change in communication modality for success. The choice of modality should be individualized and based on the multifaceted needs and values of the family and the child. Professionals should provide families with information about all methods without bias. Unfortunately, all options are not presented as equal players in the communication choice (Borum, 2012; Eleweke & Rodda, 2000; Li, Bain, & Steinberg, 2003; Young et al., 2006).

While advocates for LSL and ASL tend to argue against using a multimodal approach to communication, there are supporters for multimodal approaches (Kovelman et al., 2009; Nussbaum & Scott, 2011; Petitto et al., 2001; Petitto & Kovelman, 2003). The multimodal approach is not detrimental to one modality or the other but rather additive to the access of bilingual-bicultural development. This multimodal approach does not necessarily imply that simultaneous communication (sign and speech) is the desired outcome for children who are D/HH. Rather, the consideration of multiple modalities to support one another (e.g., training in ASL and spoken language; training in CS paired with English and ASL, etc.) may provide a fuller access to language.

Other research demonstrates a negative impact of using sign with a spoken language approach. Geers and colleagues (2017) analyzed the outcomes in speech, language, and listening for 97 children with cochlear implants and found that over 70% of children without

sign language exposure achieved age-appropriate spoken language compared with 39% of those with sign language exposure. The children who used LSL without sign had more intelligible speech. Nitttrouer (2009) found there was no additive benefit to using sign language with spoken language for children identified with hearing loss below 1 year of age, and for children identified at 1 year of age or older, there was a negative effect on their spoken language.

The argument of single modality of LSL, ASL, or sign system does not reflect the diversity of the field of deaf education, which can lead to limited service delivery models for children and their families. Nussbaum and Scott (2011) argued that in order to provide effective education practices, professionals must recognize characteristics that are intrinsic (i.e., age of identification, early language development, etiology, additional disabilities, resilience) and extrinsic (i.e., [re]habilitation, family history, family supports, home language) to children. Early use of ASL or signed English systems prior to cochlear implantation is argued to be a favorable transition tool that can be used to establish a language basis that can later be used as a scaffolding tool to spoken language (Malloy, 2003; Snoddon, 2008; Yoshinaga-Itano, 2006).

Other factors, such as hearing configuration and etiology, may prevent the full access to spoken language, which may be supported through the visual supplement of CS, signed English system, or ASL. However, like all communication options, the decision to combine methods of communication will not be successful without proficient adult models, true bilingual-bimodal instructional design, early interventions, intact language learning ability, strong models and supports for parents and families, and opportunities to use both modalities in isolation and combination for meaningful communication (Nussbaum & Scott, 2011; Rendel, Bargones, Blake, Luetke, & Stryker, 2018).

Like the diversity of instructional activities (i.e., visual, kinesthetic, auditory, social, etc.), professionals must recognize that multimodal approaches do not mean multimodal at all times. The use of manual systems paired with spoken language methods can be used:

The choice of modality should be individualized and based on the multifaceted needs and values of the family and the child.

- Only until age-appropriate listening and speech skills are demonstrated.
- As a bridge between modalities.
- As a second language.

The continuum of bimodal usage is diverse just as the continuum of manual modalities is diverse. The multimodal approach, if paired with professionals who understand the unique needs of bilingual learners, provides a multifaceted benefit to children with hearing loss, including the access to the dominate language and culture of the family, access and support from the minority deaf culture and language, and the advantage of communication access no matter the technology support (Marschark, Knoors, & Tang, 2014).

In short, as professionals in deaf education, we must consider what is best for the child, even if that modality goes against our own personal beliefs on what is best for communication. This process should be a family-centered decision, with the roles of audiologist, speech language pathologist, teacher of the D/HH, and deaf community acting to support the needs of the child and family. As professionals, our role is to empower parents to identify their goals and aspirations for their child and provide access to information, resources, and educational support. Only when we approach the communication method decision in this way will the process become best practice. This family-centered perspective will require some professionals to step down from our position of power and authority among practitioners in a method, accept that our strengths might not meet the needs of all of those we serve, and that passing that responsibility on to another professional or sharing that responsibility with another professional is what will drive the future of deaf education forward.

**As professionals,
our role is to
empower parents to
identify their goals
and aspirations
for their child and
provide access
to information,
resources, and
educational
support.**



Photo courtesy of Advanced Bionics

Resources

- AG Bell Association, <https://www.agbell.org/>
- Hands & Voices, <http://www.handsandvoices.org/>
- Laurent Clerc National Deaf Education Center, <http://www3.gallaudet.edu/clerc-center/info-to-go/asl.html>
- National Cued Speech Association, <http://www.cuedspeech.org/>

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Chapter 3

Cognitive Development

Uma G. Soman

It is well established that childhood hearing loss limits children's ability to hear the language in their auditory environment and has a negative impact on language acquisition. Without timely and appropriate intervention, children who are deaf or hard of hearing (D/HH)

might have limited language proficiency that also impacts their ability to learn in school and engage in successful social interactions. Often, the focus of intervention is ensuring adequate access to the speech spectrum and promoting language development with the belief that once children have age-appropriate language skills, performance in all other domains will be age appropriate. However, research conducted in the last two decades indicates that children who are D/HH who experience early auditory deprivation and have delayed language development continue to demonstrate delays and difficulties in certain areas of cognition. This chapter will provide an overview of the difficulties that have been observed in cognitive development, factors that contribute to these difficulties, and how teachers of the deaf might address these challenges in their classrooms.



Photo courtesy of NCHAM

Cognition

The study of cognition is the study of how human beings receive, process, integrate, and respond to information. Attention, memory, executive function, convergent thinking, and divergent thinking are some of the cognitive processes

that have been studied in children with and without disabilities. These cognitive processes are important for learning in and out of the classroom. In fact, the common core standards were designed to help students develop "critical-thinking, problem-solving, and analytical skills" necessary for higher education and employment (<http://www.corestandards.org/>). So in addition to teaching infants, toddlers, and children to listen and speak, teachers of the deaf are also responsible for teaching them to observe, describe, compare, classify, sequence, analyze, evaluate, interpret, predict, summarize, hypothesize, imagine, and create.

Cognitive development has been studied in the context of several theories of cognitive development. Piaget's development stage theory posited that a combination of maturation and nonlinguistic experiences during early

childhood shape an individual's cognitive development. He proposed that children are organizing the world around them through mental operations that become more complex and adult-like by adolescence. Children progress from the sensorimotor stage of physical exploration to the preoperational stage of creating mental representations and engaging in role playing to the concrete and formal operational stages involving information organization, perspective taking, and reasoning.

Vygotsky proposed that children develop their thinking skills through social interactions with a tutor or guide who can model behaviors or strategies of organizing knowledge and information. He also proposed that children learn best when they are taught within their “zone of proximal development” with a focus on emerging skills rather than skills that are too advanced. His theory also emphasized language as a tool of sharing and organizing knowledge and thoughts. A deeper understanding of each of these theories and how they influence cognitive development in children is important but beyond the scope of this chapter. As readers of this chapter explore theories of cognitive development, they should examine how congenital hearing loss might impact cognitive development. For example, how might hearing loss impact the sensorimotor stage of development, or how might hearing loss impact the use of language as a tool for thinking? These reflections will be helpful when determining how you could teach a particular topic, behavior, or skill to your students.

In this chapter, we will examine a few cognitive processes that have a significant impact on cognitive and language development of children who are deaf or hard of hearing. **Executive function** is a broad construct that is important for conscious control of thought and action (Zelazo & Müller, 2010) and is reflected in an individual's ability to attend to tasks, inhibit responses, create and follow rules, and solve problems. It is also associated with proficiency in reading, math (Blair & Razza, 2007), and social skills (Blakemore & Choudhury, 2006). The construct of working **memory**—often included as a part of executive function—is

the ability to receive and manipulate or “act on” the information that is provided. It has been observed that certain executive function and memory skills are “domain general” (i.e., apply to skills not just from the cognition domain but also from the motor domain and language domain, such as sequencing words, symbols, and actions; Pisoni, Conway, Kronenberger, Henning, & Anaya, 2010). Additionally, certain cognitive skills are also considered to be “language mediated” (i.e., individuals use language to implement the cognitive skills). One common example is a preschooler's self-talk during problem solving.

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In addition to core cognitive constructs of executive function and memory, convergent and divergent thinking are critical for thinking and learning successfully. **Convergent thinking** is the exercise of processing multiple pieces of information to arrive at a single piece of information (i.e., answering the question, “*How are the sun, an orange, and a ball alike?*” with the response, “*They are round*”). **Divergent thinking** is the exercise of processing one prompt or piece of information to arrive at multiple exemplars or responses (i.e., answering the question, “*Name three things that are yellow,*” with the response, “*Sunflower, egg yolk, banana*”).

Another aspect of cognition that is relevant for teachers is **social cognition** (i.e., applying cognitive skills to understand and participate in social situations). Theory of mind (i.e., an understanding of other's emotions, beliefs, and perspective) is an important aspect of social cognition (de Villiers & de Villiers, 2012; Garfield, Peterson, & Perry, 2001).

Cognitive psychologists have proposed theories to understand and explain cognitive development. Two that are often implemented in educational settings are Piaget's development stage theory and Vygotsky's theory of cognitive development.

Cognitive Development

In the first few years of life, typically developing children progress from basic cognitive skills, such

as understanding cause and effect (e.g., the baby discovers that the toy lights up when Daddy pushes the button and reaches to push the button herself) and object permanence (e.g., the baby starts to learn that his favorite toy is still there even if he doesn't see it), to more complex skills, such as classification (e.g., separating indoor toys and outdoor toys), simple problem solving (e.g., fixing a ripped book with tape), and recalling sequences (e.g., remembering a set of instructions for an art project; see developmental milestones checklists available from CDC <https://www.cdc.gov/ncbddd/actearly/milestones/>). These skills develop naturally when children engage in age-appropriate play activities. Often very little direct instruction in these skills is required for typically-developing children.

It is important to note that cognitive skills are developing in the context of other skills and abilities. For example, a baby reaching out to push the button on a light-up toy is a combination of skills in the cognition domain (understanding cause and effect) and motor domain (reaching and pointing). If motor development is delayed or if severe visual impairment does not allow the baby to see the toy lighting up, development of the cognitive skill of understanding cause and effect in this context might be limited or delayed. Similarly, following instructions for an art activity might be limited by difficulties in the language domain that affect understanding of vocabulary and concepts necessary to complete the activity.

Additionally, the experiences of the child and the input received from adults and peers can also influence cognitive development. For example, if a toddler has minimal contact with a caregiver or minimal exposure to developmentally appropriate activities, she might show delays or difficulties in

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skill development. A difficulty or delay in one domain for a child who is D/HH can create a developmental dysynchrony across domains. This dysynchrony should be understood and addressed to minimize long-term impact.

In the context of children who are D/HH, several factors might influence development of cognitive skills:

Child Factors

Characteristics related to the child's hearing loss, presence of other disabilities, overall development, and intervention.

Caregiver Factors

Characteristics of parental engagement as well as quality and quantity of input provided by parents, caregivers, and interventionists.

Environmental Factors

Includes situations, stresses, and supports present in the child's environment.

Research on the precise impact of these factors individually and in combination is ongoing. However, examining the contribution of each of these factors to overall development—and cognitive development in particular—is important for teachers of the deaf working with young children.

Hearing loss limits a child's access to her auditory environment, which negatively impacts the process of language acquisition. The extent to which hearing loss affects development might be dependent on how quickly and how well the hearing loss is managed. Researchers have discovered that lack of stimulation to the auditory cortex in the first few years of life can alter brain development (Gilley, Sharma, & Dorman, 2008; Kral & Sharma, 2012; Sharma, Nash, & Dorman, 2009). The differences in neural responses to sound in children with and without hearing loss have been attributed to lack of auditory input. If children who are D/HH receive auditory input (through a cochlear implant) before 3.5 years of age after a period of auditory input, their responses to the presence of sound become similar to children with normal hearing (Sharma et al., 2009).

Another fundamental process that might be disrupted by lack of early auditory input is audiovisual integration. Speech perception is an audiovisual activity that involves listening to speech and watching the talker's face to integrate auditory and visual cues present in a spoken language (Kuhl & Meltzoff, 1982; Lewkowicz, 2010;

Sumbly & Pollack, 1954). Infants who have normal hearing rely on auditory and visual cues when learning the home language(s). Individuals with hearing loss demonstrate differences in their ability to integrate auditory and visual cues in the context of speech and spoken language. It has been proposed that difficulties in these fundamental developmental processes might have a long-term impact on language learning and processing. Cognitive delays are not caused by reduced hearing levels but by a lack of access to language. Many students who are D/HH display cognitive development commensurate with their hearing peers if they have age-appropriate language skills.

Teachers of the deaf would benefit from understanding the underlying cognitive constructs, challenges that children who are D/HH might face, and how they manifest in their learning and behavior.

These developmental processes can be further impacted by the presence of other sensory or neurological challenges. The presence of visual impairment in addition to hearing loss can significantly affect development of audiovisual integration for speech perception and how the child engages with the environment in general. The presence of a neurological disorder, such as cerebral palsy in which

motor difficulties might impede cognitive and language development or autism spectrum disorder in which the desire to engage in social interaction is diminished, can further impact development.

In addition to the characteristics of the child, caregiver characteristics and environmental factors also influence cognitive development. Child development across domains is influenced by the child's experiences and inputs received. The quality and quantity of language input can have an impact on children's vocabulary development. Children who receive less and/or poor-quality input often have smaller vocabularies than their peers (Hart & Risley, 1995; Huttenlocher, Vasilyeva, Cymerman, & Levine, 2002). Children who are D/HH typically receive less language input depending on how consistently they wear their hearing aids and/or cochlear implants.

Additionally, they might receive limited input for other reasons, such as caregivers' hesitance or lack of knowledge regarding providing rich input or living in an impoverished environment where exposure to developmentally-appropriate activities is limited. In other words, for a variety of reasons, many children who are D/HH might not have adequate opportunities for developing cognitive skills. For children who are D/HH, quality and quantity of input can sometimes be limited by the child's language proficiency. Often the focus of intervention might be learning words of objects and action. Certain types of activities or conversations might not be conducted, because the child doesn't have enough language to understand and respond. However, activities that promote cognition can also support language development. Strategies to target cognition and language development through age-appropriate activities will be discussed later in this chapter.

Impact of Hearing Loss on Cognitive Development

Over the last few decades, the impact of auditory and language deprivation on neurocognitive development and psychosocial development has been an area of growing research. It has been widely observed that having age-appropriate language skills does not guarantee age-appropriate skills in other domains. It has been proposed that difficulties in cognitive skills might in fact be related to an earlier period of auditory and language deprivation and not the child's current language proficiency (Pisoni et al., 2010). Teachers of the deaf would benefit from understanding the underlying cognitive constructs, challenges that children who are D/HH might face, and how they manifest in their learning and behavior.

Researchers are interested in understanding if and how hearing loss impacts processes that do not rely on or require language and are applicable across multiple domains (domain-general skills) but are "executive-organizational-integrative" processes (Beer, Pisoni, & Kronenberger, 2009; Pisoni et al., 2010). For example, sequencing is a process that is present in verbal as well as nonverbal forms (e.g., repeating a series of words, executing a series of actions). In line with the hypothesis that early auditory and language deprivation might impact cognitive development, Conway and colleagues proposed the "auditory scaffolding hypothesis," which posited that early auditory experience of processing

speech as a temporal and sequential signal contributes to learning sequence processing across verbal, nonverbal, and motor domains (Conway, Pisoni, & Kronenberger, 2009). Difficulties in auditory, visual, and motor sequencing demonstrated by children who are D/HH suggest that early auditory deprivation disrupts development of sequence processing (Conway et al., 2009). This finding is important for teachers, because sequence processing is a prerequisite to learning a variety of skills, including learning the vocabulary and grammar of a language and motor planning for writing letters. Converging evidence indicates that children who are D/HH who use cochlear implants demonstrate difficulties in working memory, fluency, and inhibition. Additionally, difficulties in these areas can manifest as challenges in academic achievement as well as social competence. The ability to receive, retain, and recall information is important for learning.

Working memory and the ability to receive, retain, and *manipulate* information has been often evaluated using the digit span task in which children are asked to repeat sequences of numbers in the reverse order that they were presented. Multiple studies have demonstrated that cochlear implant users have difficulty compared to their hearing peers (Houston et al., 2012; Kronenberger, Pisoni, Harris, et al., 2013; Pisoni, Kronenberger, Roman, & Geers, 2011). These difficulties have been observed in long-term users who were early implanted, indicating that duration of deafness and duration of auditory experience might not contribute much to development of working memory skills. Additionally, there is a lot of variability in working memory abilities across children suggesting that some children have age-appropriate working memory skills—demonstrating that it is possible to develop age-appropriate working memory skills.

Responses of parent questionnaires, such as the Behavior Rating Inventory of Executive Function, are aligned with findings from experimental tasks and also indicate difficulties in working memory (Beer, Kronenberger, & Pisoni, 2011). Given that hearing loss negatively impacts language development, some studies have examined memory for nonverbal stimuli, such

as motor sequences (finger-tapping) and visual-spatial sequences (series of lights on a grid), and discovered that children who are D/HH had difficulty with the nonverbal stimuli—reinforcing the hypotheses that memory for sequences is impaired across domains for children who are D/HH, presumably due to limited exposure to auditory scaffolding (Conway et al., 2009).

Difficulties in working memory and with learning sequences are correlated with poor speech and language outcomes (Conway et al., 2009; Houston et al., 2012). It is easy to imagine how a student who has difficulty with listening to and remembering information might struggle in the classroom with routine activities, such as listening comprehension, solving story problems using mental math, and following a set of complex directions. Research on evaluating interventions that might facilitate development of working memory are ongoing (Kronenberger, Pisoni, Henning, Colson, & Hazzard, 2011).

Another area that is examined is fluency and speed of processing information. Children who used cochlear implants were less proficient than their hearing peers when performing tasks requiring verbal fluency (naming words), visual fluency (identifying or matching pictures), and motor fluency (drawing symbols; Kronenberger, Pisoni, Henning, & Colson, 2013). Anecdotal data from

parents and teachers often suggest that children who are D/HH need extra time to process a question or formulate an answer. We can speculate that these difficulties in fluency might contribute to needing more time to process information.

A third area where difficulties have been observed is executive function, especially inhibition, which is the ability to suppress automatic responses to follow a certain set of rules. The Stroop Word Color test is often used to examine the ability to substitute a familiar or over-rehearsed response, such as names of colors and numbers, with another response (Kronenberger, Pisoni, Henning, et al., 2013; Pisoni et al., 2010). Children who use cochlear implants demonstrate difficulties in the ability to inhibit a response (i.e., override an automatic response). We can speculate

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that this inability might be manifested in difficulty with learning new information that requires overriding previously learned information. Additionally, difficulties in inhibition might negatively affect social interactions. (For additional readings on this topic, review the research report *The Ear is Connected to the Brain*; Houston et al., 2012.)

In summary, childhood hearing loss alters a child's sensory experience and can impact domain-specific skills, such as vocabulary and grammar development, but also domain-general skills, such as sequencing and memory. Difficulties in executive function as well as challenges in integrating and processing information have been observed in children who are D/HH. These difficulties often manifest as poor performance on academic tasks. The next step is to explore how teachers might facilitate cognitive development and address cognitive challenges.

Supporting Cognitive Development in Early Intervention & the Classroom

Teachers of the deaf work with a diverse group of children who are D/HH. Some children might have received timely and effective intervention and are “closing the gap,” while others might have experienced setbacks, such as late diagnosis, minimal parental engagement, presence of additional disabilities, or delayed intervention. The cognitive development of each child in your care might be at a different stage based on the child's intervention so far. Unfortunately, there isn't a simple answer to how teachers can evaluate and facilitate development of cognitive skills. However, through a combination of strategies that will also support development of listening and spoken language skills, teachers can help their students develop cognitive skills or identify compensatory strategies (see *Table 1*).

Table 1 Strategies to Support Cognitive Skill Development

Strategy 1: Familiarize yourself with age-appropriate cognitive skills for your students.

Refer to developmental checklists and grade-level learning standards. However, do not base your expectations on chronological age or grade level alone. Take into account the child's hearing age as well as language proficiency. For example, even though by age 4, children are expected to engage in cooperative problem solving, a child with hearing loss who has the language skills of a 2-year-old will have difficulty achieving this goal—not because of her inability to problem solve but her inability to communicate with her peers about problem solving. Similarly, a fourth-grade student who reads and writes at a second-grade level might have trouble summarizing a story due to difficulties with the skill of summarizing as well as a limited proficiency with reading and writing. The Cottage Acquisition Scales for Listening, Language, and Speech (CASLLS) are a useful resource for monitoring a child's cognition, play, listening, and language development.

Strategy 2: Identify the cognitive skills required in the various activities your students participate in.

Age-appropriate play activities and routine classroom activities rely on particular language and cognitive skills (see chart below).

Subject	Activity	Cognitive Skills
Math	<ul style="list-style-type: none"> Rote counting, math facts. Learning about 2D & 3D shapes. 	<ul style="list-style-type: none"> Memory. Observing shapes to identify features, classifying based on features.
Science	<ul style="list-style-type: none"> Creating a chart of living & nonliving things. Science experiment. 	<ul style="list-style-type: none"> Observing features, applying principles/rules, classifying. Observing, planning, hypothesizing, analyzing.
History & Geography	<ul style="list-style-type: none"> Creating a diorama. Examining “what if” situations for historical events. 	<ul style="list-style-type: none"> Planning, executing a sequence of actions. Analyzing, predicting.

Strategy 3: Observe your students and identify if any difficulties are attributable to listening skills, limited language proficiency, and/or underdeveloped cognitive skills.

Identifying which skill needs to be addressed is not easy and requires some observation and analysis on the teacher's part. For example, a student who struggles with retelling a sequence-based story (e.g., *Very Hungry Caterpillar*, *Little Red Hen*) might have difficulty with remembering the sequence of events and/or formulating the sentences to retell the story. One way to further evaluate the student's skill would be to provide the student with visuals of the sequence and ask to retell. If the student retells the story successfully, it is indicative of his difficulty with remembering a sequence of events. If he doesn't benefit from the visuals, additional probing is required, such as asking him to retell a story or event that is less complicated or more familiar. Observing student performance on activities that do and don't require certain cognitive skills can provide insight into their language and cognitive abilities.

Strategy 4: Evaluate how your lessons and teaching strategies promote development of cognitive skills.

This exercise will help you see that there might be several skills you have been targeting all along! The next step is to be more mindful and explicit about those targets and ensure that you are addressing a wide variety of skills. For example, you might be working on making predictions—"What will happen next?"—every time you read a story but might not be targeting making deductions—"Why do you think the boy's hair is wet?" The following prompts might be useful in helping you evaluate your teaching:

Does the language I use promote thinking?

Often, there is an emphasis on teaching the labels for objects and actions. While that is most definitely the first step in acquiring a foundation for language, the next step should be using the language to promote thinking. Asking a variety of questions can be a useful technique.

Am I asking questions that provide opportunities to use a variety of cognitive skills?

In an effort to build vocabulary, it is easy to ask questions about the here and now. Questions about here and now can promote cognitive skills of observing—describing what is being seen. It is important to ask questions beyond what is observable, such as questions that prompt comparing—"Did you have a yellow cake at your birthday party, like the girl in the story?" While the answer might be a simple yes or no, the skills that are used here are that of understanding the question, recalling the birthday event, comparing personal experience with the one in the story, and coming to a conclusion. The chart below lists some cognitive skills and the prompts/question you can use to foster these skills.

Cognitive Skill	Prompts/Questions
Observing	What do you see?
Comparing	How are they alike? ■ How are they different? ■ Are these similar?
Classifying & Categorizing	Which ones go together? ■ How can we group these (objects)?
Organizing, Computing, & Analyzing Data	How many types of (supercategory) do you have? ■ Which one has the most? ■ Which one has the least? ■ Which ones are equal? ■ How many (objects) do you have that are greater/larger/heavier than?
Sequencing	What happened before? ■ What happened after? ■ What was first/second?
Deducing & Inferring	How does the girl feel? ■ Why? ■ How do you know? ■ Why is the boy's hair wet? ■ What does it tell us about the weather?
Predicting	What will happen next? ■ What would happen if?
Hypothesizing	We know that (principle). What would happen if?

Strategy 5: Develop activities that focus on specific cognitive skills while addressing listening and language targets.

Once you have identified the cognitive skills that are developmentally appropriate for your students and your students' current proficiency, you can incorporate cognitive skills into your auditory and language activities. The following are some sample activities for key cognitive skills.

Memory

Many children who are D/HH have difficulties in memory. Working memory interventions haven't been particularly beneficial, and it is unknown if practicing strategies for remembering sequences or separate pieces of information is beneficial. However, implementing activities that incorporates memory practice in a natural manner can

allow children to practice and develop compensatory strategies. Playing a simple game of "telephone" can help students practice attending to and retaining information. Learning an action song, like the *Macarena*, and doing the actions in a forwards then backwards sequence can provide practice with motor sequencing.

Observing

Children need to practice carefully observing various features using all of their senses. Observation activities can provide natural opportunities to talk about nouns

and adjectives. The chart below lists activities that are appropriate for preschoolers.

Activity	Observation/Dialog
Present the students with a small plant.	Teacher: What do you see? Student: I see hair. Teacher: Yes, those have a special name. They are called "roots." They help the plant get water from the dirt.
Pass the plant to the next student. This interaction can also promote social interactions.	Student: I see green circles. Teacher: Yes, those are called "leaves." And look, this leaf is longer. The shape is like a circle but longer. It is an oval.
Also ask students to draw the plant and help them label.	This will promote cognition, fine motor, and language skills.
Each student's drawing can then be made into a puzzle.	This will help students practice part-to-whole concepts.
The teacher could further extend this as an auditory activity with language targets.	For example, "Find the roots," or "Find the part that helps the plant get water from the dirt."

Classifying Objects & Analyzing Data

Students are expected to be able to sort, categorize, compare, and compute data. These skills do not require very advanced language skills and can be incorporated in routine activities.

The purpose of the activity in the chart below is to categorize objects based on a feature—shape, color, function, etc. This activity, while focused on cognition, allows the teacher to target concepts and language important for math—sort, most, least, column, etc.

Activity	Observation/Dialog
During snack, give each student graph paper with large squares; then serve Frootloops or colored Goldfish.	Teacher: Sort the snack into groups. “Sort” means make groups of things that go together.
If students do not have enough language to follow these directions, demonstrate and teach the target language. Allow students to work independently.	Teacher: Student 1, tell me what groups you made. Student 1: I have red, yellow, blue, orange. Teacher: Great. You sorted by color. Student 2: I sorted by color too. Teacher: Great! Now can you organize it in a column?
Help with creating a bar graph.	Teacher: Tell me which color do you have the most? Student 2: The red ones. Teacher: Student 3, which color do you have the most of and which color do you have the least of? Student 3: Most of my Frootloops are green; only a few are blue.
Once students are familiar with concept, make task harder by serving a snack with more features (i.e., Chex Mix), sorting by shape, texture, salty/not salty, solid/hole in middle, etc.	Such an activity can also provide opportunities for students to share their thinking (e.g., “I sorted based on texture”).

Deducing & Inferring

Using information that has been provided to deduce or infer other information is important for academic tasks as well as social interactions. The activity in the chart below provides opportunities for practicing inferring a

person’s emotions and thoughts. As can be seen in the example, certain activities provide opportunities to target multiple cognitive skills and language structures, such as compound and complex sentences, and mental state verbs.

Activity	Observation/Dialog
Choose a picture book in which characters go through a series of emotions (e.g., <i>Flora’s Surprise</i> by Debi Gliori).	Teacher: What do you see on this page? (<i>Observation</i>) Student: Flora and her brothers and sisters. Teacher: How do you think they feel? (<i>Making an inference</i>) Student: Excited! Teacher: How do you know they are excited? (<i>Making a deduction</i>) Student: They have big smiles and big eyes. Teacher: What do you think they are excited about? Look for some clues on this page. Student: I see seeds. Maybe they are excited about planting their flowers. Teacher: (<i>Turn page</i>) You are right. They are planting flowers and vegetables. But look, Flora is planting a brick! She wants it to grow into a house. Do you think it will grow into a house? Student: No, bricks are nonliving things. They cannot grow. (<i>Predicting, applying principles</i>) Teacher: Look at this page. How does Flora feel now? Student: She is sad. Teacher: Why do you think she is sad? Student: Because the brick is not growing.

Strategy 6: Monitor progress in a systematic manner.

There aren't many tests that can be administered to children to evaluate specific cognitive abilities, but you might be able to create a set of tasks for your students. For example, when working with young children, it is important to evaluate their ability to sort objects based on features. You can have a box with multiple objects and tell the child to make two groups—maybe the child will sort by color, shapes, function, etc. For a child who has limited language abilities, it is important that the concept of sorting has been explored and demonstrated beforehand. To evaluate cognitive skills, you might use a picture of a scene from books, such as *1001 Things to Spot on the Farm*, and develop a set of questions that require students to observe, infer, predict, etc. Asking the same questions at the end of every grading period can provide insight into development of these cognitive skills, as well as the language skills required to respond to the questions.

However, it is possible that, even with extensive efforts to develop cognitive skills, children who are D/HH continue to have difficulties. Identifying learning strategies that can compensate for these difficulties will be important. For students who have difficulty remembering sequences or manipulating multiple pieces of information, providing visual strategies, such as counting the number of items on fingers or writing/drawing the information, could be beneficial. Using graphic organizers, such as webs or Venn diagrams, can help with practicing describing, categorizing, etc.

Summary

In this chapter, we have reviewed cognitive development of children who are D/HH and factors that contribute to this development. Even though cognitive development hasn't been extensively studied as language development of children who are D/HH, it is clear that difficulties in cognition often go hand in hand with difficulties in language. Teachers of the deaf have to take into account overall development and address needs of their students in all domains, because difficulties in one domain often

impact achievement in other domains. The strategies of identifying cognitive skills that are age-appropriate and teaching them through natural, language-rich activities could be beneficial for many students. Teachers might not be able to change their students' medical and educational history and prevent cognitive delays from occurring, but they can certainly make a conscious effort to remediate and reduce the impact of any cognitive difficulties.

Teachers of the deaf have to take into account overall development and address needs of their students in all domains, because difficulties in one domain often impact achievement in other domains.

Suggested Readings

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- Houston, D. M., Beer, J., Bergeson, T. R., Chin, S. B., Pisoni, D. B., & Miyamoto, R. T. (2012, June). The ear is connected to the brain: Some new directions in the study of children with cochlear implants at Indiana University. *Journal of the American Academy of Audiology*, 6, 446–463. doi: 10.3766/jaaa.23.6.7

Resources

These videos from the Association of American Medical Colleges and the Khan Academy provide overviews of the topics:

- Theories of language and cognition, <https://www.youtube.com/watch?v=RgvmKfvCwps>
- Piaget, <https://www.youtube.com/watch?v=Jt3-PIC2nCs>
- Vygotsky, https://www.youtube.com/watch?v=-p_-0n2f35o

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Chapter 4

Social Development

Joni Alberg

The process of socialization begins very early in a child's life (Martindale, Ilan, & Schaffer, 2013). It is the process by which a child acquires the language and culture of his or her family and the community into which he or she is born. Within this community, children learn the language, norms, values, behaviors, expectations and social skills that are appropriate for their "world."



Photo courtesy of Advanced Bionics

acquired through the process of natural interactions within their environment—primarily home and early education settings. They listen, observe, practice, and internalize. By the time children reach adolescence, they begin to test the values and ideas that have shaped their childhood. Friendships and peer groups gain significant importance during adolescence, and social status is related to their conformity to these

groups (Ohio Welfare Training Program, 2007).

The term "children" is used throughout to refer to infants, toddlers, early and late childhood, and adolescence unless otherwise specified.

Social interactions are an important component of nearly every aspect of our lives. The development of skills necessary to form positive and lasting social interactions begins in infancy and continues to evolve as an individual grows and develops. Skills, such as trust, empathy for others, cooperation, channeling of emotions (e.g., joy, anger, sadness, frustration), develop throughout childhood. For most children, the skills needed for social interaction develop naturally. That is, they are

Children who have difficulties with such skills as attention, listening, hearing, language, and memory are vulnerable to social problems (Lawson, 2003). They may have difficulty following a conversation when a group is talking or may miss important information that causes them to react in an inappropriate manner. When social behaviors are judged by others to be inappropriate, the individual is considered to have difficulties in social competence. They have difficulty applying the social skills they have acquired or may have gaps in skill acquisition. Children who are deaf or hard of hearing (D/HH) are at

increased risk for social problems because of the nuances of communication, volume, voice characteristics, pace of interactions, language requirements, and/or the nature of the environment in which the interactions take place (e.g., noise). In short, they risk social rejection by others—placing them at an increased risk for developing mental health problems (Antia, Jones, Kreimeyer, & Reed, 2011).

To have a friend presupposes that one has the social skills to make and keep that friend (APA, 2002). At its core, the skills we use to communicate and interact with one another form the basis of social interactions. Listening, eye contact, initiating conversation, understanding the

There are many, many important social skills for children to learn. These skills are acquired over time as a child grows.

listener, empathizing, and reading social cues are skills required for social success. Thus language is an essential component of social skill development. Children who are considered to be socially adept are able to initiate, maintain, and end a conversation. They are able to read social signals, solve problems, and resolve conflict. In short, they relate well to others and have learned to control their own emotions in order to achieve social and life success. As children acquire social skills, they become aware of how to communicate with others, the messages they send, and how they can improve communication to become more effective (Lawson, 2003; Erol & Orth, 2011).

Skills for Social Competence

There are many, many important social skills for children to learn. These skills are acquired over time as a child grows. Thus they are developmental in nature. Because social skills are developmental, parents and teachers must learn what to expect at different ages and stages. For example, a 10-year-old child is concerned about fitting in with their peers—a concern that grows stronger throughout the period of early adolescence. A 5-year-old, however, is not focused on “what everyone else is doing” as much as he/she is focused on forming close-knit bonds with two or three select friends. “Perceived relationship of self to others” is an important social skill that begins developing early and continues to evolve over time. As with most social skills, teachers will need to ensure students acquire the necessary core skills for successful social interactions.

[VeryWell.com](http://www.verywell.com) provides comprehensive information about the motor, cognitive, verbal, emotional, and **social skill** milestones for children ages 1 through 18. Using the “search” function on this website, type in “social development age xx,” and you will be linked to information for that age child. This is a valuable resource for teachers to bookmark and reference frequently.

Because social skills encompass a broad array of skills necessary for successful interpersonal relations, it is helpful to think of these skills according to some type of skill grouping for purposes of assessing what skills a child does and does not have and for providing instruction. VeryWell.com presents social skills according to developmental milestones. Another way to think of social skills is by type or category. *Table 1* contains skill groupings by category. The skills listed are but a few examples of the types of skills that encompass each category, and the lists are not exhaustive (Canney & Byrne, 2006; Waltz, 1999).

Table 1 Social Skill Categories

Foundation Skills

- Maintaining eye contact
- Recognize and respect personal space
- Understanding gestures and facial expressions

Interaction Skills

- Resolving conflicts
- Taking turns
- Beginning and ending conversations
- Determining appropriate topics for conversation
- Interacting with authority figures

Affective Skills

- Identifying own feelings
- Recognizing the feelings of others
- Demonstrating empathy
- Decoding body language and facial expressions
- Determining whether someone is trustworthy

Cognitive Skills

- Social perception
- Making choices
- Self-monitoring
- Understanding community norms
- Determining appropriate behavior for different social situations

In this example, foundation skills are the building blocks that support social interactions. For example, maintaining eye contact is important to successful interactions with others but in isolation does not mean much. Maintaining eye contact during a conversation with another person is very important as it demonstrates interest in and attention to the other person. Foundational skills—when exhibited in social interactions—demonstrate understanding of the social situation, including the rules, practices, and values a child learns early in life.

Interaction skills are those necessary for getting along with others. They demonstrate understanding of turn-taking, the ability to assess a situation, and following the direction of a conversation. Individuals who have strong interpersonal skills are usually more successful making friends, getting along with others, and achieving life success. For children who are D/HH, interaction skills can pose a significant challenge. Following a conversation can be difficult when there are multiple people involved. When a conversation is fast-paced and occurs in difficult listening environments, information may be missed, and the child who is D/HH may feel lost (Punch & Hyde, 2011).

As children reach adolescence, following conversations with a small group of friends can be challenging. Children who are D/HH must learn how to ask their friends to “slow down,” make sure their friends face them when talking, and use strategies for asking friends to please repeat something he or she missed. The development of effective self-advocacy skills is essential for children who are D/HH to ensure successful interactions with peers, teachers, coaches, and family members.

Skills necessary for understanding, identifying, and relating to the feelings of others are called “affective” skills. These skills address a child’s feelings, emotions, motivations, values, and attitudes. Any behavior that has an emotional component requires affective skills. One of the most important affective skills necessary for relating well with

others is empathy. Being able to understand when you have hurt another person’s feelings, recognizing when someone is sad or angry, and determining trustworthiness are important to establishing and maintaining successful friendships. Affective skills change over time as children grow and are exposed to many different situations, types of people, and experiences. Children who are D/HH are at risk for affective skill difficulties due to the contributions of nonverbal behaviors and voice nuances that may reveal a motivation or emotion different from the words that are spoken.

Cognitive skills encompass the skills a person’s brain uses every day to think, learn, remember, reason, and pay attention. Children are bombarded with information throughout their day, and they must learn to sort through it and process which information is important and necessary to succeed in many different situations. The skills of attention, memory, and thinking are essential cognitive skills (see *Table 2*).

Table 2
Essential Cognitive Skills

Attention

Required to concentrate on a task or a conversation. By the time a child reaches the age of 8, he should be able to concentrate on one thing for longer than 15 minutes while at the same time ignoring distraction.

Memory

Equips a child to retain what he has learned and experienced, providing a base upon which future knowledge will be built.

Thinking

Encompasses the ability to reason and find solutions to problems. A child must know if he is accomplishing what he set out to do and whether or not he needs to ask for help. This is the basis of self-advocacy, which is critical for children who are D/HH to master. The abilities to reason effectively, problem solve, think abstractly, reflect, and plan for the future depend on cognitive competence (APA, 2002).

Children who are successful acquiring the necessary foundational, interaction, affective, and cognitive skills will find social success. This success typically leads to a positive feeling of self-esteem. Self-esteem is considered to be the most critical skill affecting friendships and

other social interactions by the time children reach adolescence. Self-esteem is how we perceive our value to the world and how valuable we think we are to others. Self-esteem affects our trust in others, our relationships, our work—nearly every part of our lives. Positive self-esteem gives us the strength and flexibility to take charge of our lives and grow from our mistakes without the fear of rejection (UC Davis, Self-Esteem).

High self-esteem individuals are more likely to persist in the face of failure (Trzesniewski, Donnellan, Moffitt, Robins, Poulton, & Caspi, 2006); while research has revealed that low self-esteem can result in long-term poor outcomes, including depression, eating disorders, delinquency, and other adjustment problems (APA, 2002). Low self-esteem develops if there is a gap between one's self-concept and what he or she believes one "should" be like.

Another factor that has been found to contribute to self-esteem is socio-economic status (SES). Children from low SES environments seem to be more vulnerable to developing low self-esteem. There are many contributing factors influencing this potential outcome—lack of a stable environment, insufficient adult supervision and guidance, lack of positive role models, and inadequate social models, to name a few. The good news is, with instruction, children can learn, develop, and use positive social skills and thus increase their self-

esteem. It is critical for teachers to be on the lookout for evidence of low self-esteem among students and to immediately develop a plan to address it.

Karen Anderson (n.d.) presents an interrelated construct of social skills (see Figure 1) that places importance on self-concept as a critical component of social competence. In this model, self-concept and theory of mind provide the essential foundation upon which social relationships are built.

Self-concept—also referred to as self-identity—is the collection of beliefs one has about him or herself. Self-concept is cognitive and descriptive and reflects our perceptions of our behaviors, abilities, and unique characteristics. It answers the question, "Who am I?" (APA, 2002). Early on, this view of one's "self" is concrete and descriptive of what the child believes about herself.

"I am a girl."

"I have blond hair."

"I am a fast runner."

"I am a good friend."

Over time, self-concept changes as children make new discoveries about who they are and what is important to them. Children must first understand who they are before they can begin to understand others. Over time, their interactions with others will impact them positively and/or negatively, shaping their self-esteem as they grow.

Positive self-esteem gives us the strength and flexibility to take charge of our lives and grow from our mistakes without the fear of rejection.

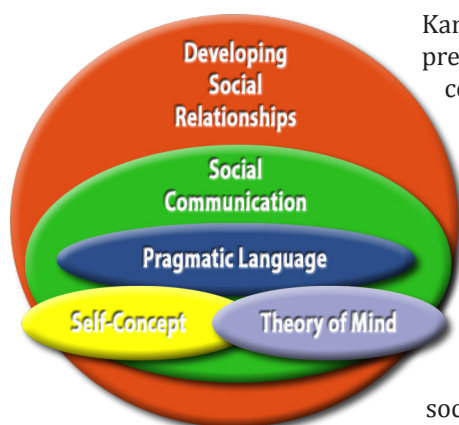
Theory of Mind (ToM) is the understanding that other people do not share the same thoughts and feelings as one's self. Early skills forming the basis of ToM begin developing in infancy and early childhood. By age 5, most children have learned:

- That different people want different things.
- That people have different beliefs—both true and untrue.
- That if someone hasn't seen something, they might need more information to understand.
- That people may not "show" their true feelings about something.

Later, children learn to predict what someone thinks or feels, and they begin to understand complex language that relies on ToM, such as lies, sarcasm, and figurative language. Experience over time enhances ToM development.

Pragmatic language is the social language we use in our daily actions with others. This not only includes *what* is said but *how* it is said. These include conversational skills, turn-taking, eye contact, and asking for clarification. For children who are D/HH, the *how* can be challenging. They may need intensive and repetitive training to "hear" the subtleties of intonation and expression. They may need practice following a fast-

Figure 1
Interrelated Construct of Social Skills



This is our goal for all children—to become socially accepted and participating members of the communities in which they live and learn.

are essential components of social communication. Social communication skills are needed to engage in conversations with others. Children must be able to start and end conversations, focus on a specific topic, maintain attention to the topic, and take turns. Social conversations provide information, seek answers to questions, opportunities to negotiate, offer suggestions, and seek clarification. Nonverbal skills are critical to aid in the understanding of social conversations, including understanding implied meanings.

When self-concept, ToM, pragmatic language, and social communication come together, social relationships are successfully formed. This is our goal for all children—to become socially accepted and participating members of the communities in which they live and learn.

Through her website, *Supporting Success for Children with Hearing Loss*, (<http://successforkidswithhearingloss.com/>), Dr. Anderson provides a wealth of resources related to building social success for children who are D/HH. Professionals can use these resources to plan and prepare for social skills instruction, and they can be shared with parents to assist them as they guide and support their children to become socially competent.

Social Skills and Children Who Are D/HH

As a result of early diagnosis of hearing loss, advances in hearing technologies, and increased parental choice for listening and spoken language, more children and youth who are D/HH are attending school alongside their hearing peers than ever before. Many of these students receive

paced conversation and listening in noise. Learning how to track commands and rapidly processing information are essential skills leading to academic and social success—skills that may require significant practice for children with hearing loss to acquire.

Self-concept, ToM, and pragmatic language

little or no special education services. They participate in extracurricular activities, sports, and social events with their hearing peers, and to the average onlooker, they are indistinguishable from their hearing peers.

According to research on children who are D/HH (Antia, Jones, Kreimeyer, Reed, & Luckner, 2011; Martindale, Ilan, & Schaffer, 2013), variables contributing to social outcomes for them include:

1	Functional hearing
2	Functional communication
3	Speech intelligibility
4	Spoken language reception/expression skills
5	Maturation
6	Quality of hearing technology and use of hearing
7	Age of diagnosis
8	Age of audiological and educational interventions
9	Home languages other than English
10	Communication participation
11	Preferred mode of communication
12	Participation in school and community activities
13	Parental participation in the student's education
14	Teacher-parent communication

Note that 11 of these 14 variables relate to the child's loss of hearing and language acquisition—emphasizing the crucial importance of language to the development of social competence.

Social development is the one “subject” for which children receive a grade each and every day.

Language development for children who are D/HH receives priority attention from the time a child is diagnosed with a hearing loss with the goal to have their language skills comparable to their hearing peers by the time they begin kindergarten. The success of children who are D/HH is typically measured in terms of language and academic achievement comparable to hearing peers. It is imperative that social achievement also be included in our overall measurement of “success.” Social competence is critical to school and life success and becomes increasingly important as children enter upper-elementary grades and adolescence.

Some students will depend on teachers to be attentive to their social and emotional needs. As students reach adolescence, their desire to “fit in” may mean they want to hide or deny their hearing loss. They may decide not to wear or use their hearing technology. This is also a time when many children realize their hearing loss is permanent and will not be going away. They may go through a period of grieving—requiring understanding, support, and honesty from professionals and family.

Many students may exhibit competent, confident, and effective social skills in one-to-one interactions. However, these same students may encounter difficulties in group and multiple participant contexts (Punch & Hyde, 2011). They will need much practice to overcome these challenges.

Lawson (2003) writes ...

“While school can be a positive social experience for many children, for others it can be a nightmare . . . failing a social test can be more painful to a child than failing a reading or science test. For some children, social skills can be the hardest subject to pass in school. Social skills play a very important role in a child’s emotional health and well-being. Without friendships, school can be a very unhappy, lonely place that a child might want to avoid.”

Social development is the one “subject” for which children receive a grade each and every day.

Social Skill Assessment

Assessment of student skill acquisition and application tells the teacher whether or not students have learned and are using the skills they have been taught.

Assessment of social skills will answer the questions:

- Does this child have the necessary language for appropriate social interactions?
- Does this child have the necessary underlying social skills upon which they can achieve higher-order skills?

A variety of assessment tools are available, including many that are available at no cost online. The majority of these assessments are qualitative rating scales in the form of:

- Teacher observation
- Parent observation
- Student self-assessment

Rating scales typically measure attitudes and opinions. For example, parents may be asked to “judge” whether or not their child exhibits or displays specific behaviors or characteristics. They may be asked to respond “yes” or “no,” or they may be provided several response options, such as:

	Strongly disagree	Disagree	Neither disagree or agree	Agree	Strongly agree
Your child exhibits/ displays specific behaviors/ characteristics.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Or . . .

	Never	Almost never	Some-times	Often	Always
Your child exhibits/ displays specific behaviors/ characteristics.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Teacher and student assessments may also use these types of response options. The results are specific to an individual child and are very useful for planning

instruction and practice. Be on the lookout for assessment results that do not match. A parent may see their child as very socially competent, but you, as the teacher, may not. Or a child may view herself as socially competent, but her parent does not. Inconsistent assessment results for a single child will require you to dig deeper to find out the true level of social skill and the reason for the disconnect.

An excellent resource for social skill assessment is the George Lucas Educational Foundation Edutopia, Social and Emotional Learning, Tools to Assess Social and Emotional Learning in Schools (<https://www.edutopia.org/blog/tools-assess-sel-in-schools-susanne-a-denham>). The assessments offered here require purchase but are worth considering.

As previously mentioned, many free assessments are available on the Internet, such as the example provided in **Figure 2** (from *Supporting Success for Children with Hearing Loss*, <http://successforkidswithhearingloss.com/>).

Social skill assessments should become a routine component of instructional planning, instruction, and measurement of skill acquisition. Links to additional assessment resources can be found at the end of this chapter.

Teaching Social Skills

In an ideal world, parents are the primary teachers of social skills during the early months and years of a child's life. They model behaviors, teach nonverbal communication through facial expressions and body

language, label emotions, and teach the language necessary for interpersonal interactions. In short, parents lay the foundation for future social success.

However, sometimes—and for a variety of reasons—children do not acquire the social “instruction” necessary for social success. Professionals should not assume that students who exhibit poor social skills or frequent problem behaviors will change without intervention (Antia et al., 2011). Professionals can and must teach social skills to the children with whom they work. A variety of strategies may be used to help students learn, practice, and apply social skills (see *Table 3*).

Summary

Children with hearing loss are at risk for experiencing difficulties in social situations—despite having excellent language, excellent access to sound, and positive role models. Social skill difficulties can be even more discouraging to children than academic failure. Additionally, social “evaluation” occurs every single day, so the impact can be devastating.

The good news is—with attention to the social challenges faced by children who are D/HH—by teaching of social skills that may be lacking and providing students with strategies for addressing socially challenging situations, they can experience social success.

Children with hearing loss are at risk for experiencing difficulties in social situations—despite having excellent language, excellent access to sound, and positive role models.

Figure 2

Example of a Social Skill Assessment

SOCIAL COMMUNICATION SKILLS – THE PRAGMATICS CHECKLIST				
Child's Name _____ Date _____ Completed by _____ Parent: These social communication skills develop over time. Read the behaviors below and place an X in the appropriate column that describes how your child uses words/language, no words (gestures – preverbal) or does not yet show a behavior.	Not Present	Uses NO Words (Gestures - Preverbal)	Uses 1-3 Words	Uses Complex Language
Pragmatic Objective				
INSTRUMENTAL – States needs (I want....)				
1. Makes polite requests				
2. Makes choices				
3. Gives description of an object wanted				
4. Expresses a specific personal need				
5. Requests help				
REGULATORY - Gives commands (Do as I tell you...)				
6. Gives directions to play a game				
7. Gives directions to make something				
8. Changes the style of commands or requests depending on who the child is speaking to and what the child wants				
PERSONAL – Expresses feelings				
9. Identifies feelings (I'm happy.)				
10. Explains feelings (I'm happy because it's my birthday)				
11. Provides excuses or reasons				
12. Offers an opinion with support				
13. Complains				
14. Blames others				
15. Provides pertinent information on request (2 or 3 of the following: name, address, phone, birthdate)				
INTERACTIONAL - Me and You...				
16. Interacts with others in a polite manner				
17. Uses appropriate social rules such as greetings, farewells, thank you, getting attention				
18. Attends to the speaker				
19. Revises/repairs an incomplete message				
20. Initiates a topic of conversation (doesn't just start talking in the middle of a topic)				
21. Maintains a conversation (able to keep it going)				
22. Ends a conversation (doesn't just walk away)				
23. Interjects appropriately into an already established conversation with others				
24. Makes apologies or gives explanations of behavior				
25. Requests clarification				
26. States a problem				
27. Criticizes others				
28. Disagrees with others				
29. Compliments others				
30. Makes promises				
WANTS EXPLANATIONS - Tell me Why...				
31. Asks questions to get more information				
32. Asks questions to systematically gather information as in "Twenty Questions"				
33. Asks questions because of curiosity				
34. Asks questions to problem solve (What should I do? How do I know?)				
35. Asks questions to make predictions (What will happen if...?)				
SHARES KNOWLEDGE & IMAGINATIONS - I've got something to tell you...				
36. Role plays as/with different characters				
37. Role plays with props (e.g., banana as phone)				
38. Provides a description of a situation which describes the main events				
39. Correctly re-tells a story which has been told to them				
40. Relates the content of a 4-6 frame picture story using correct events for each frame				
41. Creates an original story with a beginning, several logical events, and an end				
42. Explains the relationship between two objects, actions or situations				
43. Compares and contrasts qualities of two objects, actions or situations				
44. Tells a lie				
45. Expresses humor/sarcasm				
TOTAL FOR EACH COLUMN				

AUTHOR OF CHECKLIST: Goberis, D. (1999) Pragmatics Checklist (adapted from Simon, C.S., 1984).

Goberis, Beams, Dalpes, Abrisch, Baca, Yoshinaga-Itano (2012). The missing link in language development of deaf and hard of hearing children: Pragmatic Language Development. *Semin Speech Lang*, 33(04), 297-309 <https://www.thieme-connect.de/ejournals/pdf/10.1055/s-0032-1326916.pdf>

The format of this information was designed by Karen L. Anderson, PhD, 2013, Supporting Success for Children with Hearing Loss <https://successforkidswithhearingloss.com>

Table 3
Strategies to Help Students Learn, Practice, & Apply Social Skills

Direct Instruction		
The process of acquiring social skills may not be effortless, and direct instruction of social skills may be necessary (Canney & Byrne, 2006). As mentioned earlier, some students will not possess basic foundational social skills or will have gaps in their skill acquisition requiring	direct instruction of individual skills. Direct instruction consists of teacher-directed activities to teach a specific skill. Just as with the teaching of academic skills, professionals: <ul style="list-style-type: none"> • Must establish learning goals and objectives. 	<ul style="list-style-type: none"> • Make sure students know what these are. • Purposefully organize and sequence lessons. • Clearly explain expectations. • Ask questions of the student to be certain they understand what they are expected to do.
Role-Play		
A very useful strategy for teaching social skills is role-play. Role-play allows students to practice social behaviors in a structured and safe environment. To “set up” role-play practice, teachers ask students to tell about social situations that are uncomfortable or difficult for them. Let the student play the part of the “other person,” and the teacher can	play the part of the student. As the role-play unfolds, the teacher can model appropriate behaviors and responses that might work in this situation. Then switch roles and let the student practice the new behavior or response. In a group setting, two students can do the role-play, and the other	students can give them feedback about what went well and what did not. Ground rules should be established beforehand, so the students understand the purpose of feedback is to be respectful, provide constructive criticism, and to help one another. Exaggerated voice tones and gestures may be used to emphasize behaviors and responses.
Auditory Practice		
Often children with hearing loss will have good social skills. However, because they have difficulty in a group or noisy situations, they may “appear” to be socially challenged, because they missed important information or misunderstood what was said. It is important for students to	learn “how” to manage fast-paced conversations and listening in noise. How? Practice, practice, and more practice! Set up situations where the students must rapidly process and respond to situations. Activities can be formatted as games, role-play, and real-world practice sessions. Many ideas for auditory practice	are available on the Internet. One site that has many suggestions for activities is <i>Our Journey Westward</i> (https://ourjourneywestward.com/brain-training-activities-auditory-attention/). Another place for activity ideas is Pinterest (https://www.pinterest.com/explore/auditory-processing-activities/).
Opportunities for Interaction with Peers Who Are D/HH		
Another valuable experience for many students who are D/HH is to have ongoing opportunities to interact with other individuals who are D/HH to encourage a sense of shared experience and positive role models (Visual Language and	Visual Learning Science of Learning Center, 2016). Participation in camps, clubs, arts, and sports organizations specifically designed for students who are D/HH or in programs such as the Leadership Opportunities for Teens (LOFT)	offered by the AG Bell Association and the Youth Leadership Camp offered by the National Association of the Deaf provide this connection for students who may be in educational environments with students who have typical hearing.

Resources

Social Skill Developmental Milestones

Centers for Disease Control and Prevention, *Milestones in Action*, <https://www.cdc.gov/ncbddd/actearly/milestones/milestones-in-action.html>
 Kennedy-Moore, 2011, <https://www.psychologytoday.com/blog/growing-friendships/201108/what-are-social-skills>

Assessment

Teacher and Student Surveys in Appendices, <http://www.childtrends.org/wp-content/uploads/2014/08/2014-37CombinedMeasuresApproachandTablepdf1.pdf>
 Margaret Alic, *Theory of Mind*, 2009, <http://successforkidswithhearingloss.com/wp-content/uploads/2014/02/Theory-of-Mind-article.pdf>
 Pragmatic Language, <http://therabee.com/images-pdf/pragmatics-jul08.pdf>

Teaching Social Skills

Three Domains of Learning—Cognitive, Affective, Psychomotor, <http://thesecondprinciple.com/instructional-design/threedomainsoflearning/>
 How to Teach Affective Skills, <http://www.taolearn.com/articles/article114.pdf>

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Chapter 5

The Role of the Family: A Developmental & Literary Perspective

Janice Gatty

**Happy families
are all alike;
each unhappy
family is unhappy
in its own way.**

—Anna Karenina,
Leo Tolstoy

All species have ways to protect their young and nurture them until they can fend for themselves. Some build or find protective structures, such as nests, hives or caves, to keep babies away from predators. Others are born with innate behaviors, such as clinging or imprinting, to maintain close proximity until they are mobile and can escape from predators on their own. In our species, the role of the family is to nurture children in an environment adapted to meet their developmental needs



Photo courtesy of NCHAM

until they can adapt independently. When parents hear and have little direct experience with hearing loss, the behavior of the families and knowledge about how to provide an environment that is adaptive and nurturing to their child with hearing loss is not instinctive. And yet, without accessibility to family culture and language, development of a child is at risk.

This chapter is written from the perspective of a practitioner who has worked with families in centers and homes, individually and in groups, in urban and rural settings, mostly in the U.S., for over 40 years. Travel to India, Taiwan, Australia, England, Brazil, and the Middle East (ostensibly to support professionals in their work, but mostly to learn more about families)

added to an understanding of what is the same and different in families around the world.

The scholarly support for this chapter is provided by the work of psychologists who laid a foundation for understanding the growth and development of children in the context of their families. The work of Freud, Erikson, Bowlby, Brazelton, Bronfenbrenner, Skinner, Vygotsky, and Maslow—to name a few—are familiar to teachers who have had courses in human development. These psychologists developed theoretical models—later supported by empirical work—to explain how children *and* adults grow and develop, and the synergy and reciprocity that results from the interaction of caregiving.

The chapter addresses three questions:

1	What is known to be true about all families irrespective of variations in culture?
2	What are the inherent developmental risks for children who are deaf and hard of hearing (D/HH) and their hearing parents who adapt the environment to reduce those risks?
3	What can professionals do to support families in their role to aid in the full development of their children?

What do we know to be true about families?

**Love and
work are the
cornerstones of
our humanness.**

—*Signund Freud*

Children are born into the culture of a family. Individual family members are understood by their interactions with others. Behavior and development of one family member is connected to others. Actions of an individual family member, therefore, will influence the behavior of others (Corey, 2017).

Parents around the world want their children to grow up to be healthy, independent individuals who can form relationships with others and contribute to their community. They want their children to know about life and culture as *they* understand it. Family values and cultural beliefs are conveyed to children formally and

informally. Families shepherd their children through rites of passage preparing them for one qualitative shift to the next as they mature and develop into adults. Holiday and anniversary celebrations may be associated with special traditions, songs, rituals, food, or activities passed on in families from one generation to the next. Some rite-of-passage rituals are more formal and require special preparation and instruction from immediate family members, as well as members of an extended community, such as becoming a *bat* or *bar mitzvah* in Jewish communities.

Most cultures have rituals or ceremonies when two partners join for life. This event is a public recognition of the partnership, as well as a celebration of the strength and solidarity of the family. It also acknowledges the joining of two families. When children result from this partnership, their arrival symbolizes life, a sense of hope and future, and a legacy for continuity of the family (Lindbergh, 2012).

The family is the primary culture into which children are born and nurtured. **Family** includes the group responsible for raising the children and is best defined by the primary and extended caregivers. With maturation, families provide segue, support, and access to neighborhoods, schools, groups, and institutions that support the community at large.

Children learn about communication in the context of their families. Initially, the communicative message is conveyed nonverbally through sensory experiences associated with acts of caregiving. Feeding, diapering, holding, and soothing a baby provide opportunities for responsiveness and turn-taking that contribute to the reciprocity necessary for a healthy attachment between caregivers and infants. This early experience provides a foundation for future social and emotional relationships, as well as a context for language acquisition.

The hearing mechanism in a fetus is well developed by 5 months gestation. In utero, it is a stable distance from the mother's larynx for the next 4 months of her pregnancy. The fetus has consistent auditory access to the fundamental frequency of the mother's voice before birth. Expressive language begins with the birth cry. This reflexive sensory-motor act is soon refined and differentiated into vocalization that conveys different states of being, such as hunger, fatigue, pain, pleasure, and contentedness.

As caregivers interpret baby's utterances accurately and respond effectively, a communicative relationship forms, and babies further differentiate their utterances. Children acquire their native language by interacting with fluent users through caregiving and play. The process is natural, informal, and follows the same pattern of learning in all cultures using all languages.

Children who are D/HH, who are born into families in which the parents are also deaf, are born into an environment adapted that meets their sensory needs. Their parents live in an environment adapted to their capacity to hear that is like that of their children. If the parents use American Sign Language (ASL) to communicate, the communication mode is also likely to be adapted to meet their sensory needs. Their fluent native language (e.g., ASL), unlike spoken language, may be one that is entirely accessible through the sense of vision. Linguistic symbols may be adapted to ensure full access of face-to-face communication with the baby (i.e., baby talk), but the meaningful linguistic characteristics of the language are fully accessible to children who cannot hear. A diagnosis of deafness does not shatter any preconceived notion about their children's hearing status. Deafness is part of their identity, values, beliefs, and understanding of the world, and they convey that to their children. Deafness is integrated into the family culture. The developmental trajectory, path, and risks are different than those of children who are D/HH with hearing parents.

What are the risks for children & families when a child is D/HH?

Two or three out of every one thousand children in the U.S. are born with a hearing loss in one or both ears. The majority (90%) of those children have parents who can hear. When the sensory status of the child differs from other family members, full development relies on an adapted family environment and later an adapted community.

Growth and development patterns in early life depend on children's capacity to assimilate sensory experiences and organize them into meaningful patterns that contribute to their ability to adapt to the environment. When the sensory status of the baby is *different* from that of the family, the growth and development of the child—and the integrity of the family—are at risk. With little direct experience with hearing loss, it is difficult for

hearing parents to imagine the nature of their children's perceptual world. Acoustic events that alert children to transitional activities are inaccessible to children with hearing loss until they have hearing assistive technology that provides access. Spoken language is transmitted through the sense of hearing. The linguistic symbols are not fully accessible to the child who is D/HH if the native language of the family is spoken. In an effort to provide children who are D/HH with an environment to meet their needs, the strain on family resources and integrity of the family structure is at risk.

Loss

Any time events or information seem to change the imagined course of life, the experience is perceived as one of loss. Hearing parents commonly experience a diagnosis of their child's deafness as loss. Reactions to loss are characterized by grief. Feelings associated with grief include sadness, anxiety, depression, confusion, and a sense of being overwhelmed and disoriented. Unconscious psychological behaviors that protect the self from these feelings may present. Freud called them *defense mechanisms*. Examples include denial, repression, rationalization, regression, etc.—terms and concepts that have come to have meaning in day-to-day life as individuals adjust to unexpected events and information.

Initially these behaviors are adaptive. They allow time to assimilate associated feelings, regroup, and make plans for the next step. These behaviors can become maladaptive, however, if they extend over a long period of time and become the primary mechanisms for dealing with loss. If they proliferate, psychological defense mechanisms can undermine intimacy in family relationships—preventing the acquisition of

**If you look for
perfection, you'll
never be content.**

—Anna Karenina,
Leo Tolstoy



Photo courtesy of NCHAM

knowledge and accessibility to resources that contribute to long-term adaptation for growth and development of both the child and family.

Most early intervention practitioners are aware of the grief associated with a diagnosis of hearing loss and the unevenness with which it is experienced in the family. As parents get to know their children, develop relationships with professionals, make decisions, learn about deafness, and begin to adapt their home environment to meet the needs of their family, behavior associated with grief is less observable.

How will the deafness affect them when they enter school?

Will it affect their ability to learn?

Their friendships?

Their confidence?

Their autonomy?

Their identity?

It can present again as their children move to a new stage of development. The effects of grief for parents at later stages in their child's development are usually more subtle and less influential in terms of parenting and caregiving.

What kind of sensory aids will their children use?

What kind of language will they learn?

What's the best way for them to learn in school?

In childhood, it is the parents who make decisions to manage the risks that hearing loss can impose on their children's development. These responsibilities begin

to be shouldered by adolescents as they separate from their parents and develop an adult identity that includes deafness. The grief and loss experienced by parents early in their children's development can be experienced later in young adolescents as they begin to internalize the effects of deafness on their adult life. Just as the parents' grief diminishes as their children grow, so does it recede in young adults, especially as they form satisfying social relationships and find work that is fulfilling.

Erikson asked Freud ...

"What is essential for a human being to have a happy life?"

Freud answered ...

"*Lieben und arbeiten*—love and work." And the first of these, is love.

There is a story that comes from the field of human development about a conversation that took place between Erik Erikson and Sigmund Freud late in Freud's life.

Attachment

Bonding refers to the initial, intense relationship between a mother and newborn infant. Fueled by hormones and sensory experiences, it is an emotionally charged, overwhelming experience of affiliation between two individuals who have limited knowledge of each other—analogueous to falling in love. Two people meet, are smitten, inexplicably drawn to each and in a state of temporary emotional insanity until they can learn more about each other and navigate the relationship to a steadier course.

As a result of Universal Newborn Hearing Screening (UNHS), newborns in the U.S. are screened for hearing loss before they leave the hospital. This timing is expedient for a public health effort to reach the greatest number of infants. Results of "referral" or a failure to pass the screening test, however, can be a distraction to initial bonding. It is probably not the best time for parents—who are just becoming acquainted with their infant—to receive information that undermines their trust in how they will get to know their baby.

Attachment refers to the enduring, long-term relationship that develops between a baby and caregiver over time. It relies on sensory feedback for each to adapt to the other's behavior and accommodate the change that takes place as babies develop and become more competent. Above all, the attachment relationship is characterized by trust, reciprocity, joy, and mutual satisfaction. T. Berry Brazelton—a pediatrician who applied attachment theory with the families and graduate students with whom he worked—provides an operational definition of **reciprocity** characteristic of attachment in caregiving relationships:

Reciprocity Characteristic of Attachment

"The ability to adjust to the goals and personality of others while retaining one's own identity is basic to reciprocity. This implies the ability to control or influence others with effective but nonviolating strategies and to be reasonably influenced by the other without being totally overcome or dominated."

Development, it turns out, occurs through this process of progressively more complex exchange between a child and somebody else—especially somebody who's crazy about that child.

—Urie Bronfenbrenner

Reciprocity is a characteristic of most working, intimate relationships.

An early, passionate start to an intimate relationship is exciting, a pleasure to experience, and gives the relationship a little boost. With attention, care, and commitment, however, relationships characterized by secure attachment can develop and eventually flourish in the absence of an initial bonding experience. And it is a good thing, especially for premature infants whose survival depends on being separated from their caregivers at birth and for those diagnosed with conditions that put babies at risk for long-term full development.

The early (Erik Erikson, 1950; Winnicott 1945, 1957) and later writings (Brazelton, 1983; Tronick, 2007) on caregiver-infant attachment refer to the importance of sensory-motor development in the beginning stages of the relationship. It is the sensory information from both caregivers and infants that provide feedback, so that the pair can adapt behavior for a more satisfying relationship characterized by reciprocity and trust. Caregivers trust their babies will provide them with information regarding their needs and state of being, and babies trust their parents to meet those physical and emotional needs.

The role of sight and vision is important at the early stages of attachment relationships when caregivers and babies are in close proximity and engaged in face-to-face interaction. Vision is directional, requires light, and is only possible when the baby has a clear view of the caregiver. Unlike vision, hearing provides omnipresent, omnidirectional information about the proximity of a caregiver. Even when out of sight, an infant or toddler has access to information about

the whereabouts and availability of a caregiver that contributes to developing trust. So while UNHS

may interrupt the initial bonding experience, early amplification can provide an infant with access to a caregiver's accessibility and reassurance even when not in view.

During a recent home visit, a hearing mother was asked if she noticed any changes in behavior when her 5-month-old daughter wore her hearing aids.

The mother replied . . .

"She makes more noise when she wears her hearing aids. But I also notice that she seems a lot calmer when I'm in the room with her, and she cannot see me. And she can follow her very active 3-year-old brother when he's running around the room!"

—Home Visit, February 22, 2017

Hearing caregivers talk and sing to their babies as they provide basic care of feeding, diapering, and comforting them. They do this without immediate feedback from the baby. With experience, babies respond to their voice, turn of phrase, or musical melodies. When parents believe that their children cannot hear, they are less likely to talk and sing to them (Gregory, 1995).

In a recent memoir, a mother of a child who is deaf *and* hard of hearing, who had professional training as singer, said at first it was difficult for her to sing to her children, knowing they couldn't hear her voice (Rosner, 2010). After getting to know and observing her children, she sang to them in her beautiful voice. Later both children developed an interest in music and singing.

Language & Cultural Access

For the purposes of this discussion, *language* is defined as a set of symbols that stand for concepts and a set of rules for selecting, combining, and ordering these symbols to convey meaning. Changing the order of the symbols changes the meaning conveyed. Language is used in a social context that reflects the cultural milieu of the people that are using it. A *native* language refers to the language used in the home *or* the surrounding home culture or community.

**To speak a
language is to
take on a world,
a culture.**

—Frantz Fanon



Photo courtesy of NCHAM

There are some obvious conditions necessary for successful language acquisition. The linguistic symbols must be accessible to the user. In spoken language, the person must hear well enough to differentiate the sounds of speech patterns. The people using the language must be *fluent* users. There should be a comfort and ease associated with the use of language. Temperament and aptitude can be contributing factors in an ability to acquire and use language. Some people have a talent for it.

The greatest risk for children who are deaf born into hearing families is that of learning language. Incomplete sensory access to spoken language puts acquiring language of the family at risk. The elements of spoken language are not entirely accessible through vision. Children cannot learn to understand spoken language if they cannot hear the melody or discriminate the elements of speech. Critical movements of the speech mechanism are not visible. Speech production requires hearing to gain control of the speech mechanism and produce clear speech.

This makes a very good case for providing children with a language that is accessible through the sense of vision. It is manageable for hearing parents to acquire some basic signs early in their child's life to support their spoken language with visual symbols. Sign-supported spoken language, however, does not have the same characteristics of a language like ASL. ASL, with its own semantics, morphology, and syntax, changes over time to reflect the way it's used in different communities—usually deaf communities. For families seeking an ASL approach to communication for their child to have access to the nuances of and acquire fluency in ASL, parents need interaction with communities of adults who are deaf who use ASL for a richer, fuller linguistic experience in ASL. Early intervention professionals can provide connections to these communities. Extended family members who wish to communicate directly with the children who are deaf need similar experience with fluent users of ASL. The prospect of finding that sort of group is more likely in densely populated urban settings but less likely in rural settings.

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During much of the 20th century, families sent their children away to live in residential schools for the deaf, so that they could learn language, literacy, and academic skills. Some used sign language; others use spoken language. Irrespective of mode of communication, these self-contained communities were adapted to meet the sensory, linguistic, and learning needs of children who were D/HH. With limited technology and a low incidence of deafness demographically, this was often the best choice families could make for the future of their children who were deaf. The choice of mode of communication may have been limited depending on the philosophy of the schools for the deaf in their region. And in all cases, families forfeited involvement in the day-to-day lives of their children.

In the 21st century, families have *real* options in the communication choices they make for their children.

Technology is not perfect and does not restore hearing, but most children in industrial countries can have reasonable, early, consistent access to sound that is adequate enough to provide them with the sensory feedback necessary to learn spoken language. When sensory aids are appropriate, and children have auditory access early in their development, the process of language acquisition can mirror that of hearing children.

A number of laws were passed in the later part of the 20th century (e.g., Chapter 766 in Massachusetts, P.L. 94-142 nationally) leading to the Individuals with Disabilities Education Act (IDEA), which is directed to providing educational services to all children near their home communities.

The advantage is that *all* children can go to school near enough to home, so that they can be part of daily family life. The risk is that finding well-trained, experienced teachers of the deaf to serve potentially every school district in the country is difficult. Teachers of the deaf are teachers of language. Some specialize in sign language, some in listening and spoken language. But the goal is for them to continue what families have started in the early years, so that children become literate and academically competent in school. With the decentralization of education of the deaf, the responsibility for ensuring an appropriate educational program falls heavily on the parents.

Language and culture are interdependent, inextricably entwined. Linguistic dialects of a particular region reflect the differing cultural nuances of the area. Sometimes families decide to use a language with their children that is different from one used in mainstream culture. Many give intellectual consideration to this decision. Nurturing children, providing them with support and reassurance, however, is not an intellectual activity. Making an intellectual choice to use a language with which they are not intimate and fluent usually means impoverished communication (with regard to language) and reduces the access children will have to the culture that is important to their parents.

Integrity of the Family

In this statement, Brazelton is referring to the stress of raising typically developing children. The stress increases dramatically when a child has a hearing loss. As families make adjustments and accommodations to ensure accessibility for their child who is D/HH, resources may be strained—putting the family itself at risk. There is additional emotional strain. A diagnosis of hearing loss can throw a family into a world of unfamiliar concepts, terminology, technology, opinions about sensory aids, approaches to communication, and political and ethnocentric arenas that tug at the fiber of what it means to be human.

There are financial burdens.

Hearing aids and cochlear implants are expensive, require maintenance, and clinical support, and technological advances dictate replacement and ongoing costs. And finally there is the logistical and physical strain of getting to appointments, support services, and ensuring that results become available to extended family members and the educational team.

The support of extended family members at all levels helps greatly to reduce the stress on the nuclear family. Grandparents, aunts, uncles, cousins, and family-like friends can provide material and emotional support

that reduces the burden that otherwise would fall solely on primary caregivers. As parents meet other parents of children who are D/HH, they too can support each other as they travel through a similar emotional space and experience in raising children who are D/HH in a hearing culture. Contact with other deaf adults helps them learn about their own children in the context of their hearing loss.

As education of the deaf has become decentralized, and early work with families is practiced in a “naturalistic environment,” usually the home, opportunities to meet other families who have children who are D/HH, and gaining access to deaf communities is more challenging. Both of these groups—in addition to extended family—are helpful in terms of providing support, affiliation, and sometimes material care of children and adults.

These are some of the risks for hearing families raising children who are D/HH in a hearing world. What can professionals do to help families manage the risks and fulfill their role to nurture their children in an environment adapted to meet their needs?

What can professionals do to support families in their role?

Relationships within families are intimate, close, and private—the nuances of which are seldom completely accessible to individuals and communities outside of the family. The developmental risks imposed by hearing loss are significant enough to warrant intrusion by outsiders—with specialized knowledge and expertise—to support the family.



Photo courtesy of NCHAM

**Families need families.
Parents need to be parented.
Grandparents, aunts, and uncles are necessary.
Stresses on many families are out of proportion to anything two parents can handle.**

—T. Berry Brazelton

Effective practitioners join the family system as they are received and begin a partnership of counseling, coaching, teaching, and learning together in the context of the family system. In the beginning, some professionals may work with families in their homes. It is important to respect and honor an invitation to participate in the intimacy of their family.

Clinicians and teachers are trained to **do** things to change the behavior of the children with whom they work. They learn to demonstrate, model, rehearse, intervene, give feedback, and provide didactic instruction to promote learning behavior. Success is measured by the children's progress. In working with families, the goal is similar—to advance the behavior and skills of the children, so their development in all areas is synchronous.

The locus of control, however, is different—it is the caregivers who are responsible for the change in the children's behavior. The practitioners/professionals support and coach them, so they can provide an environment for their children that is perceptually and linguistically accessible to ensure full development. Practitioners mediate the children's growth and progress through the relationships they form with the primary caregivers.

Teacher-student relationships are inherently authoritative in nature. One member of the dyad is more knowledgeable, skilled, experienced, and more powerful than the other. There must, however, be some level of parity in the relationship that allows students to take risks and grow. Erik Erikson in his theory of development called this **trust**. T. Berry Brazelton calls it **reciprocity**. Brazelton's definition of reciprocity in an attachment relationship is also basic to a successful partnership, like the one that develops between a practitioner and parent.

Good, succeeding relationships between two individuals require each participant to observe, organize, evaluate, and respond to the behavior of the other. Participants make adjustments in their own behavior based on observations and how they interpret the behavior of others.

So what can professionals **do** to support families in their role? They can listen, learn, love, coach, and enjoy their work and the families.

Listen

Teachers or clinicians who prepare professionally to work with children who are D/HH are acquiring skills and a scope of practice to reduce the risks that hearing loss can have on the development of children and their families. They are not preparing to be “grief workers.”

**At heart, we are
 grief workers.**

—David Luterman

David Luterman originally trained as a diagnostic and rehabilitation audiologist, but his enduring contribution to the field of deafness and communication disorders has been to help practitioners understand and be present with the loss families feel at a diagnosis of deafness. He worked with parent groups around the world and found that “grief is not culture bound or disability specific. It is endemic to disability” (Luterman, 2011).

In a hearing family and culture, deafness is a disability. Parents struggle mightily to reconcile the loss often with feelings of guilt, sorrow, and shame—all of which may go unnoticed and unacknowledged by practitioners. These feelings are important in adults coming to know themselves in relationship to their children, but when they are new and unfamiliar, academic learning and knowledge is difficult to hear and assimilate.

Professionals can help by listening. Relationships are formed and maintained by listening. Listening is an active process requiring the listener to be attentive to the speaker's nonverbal and verbal behavior without judgment. Listening allows one to form a relationship characterized by reciprocity with another person—the kind of relationship in which an individual can effectively influence the behavior of another without violating or compromising that individual's autonomy.

A goal of practitioners is to support families in making informed choices about their children. This situation seems like it calls for providing information, evidence, data, talking, and lecturing. Effective, confident professionals are less controlling of the learner's behavior in their interactive style. They **listen**. By listening, the practitioner has an understanding of when and what the parent is ready to learn. Listening helps the parent to figure out what is important in terms of

The behavior . . .

- Is the evidence that we have to make a judgment about our effectiveness in influencing the other person in the relationship.
- Is the evidence that allows us to make adjustments in our behavior, so that we can continue to influence the other positively.
- Permits us to make inferences about how a human being is changing and developing in response to our interaction with them.

decision-making. It is, after all, the family that lives with the long-term benefits or consequences of the decision, not the practitioner.

Listening is a powerful clinical and pedagogical tool. Listening elicits a sense of power and confidence in the speaker, because it requires the listener to be submissive and available. It supports parents who may feel anxious and lack confidence in their abilities to meet the needs of their children. Listening reduces distractions for the speaker who may be overwhelmed or confused. It provides an opportunity for marshaling inner resources that will fuel them in caring for their children. An active listener pays attention to the congruity between verbal and nonverbal behavior and looks for patterns in conversation that may reveal underlying concerns or questions that prevent a parent from moving forward. Active listening is work. It's working when the listener (practitioner) is tired, and the speaker (parent) is energized and ready to take action.

next crisis arises. Confidence and belief in a family's potential to nurture their children—and listening to them with acceptance and support—engenders feelings of capability to care for their children. It is that care that leads the children to grow and thrive at all age levels.

Brazelton talks about the effects on infants . . .

"Every time you give a parent a sense of success or empowerment, you're offering it to the baby indirectly. Because every time a parent looks at that baby and says, 'Oh, you're so wonderful,' that baby just bursts with feeling good about themselves."

It is fairly easy for teachers and pediatric clinicians to love children. Often it is their puerile nature that draws practitioners to the work. It is more challenging to love adult caregivers in distress—feeling overwhelmed, inadequate, and struggling with their role in their family.

Norman Fischer (2014)—a Zen Buddhist priest and poet—talks about love and the difficulty of practice in work and real life . . .

"This [love] doesn't happen by itself. It takes attention. It takes commitment, continuity, and effort. It won't come automatically. It won't come from wishing or believing or assuming. You are going to have to figure out how to not get distracted by your personal problems, by your success, or your lack of success, by your needs, your desires, your suffering, your various interests, and keep your eye on the ball of love, even as inevitably you juggle all the rest of it."

Love is the catalyst that ignites teaching and clinical skills to elicit empowerment, change, and learning in families who are gathering their resources to care for their children.

Learn

One learns about a culture or family by listening and observing behavior. The more a practitioner considers the values of the family culture, the more they can support parents in the role of nurturing their children.

I think . . . if it is true that there are as many minds as there are heads, then there are as many kinds of love as there are hearts.

—Anna Karenina,
Leo Tolstoy

Respect was invented to cover the empty place where love should be.

—Anna Karenina,
Leo Tolstoy

Love

Respect and understanding is a basic requirement for a working relationship in any realm—at school or work, in social groups, among friends, in neighborhoods and communities, and within families. Respect allows us to feel safe, open, and transparent in our interactions with others. It allows us to take risks and accept criticism necessary for

learning and growth. Respect is a minimal requirement in a relationship. It is not love.

Teachers—recognized for how well their students learn—love their students. They take pleasure in their talents and curiosity, acknowledge and accept their frailties, and are committed to helping them fulfill their potential as learners. Supporting families to reach their potential as providers of nurturing environments for their children requires love—selfless, unconditional, positive regard for and belief that the family has or can reasonably acquire the resources necessary for the job at hand. Rescuing families from great distress is not usually possible, at best provides only short-term relief, and engenders a sense of powerlessness when the

Initially . . .

How does the family relate to the practitioner?
How do they communicate about logistical, practical aspects of the relationship?
How easy is it to plan jointly?
Are appointments canceled or rescheduled regularly?
Who attends or meets with the practitioner?
Do the participants vary?
Is extended family included?
How open, revealing, and genuine are caregivers with the practitioner?

This information begins to accrue as the relationship develops.

Then . . .

What is important in family life?
Who are the primary players in the day-to-day life of the children?
How do they interact and communicate with each other?
How are basic family needs met?
What seems to be the priority of need?
Are parents available to care for the child, or does that responsibility fall to someone else?
What are the daily stressors for a particular family?
What are the resources?

In assessing the truth about family culture, it is better to observe than survey the family for information. What family members say or feel has relevance but can be affected by transient, episodic events external to family life. What family members **do** and how they behave provides a truer picture of family culture. Observing patterns of behavior, the division of labor, who fulfills particular roles, the communication lines and medium among family members may help families identify resources that they might otherwise overlook. In learning about a family, the goal is to find out what they want for their children. Only then can the practitioner coach parents effectively towards that end.

Coach

A practitioner who works with a family at home in an early intervention model or a teacher of the deaf on an educational team that supports students in inclusive settings functions in the role of consultant and coach. The actual time spent in direct contact with the infant, toddler, family, or student is a very small percentage of their waking, active hours at home or at school. In the case of early intervention, it may consist of a home visit with a family and child, one to two hours per week. To be effective, caregivers must partner with the practitioners. With guidance and support from the professional, the caregivers lead the charge. Shelden and Rush (2005, 2006, 2010, 2011) have some excellent practical, accessible information and guides for coaching families. The first step in a coaching model is to help families describe outcomes they wish for their children. Together practitioners and caregivers construct goals that will lead to that outcome.

The next step is to coach caregivers in addressing the goals. Parents and practitioners jointly plan activities that address behaviors related to the goals. Practitioners observe parents during the activity. They ask caregivers to reflect on what happened while they were interacting with the child. What worked? What did not work? What would they change (i.e., how would they do it differently next time)?

Practitioners provide feedback to enhance the caregiver's reflections and call attention to what may be important in terms of a qualitative shift in behavior. They may add observational insight based on their skill and professional training. Then both practitioner and caregiver jointly plan the next step or strategy to refine, enhance, or rehearse a particular behavioral pattern.

Coaching is an active, dynamic process characterized by dyadic exchange and reciprocity and is not hierarchical in structure. As children advance, and their capacity for developmental potential becomes clearer, it may be necessary to revisit the validity of the original goals. Based on their training and expertise, professionals may observe these qualitative changes in behavior sooner than the caregivers. It is incumbent on them to lead caregivers in their observations, so that they can make adjustments in their vision for their children.

**A failure is not
always a mistake.
It may simply
be the best one
can do under the
circumstances.
The real mistake
is to stop trying.**

—B. F. Skinner

The goals and expectations for the children and families must be established and embraced by the caregivers. When the goals of the practitioner are misaligned with those of the family, everyone fails. The children cannot thrive without the support of the family, the family feels bad about their ability to fulfill their role, and the professionals feel like they have fallen short of their responsibility. Listening, acting, reflection, feedback, and joint planning keep everyone in step. When hurdles present, or there is a clearing in the developmental path, the family and coach can move forward together.

**You have
to enjoy what
you're doing.
You won't
be good
if you don't.**

—Mihaly Csikszentmihalyi

Enjoy

Working with families is layered, complicated, dynamic, and can be quite challenging, depending on the needs of the family. It is also creative, exhilarating, purposeful, and can be a source of professional joy and fulfillment. The practitioner who works with families with children who are D/HH must have knowledge

and skills in human and language development, speech and hearing science, and psychology and sociology of deafness. To enjoy and succeed at this work, knowledge of self is equally important.

with families. Practitioners need to be aware of their own biases, attitudes, and develop an awareness of their values and cultural beliefs, so they are free to welcome and learn about those the family has to offer (Corey, 2017).

Self-care in working with families is not a luxury—it is an ethical mandate. One needs vitality to maintain relationships that require availability, support, and compassionate coaching. Self-care includes regular exercise, eating and sleeping well, and recreation. Some families manage more than a reasonable amount of stress with limited resources. It is good to know when a situation calls for professional reinforcement, collaboration, and supervision, so that practitioners can continue to maintain their availability to the family.

Families are the best resource in protecting and nurturing children until they can adapt on their own. Working with families to help them fulfill their role as caregivers is helpful, purposeful, and meaningful. The work is related and connected to engagement in the difficulties as well as the joys of family life, and the work itself is fun. It includes playing, eating, creative problem solving, and sharing moments of despair and ones of hope and celebration. It is a pleasure and privilege to contribute to and witness the growth, confidence, and autonomy acquired by primary caregivers, extended family, and of course the children. Enjoy the experience. The outcome is better for everyone.

Boothroyd & Gatty (2012, p. 220) observe . . .

“Entering into family relationships requires an interesting mixture of arrogance and humility . . . the best advice for professional preparation is to make sure your own emotional house is in order before trying to intervene in someone else’s.”

Practitioners need to be genuine, authentic, and real in their interactions with families to develop collaborative, trusting relationships. The relationship requires both participants to be interested, engaged, and available, so it is important for practitioners to model that behavior with the families with whom they work. Values root us in our own history of family life and influence how one works



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Chapter 6

Origins of Deaf Education: From Alphabets to America

Heather G. Zimmerman & Thomas Horejes

NOTE: The decision to use lowercase *d* or uppercase *D* in *d/Deaf* is highly socially negotiable, and the origins of *d/D* have taken on a political context (Woodward & Horejes, 2016). For this chapter, the designation of *d* or *D* is not the main focus, and the lowercase *d* in “deaf” will be used to denote an all-encompassing population immersed in deaf education.

Introduction

A significant majority (92%) of deaf children are born to hearing parents. Of the remaining deaf children, 5% have at least one deaf parent, and 3% have two deaf parents (Mitchell & Karchmer, 2004). For many hearing individuals, their ideological notion of normalcy involves being able to hear and speak; thus, hearing parents have usually favored oral languages in the home and community, which presents a challenging linguistic environment for deaf infants if communication is not accessible (Clark et al., 2015; Horejes, 2009;



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Horejes & Heuer, 2013). Therefore, it is imperative for educators and professionals working with deaf children to consider the implications of language and culture (or what we refer to as *languaculture*) and how this impacts the construction of a deaf person’s experience and identity.

Historically, educational institutions for deaf children have provided an environment where deaf children can acquire not only a valuable education but also an accessible, culturally

accommodative language (Hall, 2002; Horejes, 2012; Lane, 1999; Little & Houston, 2003; Stacks, 1989). In this way, deaf schools are responsible for not only being academic institutions but also cultural and linguistic incubators for languacultures (Horejes, 2012). Languaculture here

emphasizes the “inextricable relationship between language and culture in which a specific language will shape and influence culture—language and culture cannot be separated” (Horejes, 2012, p. 4).

Deprivation of these accessible cultural and linguistic environments can have adverse effects on academic achievement between deaf students and their hearing peers. For example, while scholars have noted that there is a gap between deaf and hearing students in areas such as language, cognition, and learning (English & Church, 1999; Marschark, Convertino, & Larock, 2006; Marschark & Spencer, 2010; Traxler, 2000), additional studies have demonstrated that educational success is directly linked to appropriate academic and linguistic accommodations in classroom environments (Bowe, 2003; La Bue, 1995, p. 166; Swanson, 2007).

With this framework in mind, the following chapter provides an essential overview of the birth of deaf education in Europe to contemporary deaf education in the U.S. A foundational understanding of deaf education illuminates its historical significance and implications with the spirit to unlock critical knowledge that may serve to strengthen deaf education at large. This chapter provides such a history that (Horejes, 2012):

1	Examines what it means to be a deaf student in today’s society.
2	Examines how constructions of deaf education have impacted deaf students in terms of language and culture.
3	Examines how schools construct meanings and human values by means of languaculture to shape what a successful deaf student ought to look like.
4	Offers possible strategies for our scholars to develop positive constructions of what it means to be a deaf student in our society.

As with any population and their history, first a study on paradigms and privilege is foremost.

Paradigms, Piety, & Privilege

Paradigms

Within deaf education there are two primary paradigms—or views—that determine how professionals approach education:

Sign-based paradigms.

Spoken language or oral-based paradigms.

Mertens (2015) argues that it is vital for people to critically examine individual and collective paradigms in order to continue to improve our ways of life. The implication of individual and collective philosophical beliefs influences the construct of “appropriate” avenues for a deaf child’s education (Horejes, 2012).

The two paradigms (sign-based and spoken language-based) are keenly relevant to our understanding of today’s current educational climate for deaf children. The paradigms have been fundamental ideologies that influence how people have approached deaf education throughout history—in turn shaping deaf languaculture and the construct of what it means to be deaf. Thus, it is essential to keep these paradigms in mind when examining the history of deaf education. At the same time, it is imperative to examine avenues to transcend these polarizing either/or paradigms when it comes to cultural and linguistic choices within deaf education (Horejes & O’Brien, 2016).

Piety & Privilege

In the early days of deaf education in Europe, religious clergy had a powerful role in formalizing deaf education. Accounts of isolated incidents of deaf boys being sent to monasteries to be educated, or noble families employing educators for a season to conduct private tutoring happened throughout Europe well before 1789 (Kennedy, 2015). Though not all deaf people in the 16th century were afforded an education, there were a select few who did—typically deaf male decedents of nobility or from wealthy backgrounds. An education of this type was rare and atypical—given that deaf pupils not only had to come from a privileged background, but that they also had to have someone who took interest in accommodating their learning.

By the 17th century, educated deaf people became a phenomenon—gaining the attention and curiosity of political and religious leaders across Western Europe. Don Luis de Velasco—an educated deaf Spanish nobleman—received speech training from a Spanish priest. Kenelm Digby—a British man accompanying the Prince of Wales on a trip to Spain

In the early days of deaf education in Europe, religious clergy had a powerful role in formalizing deaf education.

in 1623—met Velasco and was overwhelmed to encounter a “flawlessly” articulate deaf individual (Van Cleve & Crouch, 1989). It was not only oral deaf people that amazed hearing people but also deaf people who primarily communicated using sign language. For instance, Jean Massieu—an educated deaf Frenchman who communicated in sign language—was a gifted student who brought his instructor fame and prestige. Later he became the first deaf teacher at the institution for the deaf in Paris, was a published author, and later a director of two deaf schools (Kennedy, 2015).

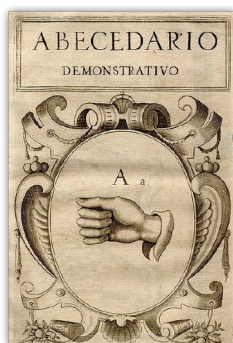
Success stories like the ones above helped to construct oral-based and signed-based paradigms and pedagogies. Thus, deaf individuals like Massieu and Velasco shaped the Western world’s understanding of effective and ideal ways of educating deaf people.

Deaf Education in Europe: The Early Years

Spain’s Influence: Manualizing the Alphabet

Some of the earliest accounts of deaf education come from Iberia in Spain during the late 16th century and early 17th century (Lane & Phillip, 1984; Van Cleve & Crouch, 1989). Fray Melchor de Yebra—a hearing Benedictine monk during the 16th century—was the first Spaniard to publish an illustration of a manual method of communicating, essentially a fingerspelling chart (see Figure 1; Van Cleve & Crouch, 1989). This chart was seminal in influencing many of the one-handed fingerspelling methods in Europe and North America.

Figure 1 The Standardized, One-Handed Manual Alphabet That Yebra Illustrated



The manual alphabet was similar to the one employed by other Benedictine monks who took up a vow of silence (Van Cleve & Crouch, 1989). This does not imply that manual sign language or fingerspelling was invented by hearing monks. However, religious clergy helped to document and preserve aspects of social life that were already in practice. Yebra argued that this method of communication was beneficial for both people who could hear typically and those who were deaf in order to take confessions via fingerspelling. This manual alphabet was not only important for people accessing communication in religious social life, but it also became a seminal tool in the formal education of deaf people.

Other scholars, such as Pedro Ponce de Leon—a Spanish civil servant—and Juan Pablo Bonet—a Benedictine monk—published one of the first books of signs (Fischer & Lane, 1993; Kennedy, 2015, p. xvi; Van Cleve & Crouch, 1989). Leon and Bonet also tutored deaf children of various noble Spanish families. Bonet went on to publish one of the earliest volumes on deaf education titled *Simplification of the Letters of the Alphabet and Method of Teaching Deaf-Mutes to Speak*. Bonet used Yebra’s alphabetical chart as a means to teach deaf children to speak, read, and write Spanish in order to successfully integrate into society. Bonet stated that “deaf mutes are not really so, as far as speaking and reasoning are concerned, but are simply deaf and capable of learning any language or science” (as cited in Kennedy, 2015, p. 15).

The Spanish Benedictine monks were catalysts in helping preserve a visual-manual form of communication used by deaf and hearing people well before the 16th century. However, as Spain’s instructional approach was disseminated to the Western world, it was quickly “appropriated by foreigners even as it had ceased to be practiced in Spain” (Fischer & Lane, 1993, p. 54). Regardless of the pedagogical paradigm foreigners believed in, they built upon Spanish Benedictine texts and tools in order to educate their deaf students.

The Spanish Benedictine monks were catalysts in helping preserve a visual-manual form of communication used by deaf and hearing people well before the 16th century.

Though Spain played an important role in documenting a manual alphabet, the Spaniards are not credited with being the founders of formalizing deaf education as a governmental institution. The Spanish pedagogy was mainly tutorial and limited to a few privileged students, and the alphabet was employed as a means to develop spoken language (Fischer & Lane, 1993). Ironically, it took Spain almost two centuries to establish the first state-subsidized school. Spain's Benedictine Monks' work germinated into a deaf school by 1805 using an "appropriated" paradigm and pedagogy from France (Fischer & Lane, 1993).

France's Influence: The First Deaf Institute

Building on the framework of the Benedictine work, a French clergyman, Abbé Charles-Michel de l'Epée, and his successor, Abbé Roch-Ambrose-Cucurron Sicard, became two of the most prominent hearing figures in the history of signed-based pedagogy in deaf education. They became powerful influences on the formalization and pedagogy of education for deaf pupils. Thus, France is credited as the first nation in the West to institutionalize deaf education.

Abbé Charles-Michel de l'Epée (1712-1789)—the son of a royal architect—rejected a magistracy career to pursue a pious life instead (Kennedy, 2015). In 1760, the Abbé established the National Institution for Deaf-Mutes on rue Moulines in Paris. He used his inheritance to support the school and his students (a total of about 60 deaf boys and girls). Contrary to l'Epée's Spanish predecessors, who favored an oral-based paradigm for deaf education, the French school employed a signed-based paradigm and taught deaf people collectively as opposed to tutorially. Abbé l'Epée would hold public demonstrations that depicted his students being instructed in sign. This helped to raise support for the school and spread the signed-based pedagogical approach. Additionally, other clergymen and individuals came to l'Epée to learn the science of "methodical signs" in order to teach other deaf students in France and beyond (Kennedy, 2015).

The Abbé l'Epée's approach to deaf education gained national and

international recognition. The Abbé's approach was unique on a few accounts:

1	He employed a signed-based paradigm.
2	He educated both deaf boys and girls regardless of economic or privileged circumstance.
3	He used his wealth to invest in collective rather than tutorial education.
4	He publically shared his pedagogical approach and taught others the art of manual instruction.

Abbé Roch-Ambrose-Cucurron Sicard (1742-1822) grew up in Le Fousseret—a village in the Languedoc region of southern France (Kennedy, 2015). At 28 years of age, the archbishop of Toulouse ordained Sicard as a priest and assigned him to a cathedral in Bordeaux. Sicard's archbishop, Champion de Cicé, had seen Abbé de l'Epée's deaf school and decided to found one in his diocese and have Sicard direct it. In 1785, Sicard went to Paris for one year to learn the "methodical signs" from Epée. After Sicard received his training, he returned to the South and became the director of the deaf school in Bordeaux, which was founded on February 20, 1786.

Sicard was outspoken, and his political-religious views almost cost him his life several times. Yet the French leadership supported and subsidized deaf education and considered Sicard an invaluable educator of the institution. Kennedy (2015) described Sicard as a chameleon and that he was neither a "saint nor an apostate, neither a genius nor a charlatan. Rather, he was a priest whose political acumen . . . and whose talents as a grammarian of the new sciences of signs not only saved his skin but also brought him great fame" (p. xvi).

Prior to the death of Abbé de l'Epée, Abbé Masse was selected to succeed as the director of the deaf school in Paris. Since the Parisian school was not regularly funded by endowments, the educational institution was in a deplorable and unsustainable state. Also

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Epée did not have many remarkable students that could really demonstrate the positive impact of this education. Soon after Epée's funeral, the school was in jeopardy of perishing with him (Kennedy, 2015).

Around the same time, Sicard published a critical memoir of Epée's pedagogy, which he argued was a mechanical and dictated approach that produced copyists rather than critically conscious students (Lane & Philip, 1984). Sicard argued that deaf education was *terra incognita* (uncharted territory) and proposed moving beyond Epée's pedagogy towards linguistic consciousness. Moreover, Sicard suggested a public competition to determine who should succeed Epée based on whose skills had a greater educational impact on deaf students. Masse disagreed with this public examination and contended that Epée's wishes for appointed successor should be respected.

The archbishop, Champion de Cicé, was responsible for ensuring that the school's legacy continued and agreed with Sicard that a public competitive examination of the pedagogy was the most appropriate way of choosing the successor. Some felt Cicé's approach was an act of ministerial despotism—exercising oppressive power—and that the competition was fixed in favor of Sicard, who stayed with Cicé during the time. Nevertheless, three of Epée's disciples participated in a public demonstration—Masse (the Abbe of Salvan of Riom), Père Claude Ignace (an Augustinian), and Sicard. The successor candidates were questioned on their plans, principles, and successes, and their students were examined on their academic aptitude in various subjects (i.e., grammar, arithmetic, history, geography, religion, and craftsmanship). Sicard won the contest with his academic prowess and his prize pupil, Jean Massieu. The competition jury praised Sicard that he “not only grasped the spirit and method of the Abbé Epée, but he has added some new developments and perfected the analysis on which his [Epée's] method is founded” (Kennedy, 2015, p 16).

In September 1789, after many petitions, King Louis certified that deaf education was “worthwhile for humanity” and appointed Sicard the *instituteur royal des sourds-mutes* (the royal instructor of deaf mutes). This recognition from the government not only was a prestigious title for Sicard, it also helped institutionalize the sign-based paradigm of deaf education. The Abbé Charles-Michel de l'Epée is considered this signed-based pedagogical movement's founder, but his pupil

Abbé Sicard is considered the movement's innovative continuator (Kennedy, 2015).

The main purpose of deaf education in France was to facilitate deaf children in becoming financially independent by learning a self-supporting trade. In addition to economic self-sufficiency, literacy was also increasingly important during this Enlightenment period of the 18th century. Deaf institutions were supported by aristocratic philanthropy and governmental subsidization. Though funds paid for student lodging, food, and tuition, parents or legal guardians were still responsible for whatever else the students needed. This helped ease some of the financial challenges faced by poor rural families with congenitally deaf children, but it did not solve all the institutions' problems. Sicard was a “bureaucratic beggar” (Kennedy, 2015, p. 38) and constantly petitioned the government's Minister of Interior for more funding to pay for much-needed resources, including beds, blankets, handkerchiefs, plates, napkins, and food. During the French Revolution (1789-1799), the deaf institution—like other schools at the time—struggled to receive sufficient materials and funding.

Students at the deaf school were typically 12 years or older, and it was rare if a younger child was enrolled. Capacity at the facility was limited by the 1800s with admission capped at 60 students, and parents or sponsors wrote petitions to request admission and scholarships for potential students. Students were more likely to receive scholarships or admittance if they were children of a deceased war veteran, victim of war, political affiliation, and/or notable family. Some families had more than one deaf child and petitioned for admittance based on their children's “handicap and the poverty of the family” (Kennedy, 2015, p. 38).

School was in session from October to March. Once students were admitted to the school, they were functionally isolated from society. For example, parents were discouraged from visiting the school or taking their children home. Rational thinking at the time suggested that deaf children needed to be totally immersed and secluded in order to acquire sign language. Additionally, it is possible that the

The main purpose of deaf education in France was to facilitate deaf children in becoming financially independent by learning a self-supporting trade.

family's poverty status and the expense of travel could have been other factors affecting contact. Under the school's administration, discipline was harshly administered. Occasionally students were expelled due to insubordination or poor intellect. Lessor disciplinary measures included a strict bread-water diet, isolation, and manual labor.

Students were placed in classes based upon their intellectual capacity and were required to master a specific trade. Every week, students were involved in promenades (leisurely walks). In addition, on the 13th of each month, students participated in public physical exercises.

The curriculum began with learning sign language, then grammar, and later metaphysics. In addition to outlining lessons and the schedule, the document also criticized the "mechanical" pedagogical approaches employed in Vienna and Paris and emphasized that "deaf-mutes will write their own ideas with the same exactitude as we do" (Kennedy, 2015, p. 5; Sicard, 1789). Sicard attempted to do this through a strong emphasis on metaphysics and analysis. Unlike modern boarding schools, the deaf residential school's schedule had ample relaxation time (see *Table 1* for a typical sketched schedule outlined in Sicard's curriculum; Kennedy, 2015, p. 40.) Sicard abhorred rote learning and insisted that students acquire language naturally and individually. Communication that happened during these recreational and meal periods was critical in students' linguistic acquisition and cultural immersion.

Table 1
A Typical School Day

Time	Activity
8:00 - 10:00 a.m.	Writing and Drawing Lessons
	Recreation
11:00 - 12:00 p.m.	A Lesson and Lunch
	Recreation
3:00 p.m.	Manual Labor
	A Lesson Review
5:00 p.m.	Arithmetic Lesson
7:00 p.m.	Dinner
8:30 p.m.	Bed

Germany's Influence: Oral Pedagogy

Samuel Heinicke (1727-1790)—born in Nautschütz, Germany, to a wealthy farmer—is considered one of the founders of the oral paradigm and oral pedagogy. Heinicke was intensely fond of books and languages—though he only received a village school education. When he enlisted in the army in 1750, he was able to pursue his academic inclinations (Encyclopedia Britannica, 2006). Heinicke learned and taught Latin and French as a tutor for officers' children. Heinicke was influenced by a publication titled *Surdus loquens* (1692) or "The Talking Deaf" that was written by Johann Konrad Amman (1694)—a Swiss physician who taught a deaf person to communicate orally. In 1754, Heinicke tutored his first deaf pupil and eventually pioneered a career in deaf education. In 1778, Heinicke established an oral-based school for the deaf in Leipzig, Germany.

Heinicke was one of the first to argue that speech was linked to a higher mental process, and communicating orally was necessary for abstract thought (Lane, 2011; Lane & Philip, 1984). He also supported the idea of the integration of the deaf into mainstream education and society.

Another German educator, Johann Graseser, also experimented with establishing deaf classes in general education schools during the 1820s. Friedrich Moritz Hill, who studied with the Swiss teacher Pestalozzi developed a natural method of oral instruction and trained many teachers in this method in Germany. His approach spread to Amsterdam and Italy (Benderly, 1980).

Heinicke (founder of oral-based pedagogy) and Epée (founder of a signed-based pedagogy) defended their respective positions on pedagogy methods through publications and letters (Lane, 2011; Lane & Philip, 1984). Other professionals, including deaf individuals such as Sabourex De Fotenay and Pierre Desloges, also participated in these debates. Thus, an academic war as to which pedagogy was superior began to take root (Lane, 2011).

Heinicke was one of the first to argue that speech was linked to a higher mental process, and communicating orally was necessary for abstract thought.

The British Influence: The Secretive Braidwood Family

Other educators used oral pedagogical and combined pedagogical approaches. For instance, Thomas Braidwood used oral methods beginning in 1760 in Edinburgh, Scotland. In 1783, he moved his school to London and two of his nephews began working with him. Eventually the family established and administered four private schools in Britain. A few years later, one of Thomas Braidwood's grandsons would attempt to start an oral school in the U.S. In efforts to have a competitive edge in the field of deaf education, the Braidwood family members and employees kept their pedagogical methods of teaching secret from those wanting to learn (BSL Zone, n.d.). Although the school is known for using an oral pedagogy, the Braidwood Academy used a "combined system," including British Sign Language, which is distinctly different from the sign language codified in France.

The Milan Congress

Since the onset of deaf education, there have been heated pedagogical debates as to what the appropriate method of schooling should be. By the late 1800s, the sign pedagogy came into question, and favor for an oral (speech and speechreading) pedagogy rapidly gained ground in academic discourse among European and American educators and medical professionals. These debates as to appropriate methodological choices were not new. In 1779, Pierre Desloges—one of the first known deaf individuals to ever publish a defense for sign language—wrote a short book in response to oral pedagogy proselytized by Abbé Deschamps—a disciple of Jacob Pereire (one of the founders of oralism and the teacher of Sabourex De Fontenay, a deaf Parisian).

Desloges writes . . .

"I, no less than the Abbé Deschamps, hold speech in great veneration and am mindful of its benefits for the deaf. For that very reason, I take exception to his condemnation and proscription of sign language, for I am persuaded that it is the surest and most natural means for leading the deaf to an understanding of languages, nature having given them this language to substitute for other languages of which they are deprived... I cannot understand how a language like sign language—the richest in expressions, the most energetic, the most incalculably advantageous in its universal intelligibility—is still so neglected and that only the deaf speak it (as it were). This, I confess, one of those irrationality of the human mind that I cannot explain" (Lane & Philip, 1984, p. 35, 45-46).

Desloges argued that though speech and speechreading had their place, a sign-based pedagogy was the most appropriate method of instructing deaf people. These arguments for the best pedagogical approach continued into the 1800s. For instance, in 1868, an American educator of the deaf reasoned that educators should not "make rash innovations" in deaf education by employing oral pedagogies, instead building upon the historical success of sign-based pedagogy (Horejes, 2012; Peet, 1868, p. 171).

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In September of 1880, the Pereire Society—an oralist organization (Lane, 1999)—hosted the second International Congress on the Education of the Deaf in Milan, Italy (Van Cleve & Crouch, 1989). The Pereire Society put out an open invitation to stakeholders involved in deaf education around the Western world. The assembly included 164 deaf education delegates (163 hearing, 1 deaf) from across Europe and the U.S. The congress dogmatically contended an oral pedagogy/paradigm was superior to that of a signed pedagogy/paradigm and promoted the global implementation of oral methods in deaf education (Van Cleve & Crouch, 1989). Nearly all (158) of the delegates voted in support of the oral pedagogy and to ban the use of signed methods in schools. Yet six delegates, including the one deaf delegate in attendance, voted against the congressional motion. The people who voted against this decision included a British representative and the five American representatives: I. L. Peet, C. A. Stoddard, Edward M. Gallaudet, Thomas Gallaudet, and J. Denison (Horejes, 2012; Lane, 1999). The overwhelming vote of the Milan Congress resulted in a shift away from using sign language and signed pedagogical methods in deaf education in favor of an oral-based linguistic pedagogy. The congress of delegates' decision fostered a hegemonic languaculture in deaf education and continues to shape today's educational climate.

Deaf Education in the U.S.

Early Accounts of Deaf Education

In the U.S., not much is known about deaf education and deaf history before the 1800s, although it is clear that both deaf and hearing people used sign language. In fact, sign language was used in many parts of North America (Davis, 2010; Davis & McKay-Cody 2010). Accounts indicate that sign language was employed as a *lingua franca* (or contact language) in order to facilitate cross-cultural communication among at least 40 indigenous nations—all of which spoke different languages. Sign language in North America was a vehicle for cross-cultural communication and access—benefiting both deaf and hearing people alike.

In the 16th century, deaf education was yet to be formalized by the early colonists. Similar to their European counterparts, colonial American families with means sent their deaf children to be educated in European countries with established programs or hired

private tutors. Records indicate that this type of education was quite rare, and little is known about the benefit or impact of these deaf children's education overseas. Of the notable colonists that could afford to send their children overseas, they went to England's Braidwood Academy—a private school that employed an oral pedagogy. Notable colonists include Major Thomas Bolling's three congenitally deaf children, who were a part of a wealthy Virginian family with a history of congenital deafness, and Francis Green's son, whose father was an affluent Bostonian (Van Cleve & Crouch, 1989). Yet others, like the nephew of President James Monroe, were sent to Paris (Marschark & Spencer, 2010).

In the Massachusetts' town of Scituate, there were a high proportion of colonists who

were congenitally deaf, and the community had a more accepting view on communicating in sign language (Marschark & Spencer, 2011). Folks from this community settled on Martha's Vineyard, and due to intermarriage, the population of deaf people increased. Everyone—both hearing people and deaf people—benefited from using signs to communicate; thus creating a community that was accessible for auditory differences. Little is known about how this community approached education, though a formal compulsory education was not yet federally mandated.

Meanwhile, other families hired tutors to teach their deaf children. John Harrower—a Scottish merchant from Shetland Island—was one of the first people hired to teach a deaf pupil in an American colony in May 1774. Harrower was essentially an indentured servant who was contracted to serve as a schoolmaster for 4 years as compensation for his voyage to the New World.

Colonel Daingerfield purchased Harrower's contract and installed the Scotsman as the teacher on his plantation at Belvidera near Fredericksburg, Virginia. Though Harrower was hired to teach Daingerfield's children, he was also permitted to teach some of the neighboring children as a way of earning additional income during his contract.

Samuel Edge—a southern colonist of Virginia and of modest means—sent his deaf son John to be taught by Harrower. According to Harrower's diary, Edge paid him 10 shillings per quarter to tutor his 14-year-old son (twice the rate Harrower charged for his hearing pupils). We are able to see the impact of John's education in a letter Harrower writes to his wife (Van Cleve & Crouch, 1989):

Harrower writes . . .

"I have as yet only ten scholars. One of which is both Deaf and Dumb... He has now five months with me and I have brought him tolerably well and understand it so far, that he can write mostly for anything he wants and understands the value of every figure and can work single addition a little."

Though this is one of the first accounts of a deaf colonist being educated, Harrower noted that John was only his student for about 6 months, and little is known about his education or life thereafter. Apparently it was difficult for John's father to afford the private tutoring required to subsidize his son's education.

In the 16th century, deaf education was yet to be formalized by the early colonists. Similar to their European counterparts, colonial American families with means sent their deaf children to be educated in European countries with established programs or hired private tutors.

Inability to afford deaf education not only marginalized less affluent families, but the cost of education was also difficult for more affluent families, such as the Bollings. Due to the strained political relationship between the U.S. and England and the Bolling family's financial situation, sending the second generation of deaf children to the Braidwood Academy was not feasible (Van Cleve & Crouch, 1989). However, history demonstrates that the Braidwood Academy and the Bolling family would cross paths again.

In 1812, John Braidwood—the grandson of the founder of Braidwood Academy—arrived in the U.S. in February and intended to establish a school for the deaf. Braidwood came from a prominent family and had administered the Academy from 1810-1812. Described as being “ambitious” yet “plagued by personal problems” (i.e., gambling and drinking), Braidwood immigrated to the U.S. in efforts to make a fortune selling his brand of deaf education as his family had done in England (Van Cleve & Crouch, 1989). Upon arrival on the East Coast, Mason Fitch Cogswell (a prominent physician and father of Alice Cogswell) and William Bolling reached out to Braidwood respectively to inquire about opportunities for deaf education. Initially Braidwood declined both the colonists' offers and set out on his own. However, Braidwood ultimately failed in his individual attempts to establish a school.

From 1812 to 1815, Braidwood tutored the deaf children of the Bolling family on their plantation. By March of 1815, Braidwood established a school for five deaf boys (William Albert Bolling, George Lee Turberville, John Hancock, John Scott, and Marcus Flournoy) in the Bolling family mansion. However, the school was quickly closed in the fall of 1816 upon the disappearance of Braidwood, who had relapsed into his old habits.

The Bollings tried to help Braidwood again in 1817 and attempted to establish another school for the deaf

in Manchester, Virginia. Braidwood was to live with a minister and teach him the pedagogy of deaf education. However, by the middle of 1818, Braidwood was back on the streets, ending another failed attempt at formalizing deaf education in Virginia.

For the most part, during the colonial era, colonists pursued individual attempts to educate their deaf children. Yet nearly a quarter of a century before a deaf school was established in the U.S., the American

Philosophical Society published a report on deaf education (Marschark & Spencer, 2011). William Thornton—the head of the U.S. Patent Office—wrote this treatise on teaching deaf children to speak and acquire language. Marschark and Spencer (2010) contend that Thornton was one of the first people in the U.S. to provide a salient perspective on deaf education. The document examined the phonological basis for reading, the importance of vocabulary development, and the various ways to communicate with deaf people, including speech, fingerspelling, and signs. Documents like Thornton's, along with European publications and parent advocates of their children's education, helped to promote the understanding that deaf children can indeed receive an education through various pedagogies (oral or signed), which helped lay the groundwork that needed to establish a sustainable educational institution.

The First Deaf Institution in the U.S.

As compulsory public education became more common for all children in the U.S., including marginalized children (girls, indigenous children, Black children, and deaf children), education became an important vehicle of national and economic development. Specialized schools were established to provide primary and even sometimes secondary education to most children.

In Hartford, Connecticut, in April 15, 1817, Laurent Clerc—a deaf professor of the Paris Institute—and Thomas Hopkins Gallaudet—a U.S. clergyman—worked together to establish a deaf school.

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The Connecticut Asylum for the Education and Instruction of Deaf and Dumb Persons (now known as the American School for the Deaf—or ASD) educated both boys and girls, mostly of European decent, and was the first state-funded residential deaf institution in North America. The school used a sign-based pedagogy, which included fingerspelling and written English. In order to understand today's deaf educational system, it is important to examine how ASD came into fruition.

Although Clerc and Gallaudet are credited with establishing the school, another prominent U.S. citizen played a critical role in institutionalizing deaf education in North America. Mason Fitch Cogswell—a medical physician and graduate of Yale—was the father of Alice Cogswell—a young girl who became deaf at age 2 due to

contracting meningitis. Alice became one of the first educated deaf women of European descent in America. Dr. Cogswell was keenly interested in starting a school for the deaf in Connecticut. As a prominent man in New England, he tenaciously worked to create a political and economic network that laid the foundation needed for founding a deaf institution. Cogswell came into contact with Thomas Hopkins Gallaudet—a chronically ill and devout evangelical Christian—who took an interest in Alice and the larger cause of deaf education. Cogswell worked with ministers like Gallaudet to determine how many deaf children were in Connecticut. A 3-year census (1812 to 1815) reported there were 84 deaf people—more than enough to merit the establishment of a formal state-subsidized institution.

Though Cogswell was critical in securing the necessary political and financial support for founding a sustainable educational institution, Thomas Gallaudet was also a critical member in the story. The oldest child of 12 children, Gallaudet was a devout Christian and successful academic. In 1805, Gallaudet graduated first

in his class from Yale University at 17 years old. After completing graduate school, he continued his studies at Andover Theological Seminary (1812-1814) and was ordained as a congregational minister (Van Cleve & Crouch, 1989). Gallaudet's poor health prevented him from being a full-time minister, but he filled his time by getting involved with Cogswell's cause for deaf education and attempted to provide basic education for Alice Cogswell. By 1815, Cogswell's network of stakeholders had raised enough funds to send a representative to Europe to learn how the Europeans approached deaf education. Cogswell encouraged Gallaudet to take the journey, and Gallaudet agreed (Van Cleve & Crouch, 1989, p. 33).

Gallaudet went to Britain to study the methods used in the Braidwood Academy—the private oral deaf institution. The Braidwood Academy was highly secretive of their pedagogical approach—intending to profit from the institutionalization of deaf education—and imposed severe limitations on what Gallaudet could observe. The Academy stipulated that Gallaudet could be an apprentice but required he stay for several years and keep the methods secret. Frustrated, Gallaudet was quickly at odds with the Academy and their approach (Van Cleve & Crouch, 1989).

Meanwhile, Abbé Sicard—the superintendent of the Royal Institution for the Deaf in France—was visiting Britain with a few of his prize students (Jean Massieu, Laurent Clerc, and Armand Goddard) to conduct a demonstrative lecture on deaf education. Gallaudet had read some of Sicard's work and attended one of the exhibitions, which demonstrated the sign-based pedagogy employed in France. During the interactive portion of the lecture, Gallaudet asked the students, “What is education?” Clerc responded by writing on the chalkboard (Van Cleve & Crouch, 1989, p. 35):

Clerc writes . . .

“Education is care, which is taken to cultivate the minds of youth, to elevate their hearts and to give them the knowledge of the science, and the art that is necessary to teach them to conduct well in the world.”

Gallaudet was overwhelmed by the positive impact of Jean Massieu and Laurent Clerc's education. Sicard invited Gallaudet to visit and learn the methods

employed at the Paris deaf institute in order to bring this approach to North America. Gallaudet began studying the sign methods in Paris, but soon after he arrived, he was running out of funds and was facing culture shock in the Catholic metropolis, which made him eager to return home.

In May of 1816, Laurent Clerc volunteered to go with Gallaudet to North America (Van Cleve & Crouch, 1989). By June 13, 1816, a 3-year contract was drafted in order to protect Clerc from exploitation. The contract described not only the salary Clerc would receive, but also subjects he was expected to teach—namely grammar, language, math, geography, history, and religion (Bible studies). Also Clerc was required to support Gallaudet with public demonstrations of sign-based deaf education and not support or aid competitors in establishing a deaf school in America.

Four days after the contract was signed, the two men embarked on a 6-week journey to North America. During the voyage, Clerc and Gallaudet taught each other sign language and English. Upon arriving in the U.S., Gallaudet and Clerc conducted public demonstrations to drum up support for deaf education and the use of the signed pedagogy. One time they were even involved in lobbying to encumber the establishment of a potential rival school for the deaf in New York. Though the New York school eventually opened in May of 1818, Gallaudet and Clerc were able to officially open the Connecticut school a year earlier in April 15, 1817.

Increasing Numbers of Schools

During the early 1800s, more schools for the deaf opened across North America; thus ushering in a golden era of deaf education (Lane & Philip, 1984). Deaf children completed primary schools that employed a signed-based pedagogy as the vehicle for instructing students in the curriculum. In 1837, the sisters of St. Joseph came from France and established the first school for the deaf west of the Mississippi in St. Louis, Missouri. Some places in the U.S. (Hartford and New York) and Europe (Paris) established secondary schools in order to allow academically inclined deaf students an avenue to continue their education and become teachers of the deaf themselves (Lane & Philip, 1984). Later in 1864, Edward M. Gallaudet—Thomas Gallaudet's son—established a tertiary institute of higher education for the deaf now known as Gallaudet University.

By 1843—or 26 years after ASD was founded—six other states had also founded and established residential, state-subsidized deaf institutions that employed a signed-based pedagogy. These included New York in 1818, Pennsylvania in 1820, Kentucky in 1823, Ohio in 1827, Virginia in 1838, and Indiana in 1843 (Van Cleve & Crouch, 1989). By midcentury, nearly half of the teachers of the deaf in North American schools were also deaf (Lane & Philip, 1984). Deaf students trained at ASD and prominent hearing parents of deaf students were instrumental in establishing and sustaining deaf institutions.

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It is important to note that the majority of students were of European descent, though states like New York, Pennsylvania, and Ohio did have small populations of Black deaf students (McCaskill et al., 2011). Segregated schools were common throughout the 1800s, with schools or educational departments for Black deaf students slowly being established after the Civil War. This segregation created an environment that led to the cultivation of Black American Sign Language (Black ASL)—a unique and distinct dialect of ASL that represents the languaculture and roots of the Black deaf community (McCaskill et al., 2011). As schools across the country integrated following the U.S. Supreme Court ruling on *Brown v. Board of Education*, Black deaf students faced adversity. Consequently, many Black deaf students continued to experience segregation on some campuses, as they were relegated to separate departments or classrooms that were remedial or vocational in nature.

Oral Schools in the U.S.

Horace Mann—an education reformer—and Samuel Gridley Howe—the head of the Perkins Institution for blind students in Boston, which also educated deafblind students—visited the German oral schools in 1843. They returned convinced that oral education would produce better results. ASD experimented with some speech teaching in the 1850s but resisted pressure to change its approach (Benderly, 1980).

The first schools for the deaf using an oral pedagogy began in the U.S. in 1867. In New York City, an institution currently known as the Lexington School opened to provide oral education to wealthy and poor children. At about the same time in Massachusetts, a 5-year-old girl—Mabel Hubbard—lost her hearing. Her father wanted his daughter to continue speaking, and in 1867, the Clarke School for the Deaf opened with Mable Hubbard as one of its first students. These schools served as models for a number of other programs using an oral pedagogy, including the Horace Mann School in Boston, that were founded over the next 150 years.

Alexander Graham Bell was another individual who played a key role in the establishment of oral deaf education in the U.S. His mother was deaf and used spoken language and fingerspelling, and his father was a well-known teacher of the deaf in Scotland and Canada. He used an approach he developed called “visible speech.”

Alexander Graham Bell also became a teacher of the deaf using the same method at the Horace Mann School and Clarke School for the Deaf. He tutored both Mabel Hubbard and Helen Keller, and he married Mabel Hubbard. While working as a teacher, Bell invented the telephone. He earned the Volta Award for the invention, and with the prize money, he established the Volta Bureau in Washington, DC, in 1887 to support the dissemination of information about the deaf. This organization was the precursor to the Alexander Graham Bell Association, which continues the mission of advancing listening and spoken language (LSL) for individuals who are deaf and hard of hearing (D/HH; see the AG Bell website).

Sign v. Oral Pedagogies & Paradigms Wars Continued

In the late 19th century, disagreements between Edward Miner Gallaudet—son of Thomas Hopkins Gallaudet—and Alexander Graham Bell increased the tension between the two approaches to deaf education. Bell’s opposition to manual schools and deaf teachers and Gallaudet’s opposition to oral education led to

professional conflicts related to teacher preparation and professional organizations for teachers. Bell, like many scientists in the early 1900s, was part of the eugenics movement, which viewed deaf people as “unfit” and a “defective race” (Lane & Philip, 1984). By the turn of the century, it was rare to see an educator who was deaf teaching deaf students and people using sign language (Lane, 2011; Lane & Philip, 1984). Hearing teachers who taught spoken English as a leading pedagogical method for deaf students increased, while teachers who were deaf declined within the overall teaching profession from 42.5% in 1870 to 14.5% in 1917. However, these numbers would rise slowly, where in 2008, 22% of the teachers were deaf (Horejes, 2012).

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Public Law & Its Influence in Today’s Deaf Education

Up until 1975, deaf students were mainly educated at residential schools for the deaf or in day schools that had deaf programs. Since then, special education in the U.S. has expanded, and as a result, deaf students have increasingly been mainstreamed into public education with hearing children (Marschark & Spencer, 2010). A few key laws have particularly shaped deaf education and the languaculture. In 1975, the Education for All Handicapped Children Act—Public Law 94-142—led to the creation of specialized education for students with disabilities (Lane, 2011; Seaver, 2014). This seminal law in special education laid the groundwork for the Individuals with Disabilities Education Act (IDEA) in 1990, which aimed at ensuring that all children with disabilities, including deaf children, have access to a free and

appropriate public education that “emphasizes special education and related services designed to meet their unique needs and prepare them for employment and independent living” (IDEA 20 USC 1400 d, 1).

IDEA, along with the Americans with Disabilities Act (ADA) of 1990, strongly impacted deaf education (Horejes, 2013). It gave deaf students the option to receive accommodations at a school in their community and stay with their families rather than commute to the residential state schools. However, many school districts were and still are unprepared to support the academic

and social success of deaf students, as there is “not widespread understanding of educational implications of deafness, even among special educators” (Office of Special Education Programs, 1992).

Another challenge for public schools is that for many districts, there is not a “critical mass” of deaf students, making staffing and programming difficult to justify the establishment of institutions specializing in deaf education. Thus, in the absence of qualified staff and appropriate services, many deaf students have been placed in general special education classrooms and/or mainstreamed without academic support (e.g., qualified interpreters, trained teachers, note-takers, etc.), which has impeded deaf students’ academic success (Livingston, 1997; Ramsey, 1997). As a result, academic expectations for deaf students have been encumbered by a trend of underachievement (Seaver, 2014).

In the 1990s, a number of special education advocates pushed for “inclusion for all” students in general education classrooms—regardless of their unique learning needs—in the least-restrictive environment (LRE). Though the IDEA intended to integrate students with disabilities within public education, some argue the act has functionally fostered isolation and low expectations (Seaver, 2014). By 1992, the U.S. Department of Education’s Office of Special Education Programs (OSEP) published a policy guideline that tried to articulate special considerations for the LRE as related to deaf learners. The document emphasized several factors, including the presence of professionals with expertise in deafness and deaf education when advising the placement of the child in the school setting and accommodating the child’s communication needs. How IDEA and this policy document are interpreted continues a centuries-old argument of what is the most appropriate method for educating a deaf person (Horejes & Lauderdale, 2007).

The policy guidance on deaf students states . . .

“Any setting, including a regular classroom, that prevents a child who is deaf from receiving an appropriate education that meets his or her needs, including communication needs, is not the LRE [least-restrictive environment] for that child. . . Any setting which does not meet the communication and related needs of a child who is deaf, and therefore does not allow for the provision of FAPE [free appropriate public education], cannot be considered the LRE for that child.”

Depending on one’s paradigm, this document could be interpreted in different ways. The policy guidance was created by a deaf education initiative project taskforce of professionals that represented various stakeholders in deaf education (including professionals, advocates, educators, and community representatives).

On the backdrop of this policy, the Office of Special Education and Rehabilitative Services (OSERS) published the *Deaf and Hard-of-Hearing Students’ Educational Service Guidelines* (1994) for the National Association of State Directors of Education (NASDE). This document included a wide range of paradigms of language and communication methods (i.e., speech, sign, cued speech, etc.) and has become a key resource on deaf education.

The deaf education policy guidelines published by OSERS influenced America’s understanding of the importance of communication accommodations for deaf students. From IDEA’s reauthorization in 1997 to the current 2004 reauthorization, the document consistently reinforces the need to consider the individual communication needs of deaf learners.

In the 1990s, a number of special education advocates pushed for “inclusion for all” students in general education classrooms—regardless of their unique learning needs—in the LRE.

The deaf education policy guidelines state . . .

“The IEP [Individualized Education Plan] team shall . . . in the case of the child who is deaf or hard of hearing, consider the child’s language and communication needs, opportunities for direct communications with peers and professional personnel in the child’s language and communication mode, academic level, and full range of needs, including opportunities for direct instruction in the child’s language and communication mode.”

Conclusion

According to Lane (2011, p. 11), “Deaf people have suffered poor education, as influential figures have made sweeping generalization about communication,

language, and learning.” Yet the impact of primary and secondary school’s deaf pedagogy and laws (e.g., PL 94-142, IDEA) in the U.S. has resulted in more students than ever matriculating to postsecondary school. Lane (2011) notes that though more students are able to attend post-secondary institutions with ADA accommodations, only 1 out of 4 deaf college students completes their degree. Many factors (i.e., lack of resources, contextual factors, time of language acquisition, type of educational institution, quality and training of teachers/professionals) have intersected to create a watered-down pedagogy that has encumbered the academic success of many (not all) deaf students starting from pre-k to postsecondary education.

The field of deaf education and its stakeholders continue to face numerous challenges when providing high-quality education for deaf students, and in many facets, these challenges have become stagnated with no strong positive strategies to break through these challenges. In 1964, Congress commissioned what is now known as the Babbidge Report (originally titled “Education of the Deaf”) for the secretary of the Health, Education, and Welfare Department by the Advisory Committee on the Education of the Deaf. In the Babbidge Report, Dr. Babbidge (former president of the University of Connecticut) and his advisees stated (Babbidge, 1965, p. xvii):

Dr. Babbidge and his advisees stated . . .

“[T]here is no reason to believe that we have reached the limit of human potential in educating the deaf. The longer we delay in supporting substantial, well-planned programs of research into more effective ways of teaching language . . . the more we waste the potential talents and skills of those maturing young people whose only difference is that they cannot hear.”

Thus, the time is now to engage in positive praxis within deaf education. Equally critical is to have a strong sense of the history of deaf education as the adage warns that if we do not learn from history, we are destined to repeat it. As with the Babbidge Report, we have reached a point when the time is now to engage in research with a critical lens in order to improve deaf educational pedagogy and support the academic success for all deaf learners.

This critical lens also includes the need to have increased deaf epistemology and research conducted by deaf people, along with more teachers in deaf education who are deaf themselves (Cawthon & Garberoglio, 2016; Horejes & Graham, 2016). In addition, people within the field of deaf education are strongly encouraged to move beyond the binary paradigm wars of oral versus sign pedagogies to providing a dynamic pedagogy that accommodates the uniqueness of the deaf experience and the particular needs of individual deaf learners. A pedagogy like this could provide a curriculum that develops the whole person and provides limitless possibilities.

Equally critical is to have a strong sense of the history of deaf education as the adage warns that if we do not learn from history, we are destined to repeat it.



Photo courtesy of NCHAM

Resources

- Laurent Clerc National Deaf Education Center, <http://www3.gallaudet.edu/clerc-center.html>
- Individuals with Disabilities Educational Act, <http://idea.ed.gov/>
- The Bill of Rights for Deaf and Hard of Hearing Children, <https://www.nad.org/resources/education/bill-of-rights-for-deaf-and-hard-of-hearing-children/>

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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



Photo courtesy of Elizabeth Gaffney & The Neri Family

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).

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:

- 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

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

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.

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

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

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/3cSffEK>), 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 (<i>Focused Auditory Stimulation</i>)	The provision of numerous opportunities for a child to hear the target phoneme, sound, or language (Dickson, 2010). <i>Target Goals: Attention to sound, awareness of sound, integration of listening into a child's personality.</i>
Auditory Closure (<i>Pause, Prompt</i>)	A speaker begins a song, rhyme, or sentence and then stops talking in order to encourage the child to fill in a verbal response. <i>Target Goals: Attention to speaker, response from a child, turn-taking skills, child's use of spontaneous language, expressive language expansion.</i>
Acoustic Highlighting (<i>Elongate, Low Light, Pause, Repetition of Specific Sound, Whisper</i>)	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. <i>Target Goals: Attention to auditory signal and/or speaker, responses from child, turn-taking skills, expressive language.</i>
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. <i>Target Goals: Attention to auditory signal and/or speaker, confidence in listening skills, repair strategies for communication breakdowns.</i>
Auditory Sandwich (<i>Auditory First, Listening Sandwich</i>)	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." <i>Target Goals: Suprasegmentals of speech, attention to auditory input and the speaker, ability to process language through listening.</i>
Expansion (<i>Add Something, Elaborate, Expiation, Extension, Scaffold</i>)	An adult repeats back what the child has said and either adds something new or corrects syntax or grammatical structure. <i>Target Goals: Length of utterances, degree of syntactic or semantic correctness, complexity of responses from child, auditory feedback loop.</i>
Expectant Look (<i>Sometimes Used in Conjunction With Lean In, Prompt</i>)	A nonverbal signal is given to a child to indicate a response is expected. <i>Target Goals: Attention to speaker, response from child, turn-taking skills, expressive language expansion.</i>
Joint Attention (<i>Follow the Child's Lead, Shared Focus</i>)	The ability for two or more people to share a common focus (Woods & Wetherby, 2008). <i>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).</i>
Model Language & Speech (<i>Narrate, Parallel Talk, Recast, Rephrase, Self-Talk, Simplify</i>)	An adult speaks clearly at all times, uses the correct grammar, and gives appropriate and meaningful language in context. <i>Target Goals: Neural connections in the brain (Suskind, 2015), auditory feedback loop, receptive language skills, expressive language skills, appropriate grammatical rules.</i>
Motherese (<i>Parentese, Child-Directed Language</i>)	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. <i>Target Goals: Attention to speaker, repertoire of vowel sounds, cooing, response from child, social-emotional development (Bergeson-Dana, 2012), turn-taking skills.</i>

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). <i>Target Goals:</i> 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. <i>Target Goals:</i> 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. <i>Target Goals:</i> 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). <i>Target Goals:</i> 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). <i>Target Goals:</i> 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. <i>Target Goals:</i> 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. <i>Target Goals:</i> 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). <i>Target Goals:</i> 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. <i>Target Goals:</i> 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	<ul style="list-style-type: none"> What strategy did you practice this week? How did that go? What was your child's response when you used the strategy?
Address Priorities	<ul style="list-style-type: none"> Would you like to practice that strategy more or move on to a different one?
Show the Craft	<ul style="list-style-type: none"> Model how to implement strategy or ask caregiver to model how he/she used the strategy.
Assess & Evaluate	<ul style="list-style-type: none"> How did your child respond when I used that strategy? Should we try it again?
Reflect on the Visit	<ul style="list-style-type: none"> 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.” (<i>Followed by spoon, cup, etc.</i>)
Possible Strategies Used to Achieve This Goal	
1. Positioning	3. Joint attention
2. Repetition	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	4. Auditory sandwich
2. Parallel talk	5. Acoustic highlighting
3. Prompting	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.

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

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

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

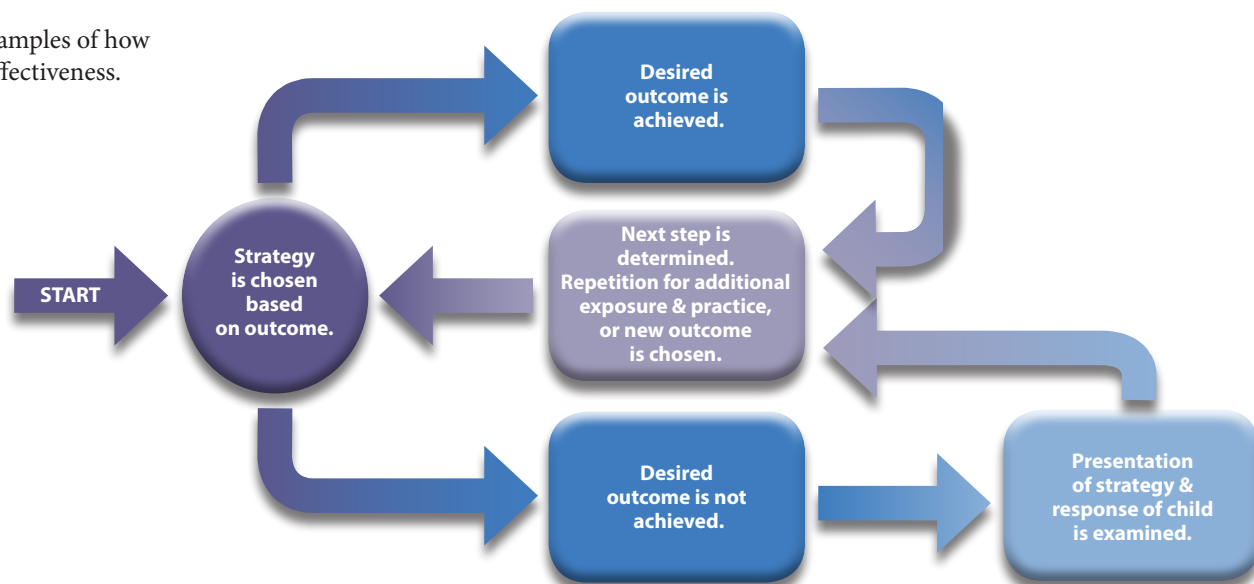
- Videotape sessions for personal, peer, or parent review.
- Partner with a colleague to increase strategy knowledge and skill level.
- Commit to professional learning on LSL strategies.
- Begin the process of becoming certified as an LSLS. Your mentor can be invaluable to your professional growth.

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.

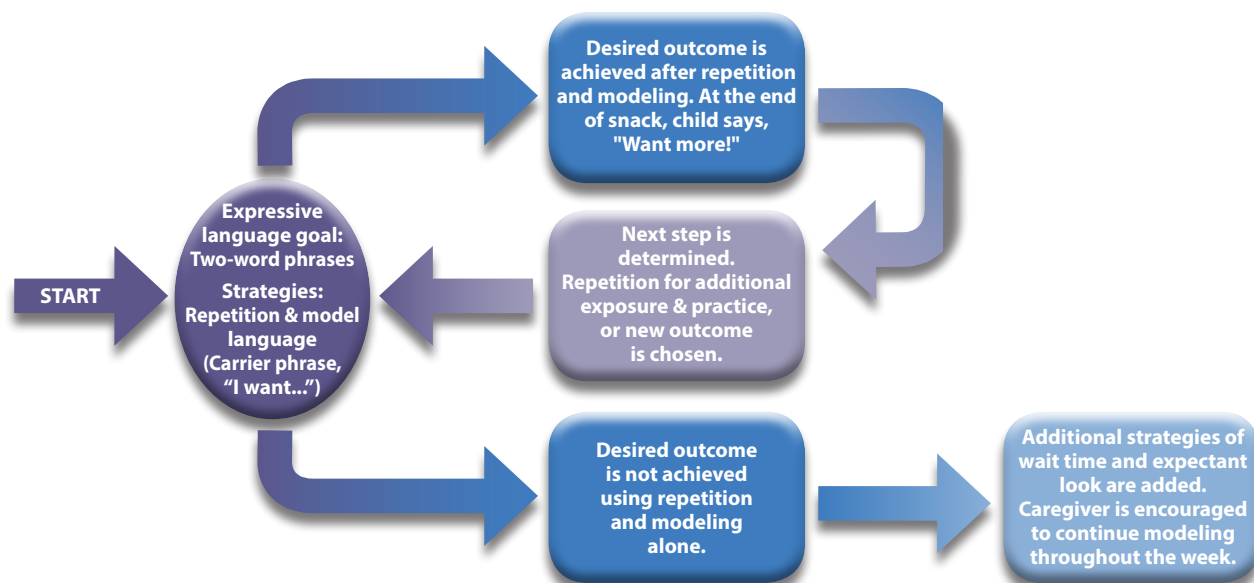
Parent: What would you like—raisins or goldfish?

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/3cSffEK>

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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.

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

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

Chapter 8

Getting Off to a Good Start: Practices in Early Intervention

Jenna Voss & Arlene Stredler-Brown

Is the term *family-centered early intervention* (FCEI) familiar? What does it mean? How does this term apply to the services for infants and toddlers who are deaf or hard of hearing (D/HH)?

This chapter defines and describes FCEI. The reader will understand:

- The justification for *early*.
- How *intervention* can promote optimal child development.
- Ways in which practitioners provide these services so they include the *family*.

Keep reading to learn more about the theoretical framework supporting early intervention as well as ways to put these concepts into practice in your future career.



Photo courtesy of NCHAM

Justifying an Early Start to Intervention

Early intervention programs aim to support families of children with developmental disabilities or delays and provide resources to maximize the child's abilities while honoring the family culture, influence, and capacity. The earlier children and families receive support to address the impact of childhood hearing loss the more positive the impact on developmental outcomes. Read on to better

understand why early intervention is favored based on brain development, critical learning periods, and the research conducted on developing speech and language.

Developmental Synchrony

Developmental synchrony means a child develops certain skills and abilities at the precise moment the brain is “developmentally” ready to do so (Cole & Flexer, 2020). The goal is for the child’s skills—in all developmental domains—to develop at the same time and at the same rate (Mellon, Ouellette, Greer, & Gates-Ulanet, 2009). For instance, the critical opportunity for language learning is from birth to approximately 3 years of age when brain neuroplasticity is the greatest (Sharma, Dorman, & Spahr, 2002). When a child learns language during this critical period, learning capitalizes on the flexible neuroplasticity of the growing brain. Family members and interventionists do not need to rely on a remedial approach. Rather early intervention services allow professionals and family members to capitalize on developmental synchrony as an infant or toddler learns new skills.

Developmental Hierarchy of Skills

It is important to acknowledge as well that skills are acquired in a general order. This applies to all developmental domains, including receptive and expressive language as well as speech, motor, self-help, feeding, social, and emotional skills. In a hierarchical approach, certain skills are prerequisites for other skills. For example, in the spoken language domain, babbling comes before first words, and single words occur before a child talks in phrases and sentences. In the gross motor domain, crawling comes before walking, and walking occurs before a child can ride a bike. The acquisition of skills is assigned to specific ages based on well-established norms for typically-developing children.

For speech production, the norms for typically-developing children suggest that a child’s brain is ready to babble by 8 to 10 months, start producing single words by 1 year, and combine two words together closer to 2 years of age. Some children acquire these skills when they are older than these prescribed norms. But the established developmental order always serves as a guide—babbling before words and words before phrases. It is most efficient for a child to acquire skills at the time nature intended. With this in mind, the intervention follows a developmental hierarchy while maintaining an awareness of developmental synchrony.

The established developmental order always serves as a guide—babbling before words and words before phrases. It is most efficient for a child to acquire skills at the time nature intended.

Critical Periods of Development

A child’s brain is different from an adult brain. Much of the primary brain development occurs by age 2 or 3 years—though full development happens later. For example, the portions of the brain (e.g., the frontal lobe) in charge of executive function (organization, planning, and inhibition of impulses) continue to develop into one’s mid-20s (Anderson, 2002). The critical window for language learning, however, is very early. Language learning occurs from birth to approximately 3 years of age when brain neuroplasticity is the greatest (Sharma et al., 2002). The early interventionist is given the task of helping a child who is D/HH to acquire language skills during these first 3 years of life in spite of any difficulties that may be introduced by a hearing loss.

Legislation & Policies Supporting Early Intervention

In the U.S., early intervention services are guided by federal legislation. State early intervention programs interpret federal laws and provide systems by which services are implemented and monitored. Read on to better understand the legislation and guidance which supports the provision of FCEI.

Part C of the Individuals with Disabilities Education Act (IDEA)

IDEA (1990, 1997, 2004, 2011) is federal legislation. It provides guidelines for services delivered to children with developmental delays or disabilities. Part C of IDEA addresses children whose ages range from birth to 36 months. According to Part C of IDEA, the purpose of early intervention is to lessen the effects of the disability or delay across five developmental domains:

1	Physical Development
2	Cognitive Development
3	Communication
4	Social or Emotional Development
5	Adaptive Development

IDEA also offers provisions to ensure family members play a central role in their child's care. Caregivers are seen as an integral part of the team, which determines eligibility, placement, and decisions about services.

The intervention and the qualifications of personnel providing the services is also established in this federal law. The needs of the child and supports for family members are individualized and documented in each child's Individualized Family Service Plan (IFSP). The IFSP includes statements defining:

- The child's present level of development.
- The family's resources.
- Family members' priorities and concerns.
- The major outcomes expected for the child and the family.
- Necessary early intervention services.

Each state's Part C agency, which can be housed in one of many different governmental departments (<http://ectacenter.org/contact/ptccoord.asp>), defines the eligibility requirements for infants and toddlers who are D/HH. These guidelines vary from state to state. Some state Part C guidelines are very broad and simply indicate that a sensory difference, such as chronic hearing loss, is an established condition that makes a child eligible for early intervention services. This broad definition often assumes the child has a bilateral hearing loss. The guidelines in some states are more restrictive and may specify that services are available only if developmental delays are co-occurring along with the hearing loss (Stredler-Brown, Hulstrom, & Ringwalt, 2008). Some state guidelines set limits on eligibility by specifying a set of criteria that may be used to document an infant or toddler's hearing loss (<http://www.infantheating.org/states/index.html>). Infants and toddlers with minimal degrees of hearing loss, including single-sided deafness (SSD), qualify for Part C services in a limited number of states (Stredler-Brown et al., 2008). This practice is likely to continue until the evidence linking minimal degrees of hearing loss to developmental delays is more rigorously studied.

Legislation, Policies, & Guidelines for Children Who Are D/HH

The Newborn and Infant Hearing Screening and Intervention Act first passed in 1999—and reauthorized in 2017 as the Early Hearing Detection and Intervention (EHDI) Act (S.652-115th Congress, 2017-2018: Early Hearing

Detection and Intervention Act of 2017, <https://www.congress.gov/bill/115th-congress/senate-bill/652/text>)—provides support and guidance to state personnel to plan, develop, and implement statewide programs for hearing screening, diagnosis, and an early start to intervention. The EHDI initiative supports the 1-3-6 rule (White, 2003). The 1-3-6 rule states that:

- Children should receive a newborn hearing screening by **1** month of age.
- Diagnosis should be confirmed by **3** months of age.
- Any necessary early intervention should start by **6** months of age.

**1-3-6
Rule**

According to the most recent JCIH Guidelines (2019), those states who meet the 1-3-6 guidelines are challenged to meet a 1-2-3 month timeline to achieve the earliest possible participation in EHDI services (Joint Committee on Infant Hearing, 2019).

- Screening by **1** month of age.
- Audiologic diagnosis by **2** months of age.
- Enrollment in early intervention by **3** months of age.

**1-2-3
Timeline**

This legislation has changed the landscape for children nationwide—early diagnosis and early intervention are now standard. Early intervention is strongly associated with better outcomes for children.

A report from the Consensus Conference on Effective Educational and Health Care Interventions for Infants and Young Children with Hearing Loss (Marge & Marge, 2005) identifies evidence-based research that leads to high-quality early intervention. This report includes recommendations for effective programming, defines characteristics of qualified providers, and summarizes implications for professional practice. It is well documented that an early start to intervention is more successful than a late start. In addition, however, the quality of the providers also impacts a child's outcomes. This consensus document provides needed guidance on the preferred skills of early interventionists.

**It is well
documented that
an early start to
intervention is
more successful
than a late start.**

Family involvement and communicative interactions between parent and child must remain a key priority to achieve the best outcomes.

focuses exclusively on early intervention and outlines best practices. These best practices are identified in a list of knowledge and skills for providers. This list provides assurance that providers with these competencies can facilitate optimal outcomes for children and their families. The list of competencies for early interventionists (Sass-Lehrer, Moeller, & Stredler-Brown, 2015; Stredler-Brown, Sass-Lehrer, Clark, & Moeller, 2012) is published in Appendix A of the 2013 JCIH document. In at least one state, the knowledge and skills document is driving professional development activities for all early interventionists working with infants and toddlers who are D/HH (Tiggs, Clark, Sass-Lehrer, & Stredler-Brown, 2017).

In 2013, a panel of experts developed an international consensus statement that identified ten foundational principles underlying the provision of early intervention (Moeller, Carr, Seaver, Stredler-Brown, & Holzinger, 2013). This document includes evidence-based recommendations to promote the development of infants and toddlers who are D/HH along with support to their family members.

Evidence Supporting Early Intervention

Traditional child-centered therapy focuses on the relationship between professional and child. The parent is an observer of the interaction. Direct instruction generally occurs for 1 to 2 hours each week. Family-centered practice is a very different model and has been demonstrated to be both efficient and effective. In FCEI, the early interventionist works with the parents of the child. This is an ecological model, as the parents are living with and interacting with the child during many hours in the course of a day. When a caregiver is able to utilize effective, responsive communicative strategies

repeatedly, the child is exposed to many more language-learning opportunities.

Child outcomes. Research findings specifically related to very young children who are D/HH point out that family-centered early interventionists—those who focus on teaching parents new skills—see a benefit in the outcomes for the children. When FCEI strategies are used, children are more likely to have communication and language skills that are within normal limits for their chronological age (Calderon, 2000; Moeller, 2000; Nittrouer, 2010; Yoshinaga-Itano, 2003).

Moeller (2000) explored the relationship between age of enrollment in early intervention and language outcomes of children when they entered school. High levels of family involvement correlated with positive language outcomes. Moeller (2000) found that the children with highly-engaged caregivers—enrolled in early intervention prior to their first birthday—performed significantly better on vocabulary and verbal reasoning measures than children who were also receiving services but did not have engaged parents. This pivotal study suggests that early intervention can make a difference for many children. Equally important, the study shows that family involvement and communicative interactions between parent and child must remain a key priority to achieve the best outcomes.

Parent involvement.

Game-changing work done in the early 1990s (Hart & Risley, 1995) revealed much about the language and communication patterns of caregivers of young children in their home environments. The study demonstrated the interaction that occurs between parents and babies in everyday family life during the time babies are learning to talk. The results illuminated significant disparities in the quantity and



Photo courtesy of NCHAM

quality of talk conveyed to children in homes of varying socioeconomic backgrounds. Children from high-income families experienced 30 million more words than children from low-income families. This research supports the benefits achieved when teaching parents effective ways to interact with their children.

Nittrouer (2010) studied parents with typical hearing and the characteristics of their communication both with children who are D/HH and children with typical hearing. Nittrouer observed significant differences in the frequency with which parents responded verbally to their children's communicative attempts. Parents of children with hearing loss responded to their children less frequently than parents of children with typical hearing. The difference in frequency of verbal responsiveness can be especially problematic for children who are D/HH, because language acquisition is more sensitive to parents' responsiveness for children with hearing loss than it is for children with typical hearing. Interaction styles that encourage children to communicate more—paired with parents' responses—served children who are D/HH best. Nittrouer stated, "Any intervention that we may develop will only be as effective as the parents' abilities to implement it" (p. 258).

Calderon (2000) also emphasized the influence of family members on the development of their young children with hearing loss in school-based settings. Calderon's study explored maternal communication skills and the influence on the language development of children who are D/HH. Findings suggest that parental involvement in school-based educational programs is a positive contributor to improved language outcomes. The parental communication skills are the best predictor of positive child development in the areas of academics and language. Calderon encourages educators to intentionally plan for and implement parental involvement to promote communication with their children who are D/HH.

Suggestions to facilitate these improvements in parental communication include the use of parent educators in school programs and explicit invitations for parents to volunteer in the classroom where they might observe the teacher's communication strategies.

The research presented here reinforces the importance of using FCEI strategies

wherein the primary goal is for professionals to build a collaborative partnership with family members and caregivers. The professional provides information, guidance, and support. This in turn equips parents with specific skills and empowers them to be actively involved in their child's development and education.

Providers serve families best when they put into practice these tenets of family-centered early intervention:

- Provide parents with information about hearing loss.
- Support the parents' emotions that are associated with the diagnosis of hearing loss.
- Engage parents in participatory activities that help them use strategies and techniques to support their child's development (Stredler-Brown, 2009; Zaidman-Zait, 2007).

The early interventionist provides information on an array of topics, such as:

- Stages of auditory development
- Language development
- Play skills
- Speech

The early interventionist's guidance can promote the parents' emotional comfort through the use of active listening. Simultaneously, the professional teaches family members to use specific developmental and communication strategies to support the child's skills.

Theoretical Frameworks Supporting Family-Centered Early Intervention

Children acquire their knowledge and skills from family members. Early experiences with family members shape a child's expectation about the ways in which others will interact with them (Nieto, 2004). These early-acquired skills are later used by the child in their interactions at school, with friends in the neighborhood, and eventually in their work place as adults. This is referred to as an ecological model of child development (Bronfenbrenner, 1992). FCEI also considers the diversity of families and the use of culturally-responsive practices while honoring the systemic influences of all family members and supporting the family (Harry, 2002).

"Any intervention that we may develop will only be as effective as the parents' abilities to implement it."

Family systems theory explores patterns of communication and interaction, separateness and connectedness, loyalty and independence, and adaptation to stress in the context of the whole family (Christian, 2006). When professionals gain an understanding of family system patterns, they can better serve children who are D/HH and their caregivers. Coaching theory capitalizes on the ecological model and each family's system.

An Ecological Model

Urie Bronfenbrenner (1974, p. 3) states . . .

“The family seems to be the most effective and economical system for fostering and sustaining the child's development. Without family involvement, intervention is likely to be unsuccessful, and what few effects are achieved are likely to disappear once the intervention is discontinued.”

According to ecological systems theory, children develop within the context of environmental influences that have both direct and indirect effects on them (Bronfenbrenner, 1974, 1992). Each child's experiences vary greatly, and since there are plenty of successful grown adults, one can assume that there are many combinations of experiences that will promote successful development (Dunst, Trivette, & Hamby, 2007).

Adults who spend more time with their child have a greater influence on the child's development than those adults who spend small portions of time with the child. Parents often have the opportunity to spend hours and hours each day with their child. Conversely, the early intervention provider spends approximately 1 hour each week with the child. The ecological model then focuses on the influence of family members. The early intervention provider serves as a consultant. In FCEI, the early interventionist has the responsibility to explore specific environmental influences and experiences within the family that have a positive impact on the child's development (McWilliam, 2010). These experiences include the family members' values, beliefs, supports, resources, and activities of daily living.

Consider the impact on all family members when one person has a disability, such as a child with a hearing loss. Some parents report that having a child with a disability is an overwhelming burden to the family system. Alternatively, Friend and Cook (2016) state that, “In spite of the challenges, many families believe that

the child with a disability strengthens their families” (p. 199). Friend and Cook (2012) go on to say, “. . . a child with a disability requires more of a family's physical, emotional, temporal, and fiscal resources than do other children” (p. 199). It stands to reason then that educational interventions that promote family well being will serve to promote positive child outcomes.

Family Systems Theory

How do we define *family* (see Table 1). According to Turnbull, Turnbull, Erwin, and Soodak (2006, p. 7), family is defined as “two or more people who regard themselves as a family and who perform some of the functions that families typically perform. These people may or may not be related by blood or marriage and may or may not usually live together.”

By identifying each family's behavioral style, the professional is able to understand a family member's priorities and better serve them.

Family Systems Theory explains how individual members fit within the entire unit of interconnected members. According to Family Systems Theory, each member of a family influences the others in predictable and recurring ways (Van Velsor & Cox, 2000). Much of our understanding of Family Systems Theory is grounded in the work of Bowen (1978) and Satir (1972)—both of whom emphasize the emotional interconnectedness between individual members of a family as a critical element to understanding the family system.

Satir (1972) used a metaphor of a child's mobile—the kind that hangs over an infant's crib—to illustrate the emotional interconnectedness among individual members of a family. This metaphor can illustrate characteristics of an emotionally unhealthy family system by envisioning the strings on one piece of a mobile becoming twisted. If this happens, the entire mobile might spin improperly. If a mobile becomes imbalanced, many pieces could

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Table 1

Definitions & Characteristics of a Family

Definitions of a family ...

The early interventionist assumes the responsibility for accepting the definition of family that is used by the parents. To learn more about the definition of each family, the interventionist can ask several questions:

- Who makes up the family?
- What supports and resources does the family have?
- How do family members spend time at work? How do they enjoy their free time together? How do individuals spend their time apart?
- What do family members enjoy?

Characteristics of a family ...

Christian (2006) defined six characteristics inherent in a family system:

1. Boundaries

2. Roles

3. Rules

4. Hierarchy

5. Climate

6. Equilibrium

The early interventionist can observe family members to learn about these characteristics. To learn more about the characteristics of each family, the interventionist can ask several questions:

- Do family members seem to have well-defined roles?
- Does each person have clearly-identified responsibilities that define their roles?
- Does each family member seem to have shifting roles and responsibilities on any given day?

Regarding rules:

- Does the family have clearly-defined rules?
- Are these rules implemented consistently?
- Do family members demonstrate inconsistent rules with variable consequences?

become entangled. On the other hand, a well-balanced mobile—representing an emotionally healthy family system—would swing and turn even in strong winds.

Family Systems Theory is often discussed in disciplines, such as family counseling and therapy. However, family-centered early interventionists can use the same information to inform their intervention. An effective family-centered early interventionist appreciates the diversity of each family. Family diversity is expressed through culture, sexual orientation, economic status, work, and religious beliefs. For example, early interventionists serve children living in:

- Single-parent families
- Families of divorce
- Blended families
- Extended families
- Homeless families
- Migrant families
- Gay and lesbian families

Once the early interventionist is aware of the characteristics of family members, she can engage the caregivers in ways that will promote favorable child outcomes. FCEI is a model of service delivery that is sensitive to family differences.

An effective family-centered early interventionist appreciates the diversity of each family. Family diversity is expressed through culture, sexual orientation, economic status, work, and religious beliefs.

Coaching

Friedman, Woods, and Salisbury (2012) describe coaching as the method by which providers partner with caregivers to share knowledge and skills to improve caregiver competence and confidence. In FCEI, professionals and caregivers develop a partnership. Through this partnership, professionals support and strengthen each caregivers' ability to enhance their child's well being.

The caregiver-provider relationship is built on mutual trust, respect, and effective communication (Rush & Shelden, 2019). "At the core of the provision of family-centered care lies the premise that practitioners believe that all

families are capable and competent" (Rush & Shelden, 2011, p. 25). The coach supports the caregivers using a variety of direct and indirect teaching strategies. Some of these strategies are:

- Modeling
- Observing
- Asking questions
- Brainstorming
- Engaging in reflective listening

As mentioned previously, legislation and policy guidance have shifted practice from child-centered services—wherein an expert directly teaches a child—to a family-centered model. The family-centered model puts the responsibility on the professional to support and enhance each caregiver's capacity to interact with their child. Research findings validate the effectiveness of this approach. In addition to assessing child outcomes on a regular basis, a family-centered approach evaluates the skill development and learning outcomes of each parent and/or caregiver. Professionals apply principles of adult learning in addition to their knowledge about the child with hearing loss.

Numerous researchers (Bruder, 2000; Dunst, 2002; Dunst et al., 2002; Espe-Sherwindt, 2008) have identified key components of FCEI. Trivette and Dunst (2000) list these roles for the professional:

- Work collaboratively by sharing responsibility with family members.
- Use practices that strengthen family functioning.
- Use practices that are individualized.
- Use practices that capitalize on family strengths and assets.

The caregiver must desire new knowledge and enter into the coaching relationship willingly. Friedman, Woods, and Salisbury (2012) described coaching as the method by which providers partner with caregivers—sharing knowledge and skills to improve caregiver competence and confidence. It is crucial that the caregiver-provider relationship is built on mutual trust, respect, and effective communication in order to optimize learning (Rush & Sheldon, 2019).

Through coaching, the early interventionist supports the learner using a variety of direct and indirect teaching strategies. The literature suggests the coach model a technique, strategy, or skill; observe the caregiver; ask questions; facilitate brainstorming; and engage in reflective listening. The early interventionist helps the caregiver to analyze his or her performance. This develops each caregiver's self-awareness about the ways s/he interacts with the child. The early interventionist offers feedback to each caregiver to promote self-evaluation of their performance.

FCEI differs from direct child therapy, because its purpose is to educate and support family members and the family system through a coaching model. Professionals:

- Assess family needs.
 - Connect families to needed resources, including other caregivers and children with hearing loss.
 - Provide information on hearing loss to families.
 - Help families gain comfort with hearing devices, such as hearing aids and cochlear implants.
 - Explain audiology testing.
 - Collect data on child and family outcomes.
- Through joint planning, families prioritize goals.

It has been suggested the “coach must ask the right questions at the right time and in the right way” (Rush et al., 2003, p. 41). But how does a practitioner determine what those questions are, what the right timing should be, and what approaches might best fit the situation? Delivering FCEI is very different from working directly with the child, and it can be puzzling for many early interventionists. It can be challenging for a provider to focus primarily on the parents.

Delivering FCEI

The role of the early interventionist has many facets. Consider these three roles of engagement and three primary responsibilities (see *Table 2*).

Now imagine the possibilities when the provider can juggle the three roles of engagement with the three responsibilities. Herein lies the challenge—and the reward—when delivering FCEI. The Early Intervention Illustrated Series (Stredler-Brown & Moeller, 2003;

Stredler-Brown, Moeller, Gallegos, & Corwin, 2007; Stredler-Brown, Moeller, Gallegos, Corwin, & Pittman, 2004)—a three-part DVD tutorial—demonstrates how this can be accomplished.

Rubric of a FCEI Session

There are five components in each FCEI session. Each of these elements has a specific purpose. These components are illustrated in *Table 3*.

1	Reconnect & Review
2	Address Priorities
3	Show the Craft
4	Assess & Evaluate
5	Reflect on the Visit

Table 2
Early Interventionist Roles of Engagement & Primary Responsibilities

Three Roles of Engagement	Three Primary Responsibilities
<p>The three roles of engagement can be illustrated by imagining a three-legged stool. One must sit squarely on all three legs or risk tipping over. Each leg has a critical role in accomplishing the task—sitting. How does this relate to FCEI? The early interventionist is actually assuming three roles at the same time.</p> <p>Role 1. Focuses the early interventionist's attention on the relationship between interventionist and child.</p> <p>Role 2. Focuses on the relationship between the early interventionist and parents.</p> <p>Role 3. Requires the early interventionist to focus on the interaction occurring between parent and child.</p>	<p>In addition to the three roles of engagement, the family-centered early interventionist has three primary responsibilities. As mentioned previously, these responsibilities are:</p> <p>Responsibility 1. To provide parents with information (i.e., hearing evaluation, hearing technology, language development, communication approaches).</p> <p>Responsibility 2. To support the parents' emotional reactions that are often associated with the diagnosis of hearing loss.</p> <p>Responsibility 3. To teach the parents strategies and techniques to support their child's development.</p>

Table 3

Rubric for a Home Visit

1. Reconnect & Review

The FCEI session starts when the early interventionist connects with the family. This connection sets the tone for the entire session. It assures parents that the professional is listening to their questions, is comfortable with their issues and concerns, and is available to support them.

One way to start the session is to ask each family member what has transpired since the last session. Right away, this conversation starter puts the caregivers “in the driver’s seat.” During this part of the session, interventionists often need to set aside their professional agenda to address the current events in the family’s life. The value here is to honor each family member, listen to his or her needs, and tailor the session to meet these needs. In addition to hearing from the parents, the interventionist provides information—often revisiting and reviewing topics discussed in previous sessions. Emotional support is also offered.

These questions illustrate the way in which the early interventionist connects with family members.

- How have things been going over the past week? Is there anything concerning you or on your mind today?
- What new behaviors is your child doing? Tell me, what is your child doing this week that wasn’t happening last week?
- How did last week’s audiology visit go for you? Are you comfortable with the information you were given? Can I explain anything that was said?



2. Address Priorities

Preparing for each session takes into account strategies that are appropriate to meet the needs of the child. Strategies may address communication, language (including sign or spoken language based on family choice), speech, cognition or play skills, listening skills, and/or behavior. While the interventionist brings a well-developed plan to the session, including two or three strategies that can be taught, the family’s perspective needs to also be embraced. Consider this a joint process between family members and the interventionist.

Together the parents and the early interventionist identify the topics to be addressed that will support the family members’ goals for their child. When family members prioritize their needs and can relate the strategies to those needs, it is more likely that good follow-up will occur after the session is over.

These questions and comments illustrate the ways in which the early interventionist may interact with the family members.

- Last week I heard you express concern about []. So this week I would like to show you [].
- It seems like you’re challenged by []. To support you in gaining more confidence at [], I’ve prepared [].
- It sounds like you want information on [], and you are feeling unsure about []. Which of these would you like us to address first?
- What’s your biggest priority today? I’d like to focus our conversation and practice on that.

Table 3
(continued)

3. Show the Craft

During this part of the FCEI session, the interventionist, parent, and child practice specific strategies or techniques that are in line with the priorities that were identified. The interventionist may observe the parent and child interacting to identify which strategy or technique to explore first. Or the parents may select the strategy that is most important or appealing to them.

Once the technique is identified, it is briefly discussed. Then the play begins. First the early interventionist demonstrates the technique while actively engaging the parents in the discovery process. This is when all attention is focused on the child—discovering the appropriateness and effectiveness of the technique being explored. However, there is more to showing the craft than simply a provider demonstration. There are actually five steps included in this part of the session:

Step 1. The provider describes the technique.

Step 2. The provider models the strategy while the parent observes.

Step 3. The provider *and* the parent(s) discuss the child's behavior while using the new strategy.

Step 4. The parent tries the same strategy while the provider observes the parent-child interaction.

Step 5. The provider *and* the parent discuss the parent's comfort using the new strategy.

This is a perfect time to use coaching techniques (Rush & Shelden, 2005, 2011; Rush, Shelden, & Hanft, 2003). The parent and provider explore which aspects of the strategy worked well. Together the parent and interventionist can investigate changes that can extend the duration of the activity and the child's success with it. They can discuss other routines that could incorporate this strategy. Thought can be given to other places in the home and outside of the home where the strategy might be used. By being an active participant in this process, family members gain competence and confidence.

Once a specific strategy is taught, a second strategy is implemented with the same structure in mind. Time allowing, a third strategy may be taught during one session.

These comments illustrate the dialogue that may occur between the early interventionist and the parents:

- You've expressed that [] is really a challenge. Can you show me how you'd play with that toy? I'd like to watch, and then I can take a turn demonstrating a technique that you might find useful.
- I see that your child is really interested in her toy. I'm going to try to engage with her while demonstrating []. While you observe, try to see how many times I [].
- After I demonstrate how to use this strategy while interacting with your child, I'd like to watch you give it a try. We can both reflect and think about how it worked for you afterwards.

Table 3
(continued)

4. Assess & Evaluate

In an informal way, the child's skills that were observed before, during, and after the use of a specific strategy have been discussed, and a discussion about family members' comfort using each strategy has been ongoing.

In addition to these informal assessments, formal assessment of the child's progress provides important information about the effectiveness of the strategies being used. Formal assessment is typically conducted at regular intervals in order to support the development of the IFSP. While some programs choose to use interventionist-

administered tests, there are many protocols and checklists that can be completed by parents.

In whatever way assessments are done—informally during the session or more formally—the evaluation process can be beneficial for the parents as well as the interventionist. By learning to critically observe their child's behavior, parents become more invested in their child's development. Eventually family members learn to identify the needs of their child, barriers to meeting those needs, and strategies to address them.

These questions and comments illustrate the way in which the early interventionist can talk to the parents about assessments:

- Did you notice your child's reaction when you used the strategy? Did that surprise you? Is that how she typically reacts? What do you make of that?
- I've been reviewing the developmental checklist I use to keep track of your child's progress. I am curious if you see her . While I haven't observed that in a session recently, I'm wondering if you see her doing that at other times of the day.

5. Reflect on the Visit

Toward the conclusion of the session, the interventionist and family members reflect on the activities and discussions that took place. This is an opportunity to evaluate a number of aspects of the session, including:

- The parent and professional satisfaction with the present session.
- Making plans for future sessions.
- Identifying additional information that may support the child and family members.

For instance, if family members generated some questions, now is a time to be sure these questions

were answered satisfactorily. Perhaps there is some additional information that can be brought to the next session. There may be websites, videos, or books that can supply additional information. Or the interventionist can ask the parents if they are ready to use the newly-learned strategies in their daily routines. This may require some discussion about places in the home where the technique can be used, and routines during the day when the technique can be practiced.

The following questions and comments are examples of the way the early interventionist may wrap up a session:

- You really seemed to have a nice handle on while I observed you. Do you think this is something that you could apply in a different part of the day? What questions do you have?
- Does it seem realistic that you might implement this during mealtimes too? Or is there a different routine that you think might lend itself more readily to use of this .
- How do you think your spouse/child's sibling/childcare provider will react when ? Do you think this is something they will be able to try too?

Service Delivery Locations

Service Delivery in Natural Environments

The traditional way to deliver FCEI is in person. Sessions typically take place in the home or another natural environment according to the guidance of Part C of IDEA (2011). According to federal legislation, natural environments are those “settings that are *natural* or typical for a same-aged infant or toddler without a disability, may include the home or community settings, and must be consistent with the provisions of §303.126.” Services can be delivered at home, at grandma’s house, in a neighborhood park, or in another community setting.

The frequency of sessions are prescribed on each child’s IFSP. Sometimes professionals see families weekly, semi-monthly, or monthly. These decisions are made during the IFSP team meeting and are intended to honor the family’s preferences while meeting each family’s needs.

When services are delivered in a family’s home or other natural environment (e.g., childcare center, park, grocery store, public library), the early interventionist has an opportunity to observe family members interacting with their child in their real-world settings. The professional can observe any environmental challenges that exist. For example, background noise (i.e., a noisy air conditioning unit or fan) may create a challenging listening environment for children who are D/HH. The early interventionist may also notice the toys and books and other educational materials that are readily accessible. Most importantly, the early interventionist can observe the interaction style between parent and child. For example, when the interventionist observes the child sitting on her mother’s lap during story time, the interventionist can identify strategies and techniques that might enhance the communicative interactions. Or when the professional observes preparations for lunch while standing in a family’s kitchen, the interventionist can note ways to enhance the vocabulary used during the routine.

Service delivery in the home or other natural environment also allows siblings, grandparents, neighbors, and/or other caregivers (i.e., a daycare provider) to participate in the session. Many parents feel most comfortable in their home. This comfort may promote their ease in talking about their concerns and needs.

While a natural environment is preferred—according to Part C of IDEA—service delivery in the natural environment does not occur without some challenges. Natural environments are not acoustically-treated settings. They may not be stocked with shelves of stimulating, developmentally-appropriate materials. Oftentimes the home or natural environment brings with it many distractions. During a session, visitors can appear at the family’s door, the phone can ring, or other children and family members can demand the attention of the primary caregiver. Some professionals might characterize these interruptions as important learning opportunities; others as distractors from important work to be done.

Programs that utilize home visits also have to be concerned about the time it takes for the early interventionist to travel from natural environment to natural environment. This can be fiscally demanding based on the amount of travel time. Also, access to other families, parents, and professionals are more limited when sessions are conducted in natural environments.

Practically speaking, there is increased liability and risk when early interventionists drive their own vehicles to a variety of community settings. While these concerns are not in and of themselves reasons to opt out of service delivery in natural environments, they are worth considering in a cost-benefit comparison.

Many parents feel most comfortable in their home. This comfort may promote their ease in talking about their concerns and needs.

Clinic-Based Service Delivery

While oftentimes the term FCEI is immediately associated with service delivery in a natural environment, it is important to note that FCEI can also be provided in the clinical setting. Not all clinic-based therapy is strictly child-centered. FCEI can be conducted with ease in a clinic environment. The type of therapy—child-centered or family-centered—does not depend on the location. Rather, the choice to conduct FCEI depends on the skills and willingness of the interventionist.

If an early interventionist were to provide Part C-funded services in a clinic or other environment that is not considered “natural,” the members of the IFSP team must include a statement of justification in the IFSP. For example, the team members must include a statement of justification if audiology services and related assistive technology are authorized by an IFSP team. This justification can mention that the audiology sound suite is necessary for assessment and fitting of devices. Also, because these resources are not portable, authorization allows for the provision of the service in a clinic.

Clinic settings often host group class for toddlers or parent-child classes. Parent-to-parent connections also occur when receiving services in a clinic. The waiting room or lobby provide opportunities for parents and caregivers to make informal connections. Clinic settings can provide a physical space for parent workshops, meetings, and/or support groups.

Telehealth Service Delivery

Telehealth (also known as teleintervention or telepractice) connects an early interventionist in one location to a family in another location via interactive video. This approach has been evolving, slowly, over the past several years. Telehealth has been successful in offering many young children and their families access to quality early intervention services from a distance. In rapid response to the COVID-19 pandemic, telehealth became a standard of care within weeks. Many barriers, such as payment for telehealth services, were waived. It seems fair to say that access to family-centered early intervention services has been revolutionized with worldwide adoption of telehealth. As of April 2020, telehealth has become an expected vehicle for services.

**Telehealth
(also known as
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In the past decade, there have been some concerns about the delivery of early intervention via telehealth. These concerns have fueled the reluctance of some providers and administrators to try and support telehealth. Some concerns were raised about hardware, software, and access to bandwidth. Other concerns focused on access to and use of materials. Some providers, especially those

not comfortable using coaching strategies, were cautious about telehealth. Administrators often looked for data to support the effectiveness and efficacy of telehealth. A survey conducted by Colorado’s Part C agency (Cole, Pickard, & Stredler-Brown, 2019) identified these themes that described the wariness of Part C service coordinators and early intervention providers about telehealth:

- It is not family friendly.
- It is impersonal.
- It is not as good as in-person visits.

Research has shown that telehealth supports family-centered practices and is effective. A study by Brown (2015) evaluated providers’ use of family-centered early intervention (FCEI) behaviors. Three of these behaviors were used more frequently in the telehealth condition than in other studies conducted in which therapy was conducted in the in-person condition. Three provider behaviors—all good coaching techniques—were used more in the telehealth condition:

- 1 Observing.
- 2 Offering feedback to the parent about the child’s skills.
- 3 Providing input to the parent about his or her use of a strategy during an interaction with the child.

Some providers acknowledge that telehealth provides more opportunities for parents to improve their skills. Because a telehealth session focuses on the parents—typically the people who interact most frequently with the child—parents learn strategies to facilitate their child’s communication and language (Hamren & Quigley, 2012).

Emerging evidence from a telehealth study conducted in Colorado

An early interventionist stated ...

“I saw a whole new side of the family. I was able to observe more details than when I have been present [in the home]. I have also had the pleasure of having both parents together in many of my remote visits.”

—Tiggs, *personal communication*,
March 25, 2020

One parent stated ...

“As his mom, I’m doing all of the activities with him—not the early interventionist. During the traditional home visits, I usually sat and watched her [the interventionist] do everything.”

—Behl, *personal communication*,
September 16, 2013

with young children who are deaf or hard of hearing (D/HH) is encouraging. Preliminary data demonstrated that young children who were D/HH benefitted equally when receiving weekly speech-language-listening intervention through in-person or telehealth delivery methods (Falcone, Harris, Glick, Stredler-Brown, & Sharma, 2018; Harris et al., 2019). Child language, as measured by the Preschool Language Scale (PLS-5; Zimmerman, Steiner, & Pond, 2011), was the outcome measure for both studies. These findings corroborated an earlier study with children who are D/HH conducted by Blaiser, Behl, Callow-Heusser, and White (2013). The children in this study demonstrated that telehealth services were more efficacious than services delivered in-person, and that telehealth services resulted in significantly greater parent engagement in therapy sessions.

While the best scenario for the adoption of telehealth is careful planning and structured implementation, the pandemic of 2020 has propelled providers to adopt telehealth, often with little preparation. One of the biggest challenges—and a perceived benefit as well—is the utilization of coaching techniques to teach parents strategies to support their child's development. Coaching is a critical component of family-centered early intervention. Telehealth requires providers to implement coaching techniques as they prepare parents for their journey. Fortunately, numerous resources to facilitate good telehealth sessions are readily available. Several resources are listed here.

Resources

- <https://auditoryverbaltherapy.net/2020/03/19/teletherapy-101-webinar-recording/>
- <https://ectacenter.org/topics/disaster/ti-service.asp#vcskills>
- <https://learn.hearingfirst.org/telepractice>
- <https://shortcourses.ridbc.org.au/events/guiding-principles-for-practice-ridbc-teleschool/>
- <https://www.asha.org/About/Telepractice-Resources-During-COVID-19/>
- <http://www.infanthearing.org/ti101/>



Photo courtesy of NCHAM

Selected Resources

- Alexander Graham Bell Association for the Deaf and Hard of Hearing, www.agbell.org
- Boy's Town National Research Hospital, *My Baby's Hearing*, <https://www.babyhearing.org/>
- Families for Hands & Voices, www.handsandvoices.org
- National Center for Hearing Assessment and Management, www.infanthearing.org

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Chapter 9

Listening & Spoken Language Preschool Programs

Ellie White

Many quality listening and spoken language (LSL) programs exist to serve young children with hearing loss. These programs can differ in many ways—size, number of staff, ethnic or socioeconomic diversity of students and families, and so on—yet they each have the goal of promoting children's ability to listen and talk.

To that end, these quality programs share a general framework as well as some standard programming components that allow them to meet their mission to build LSL skills in young children with hearing loss.

This chapter focuses on LSL programming for preschoolers with hearing loss ranging in age from 3 to 5 years old. In general, quality programs prepare each child for success in the general education environment by providing individualized instruction to develop listening, language, and speech while focusing on all development milestones. Specifically, these programs have been



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developed to accomplish the following:

- Teach preschoolers with hearing loss to listen and talk by facilitating the development of age-appropriate listening, language, and speech skills.
- Individualize instruction to appropriately serve a very diverse group of learners.
- Focus on all developmentally appropriate domains.
- Support each preschooler in reaching his or her full potential.
- Prepare preschoolers for success in a variety of general education settings.

With a focus on play and experienced-based learning, preschool programs have busy schedules that include auditory, language, and speech instruction along with cognitive development, creative movement for gross and fine motor development, music, early literacy, social and emotional development, and preacademics.

The Diverse Preschool Population

Currently in the field of LSL instruction, a large diversity exists among preschoolers with hearing loss. As technology for listening devices improves, young children who wear these devices become more able to access better-quality sound.

Because of the newborn screening, hearing loss can now be identified during the first days of life. With this early identification, parents have the option of obtaining hearing aids for their infants to provide quality access to sound at a very early age.

These children have access to sounds that are important for learning to listen and talk—most specifically soft speech. In addition, universal newborn hearing screening is mandated in each state. Because of the newborn screening, hearing loss can now be identified during the first days of life. With this early identification, parents have the option of obtaining hearing aids for their infants to provide quality access to sound at a very early age. In addition, infants who are identified early are also able to receive family-centered early intervention services, which have the potential to allow these children to develop listening, language, speech, and social skills at the rate similar to their hearing peers. By the time these children come to preschool, many have developed early LSL skills and are ready for intensive LSL learning.

These children are becoming more and more able to master skills as close as possible to the time that they are biologically intended to do so. This concept is referred to as **developmental synchrony** (Cole & Flexer, 2011).

While some are able to progress with their listening, language, and speech skills better and faster than ever before, others progress more slowly. This is the result of a number of influences, such as late diagnosis, late quality access to sound with hearing devices, detrimental environmental factors, lack of parental/family involvement, and/or the presence of other disabilities or delays. The factors affecting progress create a huge diversity in abilities of preschoolers with hearing loss who are learning to listen and talk (see *Table 1*).

Table 1

Factors Leading to a Range of Diverse Abilities in Speech & Language Learning

Developmentally Synchronized	↔	Developmentally Delayed
<ul style="list-style-type: none"> • Early diagnosis. • State-of-the-art listening devices. • Early intervention services. • High level of parent/family engagement. • Consistent device use. 		<ul style="list-style-type: none"> • Complications during pregnancy and/or birth. • Complications from life-threatening illnesses. • Late diagnosis. • Additional disabilities and delays. • Lower parent and family engagement. • Inconsistent or poor device use.

The level of diversity is constantly expanding among these children. Therefore instruction must be suited to accommodate diverse learning abilities and styles of many very different children within one program. Now that it is so common to have such diversity, as well as such potential for these students, professionals must know not only how a child performs in terms of each developmental domain, but also how each child is best able to learn age-appropriate skills. In terms of language learning, a continuum of instruction exists ranging from structured to conversational to natural. Children with hearing loss and resultant language delay will require direct, structured, explicit language instruction for at least some part of the day. Most will need all three kinds of instruction on the continuum to make sufficient progress. Quality preschool programs are specifically designed to allow a diverse group of preschoolers with hearing loss to successfully learn the skills that typically are acquired during the preschool years.

Programming Components

Auditory Development Curriculum

Quality auditory development curricula are based on the principle that children learn to talk by listening to the talk around them, learning to understand that talk, and then practicing using it themselves. This is

how children with typical hearing learn how to talk most efficiently and effectively, and this is also true for children with hearing loss. Preschoolers with hearing loss should be provided with the most state-of-the-art hearing devices available and continually monitored audiologically to ensure optimal programming of their hearing devices. For more information on optimal audiologic management, see the *Pediatric Audiology* chapter.

The human brain is designed to begin taking in auditory information in utero. Because children with prelingual hearing loss do not receive that information, their listening skills (in addition to language and speech skills) have great potential for delay. For children to develop age-appropriate listening skills, a specialized listening curriculum is used that builds listening skills from the most basic to the most complex.

The auditory development goal for all preschoolers learning to listen and talk is to master auditory learning, the ability to learn new concepts, and the related language and speech through listening alone. Children with typical hearing learn by listening during typical life experiences. They overhear the language around them and create meaning from it. Professionals working with children with hearing loss use a series of specific practices to foster the process called *auditory brain development* (also known as *auditory perceptual development*), so that children with hearing loss can also develop auditory learning. Auditory development practices include a combination of those listed in *Table 2*.

Language Curriculum

Preschoolers learn spoken language by listening to it and practicing using it. The preschool years are critical for language acquisition. The key to facilitating language instruction for preschoolers is three-fold:

1	To expose preschoolers to typical experiences.
2	To model the language that naturally goes with those experiences.
3	To prompt preschoolers to use the language that naturally goes with those experiences.

The human brain is designed to begin taking in auditory information in utero.

Whether or not a preschooler has delayed language, the ultimate goal regarding language acquisition is for the child to be successful at using social language, including the language of play. All language instruction should be based on giving preschoolers the skills they need to be successful at play, engage in real-life experiences that are typical for preschoolers, and converse with their peers.

For children whose spoken language development is delayed as a result of hearing loss, acquisition is slower. For these children, spoken language instruction must be very direct and specific. Though direct instruction is necessary, the method for delivering spoken language instruction should range from structured lessons to very natural situations (see *Table 3*).

Speech Curriculum

As preschoolers with hearing loss learn to listen to sounds around them with their hearing devices, most require specialized speech instruction in order to acquire developmentally-appropriate speech skills. The goal for speech instruction is to teach children to use developmentally appropriate speech sounds in connected speech. In general, a speech curriculum for preschoolers with hearing loss is comprised of three main components (see *Table 4*):

1	Voice
2	Suprasegmental Aspects of Speech
3	Articulation

Speech services are provided daily by either a speech-language pathologist, speech implementer, or a teacher of the deaf. In some cases, a child has the same teacher for speech and for language instruction, which increases the likeliness that speech practice can be carried over throughout the day. In any case, it's imperative that professionals work collaboratively to share goals and progress, so each professional working with an individual preschooler knows what speech skills the child should be held accountable for using/practicing.

Table 2

Auditory Development Practices

Naturally Occurring Auditory Opportunities

Children develop auditory skills by capitalizing on naturally occurring auditory opportunities. This happens in a few ways:

1. By using robust and interesting language to describe children's experiences as they occur, so children can hear the language associated with their lives.
2. By capitalizing on instances in which children miss what was said to them. In this case, the teacher interjects and directs the child to listen again and focus on listening while the speaker repeats what was said.

"What did you hear? Patrick is talking to you. Let's ask Patrick to say that again. Listen to Patrick."

3. By requiring children to listen when they aren't expecting to.

For example, at transition time, give a direction while the children aren't expecting.

"Sit on the window seat, and I'll give you a prize."

Modeling the thinking process.

"I just heard your teacher say we aren't going outside today."

Pointing out to the child that he or she should listen.

"You have to listen to him now, because he's talking."

4. By teaching children to attend to and acknowledge talk that is not explicitly directed to them. Many children with hearing loss must be formally taught to overhear, so they can gain information from any talk around them—not just the talk that is directed to them. Teachers can do this by:

Pointing out when one or multiple people said something, but the child didn't listen to them.

"Miss Jane said it, and Mary said it—but you weren't listening. Let's listen this time. Miss Jane, could you say that again?"

Auditory Sandwich Technique

One of the most effective and efficient ways to develop listening skills is to provide many opportunities for children to listen without the aid of visual cues. The strategy of using auditory-only cues means to talk without using visual cues. Yet at times a child might not understand an auditory-only cue, especially depending on his or her listening ability and on background noise in the listening

environment. Because of this, he or she might require some visual information to understand the auditory message. The auditory sandwich technique has its name because it includes an auditory-only cue, the same auditory cue with a visual, and lastly the auditory-only cue again. To do this, give the auditory-only cue and then repeat the cue while adding a visual cue (pointing,

showing, etc.). When it's clear that the child understands, repeat the auditory-only cue once more without the visual cue, so he or she can practice listening. Always begin and end with auditory-only information to boost the child's listening skills. For more information on the auditory sandwich technique, please see the *Listening & Learning to Talk* chapter.

Table 2 (continued)

Auditory Feedback Loop

Auditory feedback is the information a person gets from listening to himself or herself produce sounds. The auditory feedback loop is the

cycle in which a child with quality access to sound says something, listens to what he or she says, and then modifies what he or she

said to make it sound right. For more information on the auditory feedback loop, please see the *Listening & Learning to Talk* chapter.

Auditory Training Activities

Many children with hearing loss require a structured approach to listening development in which they can master a series of foundational listening skills. The process of auditory training includes teaching children to detect and identify certain speech sounds, words, phrases, and sentences. Professionals can readily find auditory training curricula that allow for systematic assessing, teaching, and tracking of early listening skills. These curricula include auditory training activities to develop listening skills from speech detection to discrimination of suprasegmental aspects of speech, discrimination and then identification of words that differ in vowels and consonants, and finally the perception of connected speech. Instruction is based on supporting children through all levels of auditory development until the point at which they perceive connected speech in various contexts through listening alone. The CID Speech Perception Instructional Curriculum and Evaluation

(SPICE) is a complete auditory training curriculum ([https://cid.](https://cid.edu/professionals/shop/cid-spice-2nd-edition/)

[edu/professionals/shop/cid-spice-2nd-edition/](https://cid.edu/professionals/shop/cid-spice-2nd-edition/)).



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Table 3

Spoken Language Instruction

Continuum of Language Instruction

The daily schedule for language instruction should be strategically designed to give children an opportunity to learn in settings that vary in the amount of structured teaching. The most direct and contrived language periods of the day are structured language lessons. The natural setting for instruction is centers, which is the least structured, and the most natural or unstructured. The conversational language period is designed as a stepping stone for practicing language learned in more structured lessons before using it proficiently in natural settings. Within each of these settings, a teacher can individualize instruction for each of the preschoolers within that setting. This combination of language lessons ranging from structured to natural allows for all three necessary environments for preschoolers with hearing loss and resultant language delay to learn spoken language:

Structured Language Lesson

A direct, contrived, repetitive, and overt lesson. This explicit teaching allows the teacher to introduce new vocabulary and syntax targets and repeatedly prompt the use of those targets. The structured learning environment typically includes one student or two like-learners, so instruction can focus on very specific objectives that can be repeatedly targeted and practiced. Unlike children with typical hearing, most preschoolers with hearing loss and resultant language delay require this level of intense, repetitive instruction to learn new vocabulary and language. The motor activity of

repeatedly using the targets increases children's ability to understand and eventually use the targets on their own with less prompting and eventually automatically with no prompting at all. In their 2016 article, Lund and Douglas found evidence to support the effectiveness of explicit instruction for children with hearing loss. From their data, they determined that "explicit instruction [of vocabulary] paired with opportunities for use of new words throughout the day may better facilitate word learning for children with hearing loss..." (Lund & Douglas, 2016).

Conversational Language Lesson

A direct and contrived lesson that allows the students to practice using multiple vocabulary, syntax, and conversational targets learned in more structured settings. This includes two to five students. Most preschoolers with hearing loss and resultant language delay struggle to use language learned in a structured environment in the more natural environment like that of a typical preschool classroom. The conversational language lesson creates a stepping-stone between the very

structured lesson and the natural environment by providing opportunities to practice skills learned in a structured environment before being expected to use those skills in a natural environment. Conversational language lessons focus on language preschoolers must practice to be successful in the natural setting. The lesson activity is often an experience that the children will later repeat using dramatic play during the developmental learning centers period.

Natural Language Lesson

A typical learning environment for preschoolers, such as developmental learning centers. This includes a large group of preschoolers and at least one teacher. Preschoolers with hearing loss and resultant language delay benefit from time in this natural setting, so they can practice using the vocabulary, syntax, and pragmatic language they have learned in teacher-contrived lessons in a pragmatically-appropriate way with peers. Teachers model the language of play in this environment as well as facilitate the use of vocabulary, syntax, and pragmatic language skills. Success in typical preschool periods, such as the developmental

learning centers period, is the goal for preschoolers. Centers in particular allow for using language to play, natural language opportunities, incidental language learning, and peer interaction. In centers, preschoolers are exposed to vocabulary and syntax commonly used during play, social and behavior models of peers during play, and activities for building developmentally-appropriate preschool skills. If the goal for preschoolers with hearing loss is to successfully transition to general education, teachers must expose them to the general education environment and moreover teach them how to be successful there.

Table 3 (continued)

Vocabulary Instruction

Vocabulary instruction for preschoolers who are deaf and hard of hearing (D/HH) begins with functional words, moves to the First 100 Words List, more basic vocabulary, theme-related vocabulary, and vocabulary specific to functioning in a typical preschool classroom. Teachers benefit from a systematic method for determining present vocabulary levels, selecting vocabulary goals for individualized education programs (IEPs), determining vocabulary targets for lessons, monitoring and tracking vocabulary progress, and reporting vocabulary progress to parents and other professionals. One such method is use of a criterion-referenced functional assessment for vocabulary (<https://cid.edu/professionals/shop/cid-early-childhood-vocabulary-rating-forms/>) For more information on vocabulary instruction, please see the *Literacy & Academic Content* chapter.

Syntax Instruction

Some children begin preschool with a very small working vocabulary of less than 50 words. Other children already understand and use at least 50-60 words by the time they begin preschool. Once preschoolers are able to understand and use 50-60 vocabulary words, including a variety of nouns, verbs, and adjectives, they can begin to combine words in meaningful ways. Syntax instruction for preschoolers with hearing loss begins with two- and three-word combinations and moves to simple sentences, compound sentences, and complex sentences containing various syntactic elements. Spoken English includes many syntactic structures made up of elements, such as nouns, verbs, adjectives, prepositions, pronouns, adverbs, questions, conjunctions, and so on. Teachers benefit from a systematic method for determining present syntax levels, selecting syntax goals for IEPs, determining syntax targets for lessons, monitoring and tracking syntax progress, and reporting syntax progress to parents and other professionals. One such method is use of a criterion-referenced functional assessment for syntax (<https://cid.edu/professionals/shop/cid-tags-teacher-assessment-of-grammatical-structures-starter-kit/>). For more information on syntax instruction, please see the *Listening & Learning to Talk* chapter.

Pragmatic Language Instruction

This instruction is based on helping preschoolers develop similar pragmatic language to their same-aged peers with typical hearing. Pragmatic language skills for preschoolers can be divided into three subcategories:

- **Social language skills**, such as the ability to use language to make comments, share ideas, make choices, request help, or ask permission.
- **Conversational skills**, such as the ability to use language to initiate conversation, maintain conversation, take two-three conversational turns, or end conversations.
- **Language skills related to play**, such as the ability to use language while pretending with toys, negotiate play with others, talk for a doll or puppet, or elaborate on pretend play themes.

Teachers benefit from a systematic method for determining present pragmatic language levels, selecting pragmatic language goals for IEPs, determining pragmatic language targets for lessons, monitoring and tracking pragmatic language progress, and reporting pragmatic language progress to parents and other professionals. One such method is use of one or more criterion-referenced functional assessments for social language, conversational competency, and language-related to play (<https://cid.edu/professionals/shop/cid-preschool-pragmatic-language-rating-forms/>; <https://cid.edu/professionals/shop/cid-preschool-symbolic-play-rating-forms/>). For more information on pragmatic language instruction, please see the *Literacy & Academic Content* chapter.

Table 4
Speech Curriculum for Preschoolers

Voice		
The category of speech that includes voicing, breath, and voice quality. Voicing is the ability to turn the voice “on” or “off” by controlling	airflow through the vocal folds in the larynx. Breath is the ability to use the appropriate amount of breath for speech and control the breath for appropriate	syllable, word, and sentence duration. Appropriate voice quality means the absence of a voice that is breathy, hoarse, strained, raspy, hypernasal, or hyponasal.
Suprasegmental Aspects		
Because suprasegmental aspects are so important for conveying intended	meaning, speech instruction also focuses on these aspects of speech,	including durational patterns of words and sentences, intensity, and pitch.
Articulation		
The process of controlling and modifying air stream through the articulators (tongue, teeth, lips, jaw, hard palate, soft palate, uvula, velopharyngeal port, and glottis) to produce the sounds of speech in isolation and in combinations. Accurate articulation is necessary for a child’s spoken language to be intelligible by the listeners around	him or her. Articulation instruction can begin at the phoneme and syllable level but should quickly progress to meaningful words, phrases, and connected language, so preschoolers can acquire appropriate speech skills for words and phrases that are meaningful and useful to them. In addition, some children with hearing loss who have	received early intervention begin preschool at age 3 with nearly age-appropriate speech skills. These children are likely able to continue developing articulation skills at the connected language level. They will continue to benefit from structured articulation practice as they learn to develop speech sounds that are typically acquired at older ages.

Though scheduling for speech minutes can vary, it is important for preschoolers with delayed speech skills to have a daily period dedicated to direct instruction of speech. This is often combined with auditory training minutes because of the close relationship between speech production skills and speech perception skills.

Professionals benefit from a systematic method for determining present speech levels, selecting speech goals for IEPs, determining speech targets for lessons, monitoring and tracking speech progress, and reporting speech progress to parents and other professionals. One such method is use of a criterion-referenced functional assessment for voice, suprasegmental aspects of speech, and articulation (<https://cid.edu/professionals/shop/cid-speech-skills-rating-forms/>). For more information on speech instruction, please see the *Listening & Learning to Talk* chapter.

Early Literacy Curriculum

Success in life is strongly correlated to proficient reading ability. A strong focus on literacy within the school is key to preparing preschoolers for eventual reading proficiency. Research suggests that “statistically speaking, students who are D/HH only achieve a reading level of fourth or fifth grade by the time they are 17 years of age” (Gallaudet Research Institute, 2003). Moreover, research shows that early literacy skills must be taught to very young children as “...spoken language, reading, and writing develop together in literate environments and mutually reinforce one another in development” (Teale & Sulzby, 1989, p. 4). Students with delayed language skills in spoken English are likely to have delayed reading skills in written English. Because of this, it is imperative to begin fostering preschoolers’ language skills while simultaneously building their early literacy skills. Teachers focus on early literacy skills by following the strategies shown in *Table 5*.

Table 5

Strategies to Focus on Preschoolers' Early Literacy Skills

Creating a Literacy-Rich Environment

Any environment that is considered “literacy-rich” is one that promotes active reading, writing, listening, and speaking. A literacy “feel” is both physical (because print and books and writing are all around) and attitudinal (because the importance of literacy is something that is constantly exuded). Literacy should be encouraged within every aspect of the program. Each school day should include opportunities to incorporate print to make the environment as literacy-rich as possible. This can include:

- Books that support language lessons.
- Books that focus on certain speech sounds during structured speech lessons.
- A book corner in a typical centers environment.
- Writing materials for exploring with print.
- Print materials for dramatic play, such as menus in a play restaurant or clipboards and files in a play doctor's office.
- Opportunities to go to the library.

Print should be everywhere in the environment—halls, classrooms, bathrooms, etc. This exposure gives preschoolers the opportunity to make the connection that they can write what they say, read what they write, and say what they read.

Increasing Knowledge of Print & Books

Preschoolers must learn to recognize print and understand the function of print and books. Exposure to print gives preschoolers the opportunity to make connections between print and what they hear, see, and do. Preschoolers should be exposed to the following conventions of print, which help them understand what print represents, how it works, and that it is a consistent method (Weaver, 2009):

- Location of print in books and in the environment.
- Text features, such as letter shapes, punctuation, capitalization, and special fonts.
- Text concepts, such as word boundaries, spaces between words, the number of words/letters, the first/last part of a word/sentence.
- Letter names and sounds,
- Letter/sound correspondence,
- Illustrations are meaningful and represent the written words,
- Understand reading vocabulary: page, cover, title, author, letter, word, sentence.

Preschoolers must also learn book handling and orientation skills, such as:

- Handling books carefully.
- Holding books right side up.
- Looking at pictures.
- Telling stories from pictures.
- Looking at books from front to back.
- Telling the title.
- Looking at print.
- Attempting to read print.
- Following print from left to right.
- Asking questions about stories.
- Rereading interesting books.
- Properly putting books away when finished (Weaver, 2009).

Preschoolers should be exposed to print during the course of a school day through read-alouds, time with books, and writing or journal time. Many preschool teachers post a picture schedule with print in their classrooms in addition to labeling certain areas and objects in the classroom with the printed words.

Table 5
(continued)

Building Comprehension of Stories

The purpose of reading is to construct meaning from text. To do that, preschoolers must be able to comprehend the events and details of a story. Comprehension of stories begins with giving children many opportunities to listen to stories read aloud. According to the Commission on Reading (1985), “The single most important activity for building the knowledge required for eventual success in reading is reading aloud to children.” Exposure to read-alouds builds language and literacy by expanding experiential background, developing vocabulary, building awareness of language of books, exposing preschoolers to basic concepts of print and how books are read, and providing pleasant associations with books. When teachers read aloud to preschoolers, they use gestures, props, explanations, questions, tone of voice, facial expression, and other cues to aid comprehension. Illustrations provide even more cues. Preschoolers use these cues along with the language of the story to construct meaning. In addition to and along with reading aloud, teachers foster comprehension skills in a variety of ways:

Teaching Vocabulary in Stories

One of the most important aspects of the read-aloud is the exposure to new vocabulary. Teachers can preteach some of the vocabulary most important to the story, so preschoolers can better understand the meaning of the text containing that vocabulary. In addition, teachers increase comprehension of vocabulary during the read-

aloud by making comments and asking questions when reading new vocabulary within the story. Preschoolers use the context of the story along with the comments and questions to better understand the story. Lastly, teachers reinforce the vocabulary of the story by creating story extension activities following the read-aloud.

Questioning

Another way to build comprehension is through questioning. By asking literal questions, teachers can see that students understand important details and sequence events of the story. Inferential questions help students draw conclusions, make predictions, and make personal connections. Evaluative questions at the preschool level focus on asking children to think about what they like about the story and what made it so interesting. Teachers choose to ask prereading questions to consider what the story is about, activate prior knowledge, and possibly make some predictions. For example, “What do you think this book will be about?” and “What do you think will happen in this book?” During the read-aloud, teachers might ask some questions to check for attention, boost understanding, make predictions, and point out cause and effect. These can include literal, inferential, and predicting questions.

Examples of questions during the read-aloud:

- *Where is the character going?*
- *What is the character doing?*
- *What will he do next?*
- *Why did that happen?*

Examples of inferential and evaluative questions after finishing the read-aloud:

- *Did you like the book and why?*
- *What happened in this book?*
- *What is your favorite part of the story?*
- *Who is your favorite character and why?*

Questioning encourages spoken language, conversation, high-level thinking, and social skills that the read-aloud creates.

Table 5
(continued)

Indicating a Problem in a Story	Modeling & Requesting Predictions
Teachers often choose stories with identifiable problems and clear solutions. During the read-aloud, teachers can prompt preschoolers to determine the problem. As preschoolers become more able to comprehend simple problems in stories, teachers introduce more complex stories to promote critical thinking skills related to the resolution of the problem.	Predicting—or the act of telling what might happen—is a higher-level thinking skill that involves use of cues and inferences. It is vital to reading comprehension. Teachers can encourage predictions both before reading and during. Before reading, teachers ask children to predict what the story might be about, who might be in the book, and what will happen based simply off the cover picture and title or from a “picture walk.” During the story, teachers ask specific questions for children to think about what might happen next. Accurate predictions are not necessary, but they should be on topic. Predicting is a way for children to think about possibilities based on what they already know. It builds excitement and interest in the story.
Building Episodic Memory	Creating Mental Models
Episodic memory is memory of experiences and the series of events that make up that experience. It is the ability to picture an experience in one’s mind as a series of events and tap into that memory when talking about it. It requires a person to perceive the present moment as both a continuation of the past and prelude to the future (McGuigan & Salmon, 2004). Episodic memory is required for telling stories, recognizing relationships, understanding cause and effect, making predictions, and making inferences.	Mental models are “personal, internal representations of external reality” (Jones et al., 2011). A mental model can include a person’s thought process about an event or series of events. Understanding a story read from a book requires a child to build in his or her mind a representation of the situation described in the text.
Fostering Theory of Mind	Providing Story Extension Activities
Theory of mind is the ability to understand that others have beliefs, desires, and intentions that are different from one’s own. This ability can be developed through questioning (i.e., “How do you think he feels?”) and through pretend play when a child acts as a character in a story and takes on the feelings and actions of that character (Westby, 2011).	Story extensions include acting out the story, art activities, cooking or experiences related to the story, etc. These activities serve to build comprehension of the story as well as build episodic memory, mental models, and theory of mind.



Photo courtesy of NCHAM

Table 5
(continued)

Promoting Emergent Storybook Reading

Teachers actively look for preschoolers to engage in reading-like behaviors that inevitably occur for children who are read to frequently. Teachers note where students are with their emergent reading, observing for the following:

- Talk about pictures but do not tell a story.
- Use illustrations to create a story, but expression and intonation are of telling rather than reading.
- Use pictures to retell, and portions sound like oral reading.
- Use pictures and words, and expression and intonation sound like reading.
- Use print to read part or all of the story.

Providing Experience Stories

Experience stories are another way to build comprehension of text. These stories include pictures of preschoolers engaging in typical experiences and print that describes the pictures. Experience stories include a number of steps:

- Preschoolers participate in a real-life experience that is typical for children their age.
- After the experience, the teacher prompts the preschoolers to describe the experience using the pictures.
- The teacher writes the story as the preschoolers tell it. The teacher reads each sentence, and a preschooler “reads” it back.

Because preschoolers are familiar with the experience and aided by the pictures, they are often able to read the stories on their own using the words as markers for the correct language. Experience stories help preschoolers build comprehension of the text, recognize letter/sound correspondence, and talk about school experiences at home with their parents for continued practice.

Engaging in Shared Writing

Shared writing is an instructional approach to teach writing to students by writing with them. In this process, the teacher acts as the writer while the preschoolers contribute ideas. Shared writing is a way to build the prerequisite skills for emergent writing, which mainly include:

- The knowledge of some conventions of print, such as the left-to-right orientation of print.
- Moving down a line after coming to the end of a line.
- The concept that combinations of letters create words and combinations of words make sentences.
- That space is between words, and so on.

Promoting Emergent Writing

Emergent writing includes children’s efforts to write on their own. Preschoolers initially learn about writing for a purpose using the process of drawing, then describing, and then writing. They draw a picture, describe orally what is happening in the picture, and then attempt to write the description. Levels of emergent writing include letters bearing little relation to actual letters, strings of letters in an attempt to create a word, inventive spelling, words partially spelled correctly, and words spelled correctly.

Table 5 (continued)

Building Phonological Awareness

Phonological awareness is the ability to detect rhyme and beginning sounds and to hear separate words in sentences, separate syllables in words, and separate sounds in words. It includes rhyming, alliteration, word awareness, syllable awareness, and phonemic awareness. It is also thought of as the consciousness of sounds in words and the ability to detect units of sound in our language. Phonemic awareness is a subset of phonological awareness. It is a sensitivity to and control over phonemes and the ability to hear and manipulate the individual sounds in words. Preschoolers indicate phonological awareness abilities by:

- Detecting rhyme.
- Identifying and counting syllables in words.
- Identifying initials sounds in words.
- Naming words that begin with the same sounds.
- Blending words (hot + dog = hotdog, or c + at = cat).
- Identifying final and medial sounds in words.
- Segmenting words (hotdog = hot + dog, or cat = c + at).
- Manipulating sounds by adding and/or deleting phonemes. (Take the /m/ off of mat and put on /p/. What do you get? Pat.)

Preschoolers with hearing loss must have optimal access to sound for mastery in phonological awareness. This skill is very dependent on the ability to listen to and discern sounds. In addition, language ability is closely related to phonological awareness. Gunning states, “. . . language is the foundation for phonological awareness. The larger the children’s vocabularies and the better their articulation of speech sounds, the easier it is for them to acquire phonological awareness. Initially, children learn words as wholes. The ability to segment individual sounds in words develops as children’s vocabularies grow and as they acquire larger numbers of words that have similar pronunciations, such as cat, can, cap, cab” (Gunning, 2005).

Teaching Phonics

Phonics instruction for preschoolers focuses on helping children learn letter names and corresponding sounds. For example, “This is a capital B. This is a lower case b. Both of these letters say /b/.” Preschoolers learning to read must first have general alphabet knowledge, including knowing the name for each uppercase and lowercase letter and knowing the sound for each letter. In addition, preschoolers learn to sort words by initial letter and write each letter.

Fostering Preschool Cognitive Skills Related to Literacy

These skills most predominantly include patterning and sequencing.

Table 5
(continued)

Patterning	Sequencing
<p>Patterning is an auditory or visual discrimination task that follows rules. It is one of the most basic skills preschoolers accomplish. While often considered a premath skill, there are many patterns in language that a child must master on the road to literacy. Preschoolers need the prerequisites of matching and understanding same vs. different in order to learn patterning. We often think of patterning as manipulation of objects (red block, blue block, red block, blue block). This rule is ABAB. There are many patterns in language as well. A solid foundation in understanding patterns can contribute to a child's success in literacy. One example is the pattern of rhyming. For example, c...at, b...at, f...at, m...at. Preschoolers learn to consider two sounds, hold onto one, and substitute the other. In terms of a mathematical rule, the example of cat, bat, fat, and mat would be BACADAEFA. Many books have predictable patterns. When children are able to understand the pattern, they can contribute to telling the story.</p>	<p>Sequencing is the ability to place objects and events in a specific order. It is a cognitive skill most typically associated with premath and early literacy skill. Sequencing skills start with the ability to sequence objects. Preschoolers learn to sequence objects from smallest to largest, shortest to tallest, and so on. Next, children learn to sequence events. Understanding the order of events in a book contributes greatly to comprehension of the story. Terms, such as <i>first</i>, <i>next</i>, <i>then</i>, and <i>last</i>, are commonly used to refer to what happens in a story. In addition, preschoolers must learn to sequence sounds they hear as part of phonological awareness. Preschoolers learn to identify what sounds they hear at the beginning and end of words. For more information on early literacy instruction, please see the <i>Literacy & Academic Content</i> chapter.</p>

Benefits of Music

Because of the robust nature and various positive effects of music—enjoyment, relaxation, stimulation, motivation, and so on—it is an important component to any quality preschool program. In addition to the pleasure that preschoolers derive from music, it is also a useful tool for learning. Research suggests music positively affects development of listening, language, vocabulary, literacy, and motor skills (Kindermusic, 2008). Music can also be a fun and interesting way to promote motor skill and vestibular development related

to balance and body awareness. Teachers use mainstream music in CD, video, or mp3 form, as well as finger plays, nursery rhymes, and children's songs. Preschoolers can learn to listen to the sounds, perform associated action, and listen for the beat and clap and tap along to it. As an added benefit, these forms of rhythm and music also can support communication,

Theme-Based Learning

One effective way to organize the curriculum over the course of a school year is by theme. Themes, which are also referred to as units of study, enable teachers to dedicate 1 or 2 weeks to a developmentally appropriate topic, and they provide a foundation for integrated learning. Thematic units help build connections about all the concepts and language that goes with the theme. Theme-based learning allows for acquisition of typical vocabulary, syntax, pragmatic language, and preacademic concepts associated with the theme. Instruction is most beneficial when preschoolers are able to use background knowledge to make connections

In addition to the pleasure that preschoolers derive from music, it is also a useful tool for learning.

between what they already know and what they are learning. Themes help children make those connections. Themes can also be a time-saver for teachers in planning, organizing, and teaching their lessons. They are often chosen based on the following factors:

Play Value

Preschoolers learn through play. Themes that easily lend themselves to playing are often some of the most effective and favored themes. For example, a theme on *babies* lends itself to endless pretend play scenarios as preschoolers feed, rock, and dress their babies; take them for a walk in a stroller; and put them to bed.

Relevance to Real-Life Experiences & Fixed Yearly Events

Preschoolers learn about their world through experiences. Themes that are based on real-life experiences help children learn more about their world. For example, the theme of *autumn* allows the children to discover and learn about season changes, weather, nature, and clothing for cooler temperatures.

Timing

Timing is an important consideration when choosing themes. Themes can be chosen based on preschoolers' current interests and what they are talking about, language needs, current play skills, and seasonal or holiday themes.

Teachers can effectively plan for theme-based instruction using a series of question prompts to guide their planning. These can include the following:

- *What concepts do typically developing preschoolers know about this theme?*
- *What experience do I want preschoolers to have?*
- *How do typically-developing preschoolers pretend about this theme/experience?*
- *What play problem might exist within the pretend play about this theme?*
- *What experiences can be represented through symbolic play in the different centers areas (dramatic play, block, sensory table, and so on)?*
- *What preschool concepts are associated with this theme?*
- *What vocabulary is associated with this theme?*
- *What syntactic targets are associated with this theme?*

In addition, teachers can effectively reflect on theme-based instruction using a series of questions and prompts to consider new possibilities and further develop the growth mindset:

- *In general, how did this theme go? What makes me say that?*
- *What are things I want to remember to do next time I do this theme?*
- *What do I want to remember to avoid next time I do this theme?*
- *What structured and conversational language lessons led to student success at centers?*
- *Describe the two most effective instructional strategies used during this theme.*
- *Describe one challenge about this theme.*

The responses to these reflective questions and prompts can be instrumental in gauging student success as well as in planning in the future.

Focus on the Individual Whole Child

LSL preschool programs share the common goal of helping children with hearing loss and resultant language, speech, and listening delays “catch up” to the skill levels in those areas that are typical of same-aged peers. Due to the large diversity among preschoolers with these delays, teachers must meticulously individualize instruction to meet specific listening, language, and speech goals for each child. Though these programs specialize in this individualized instruction in these areas, they also must monitor preschooler's global development, including all developmental milestones. To develop the whole child, teachers focus on acquisition of skills that are typically acquired during the preschool years. These skills can be divided into eight main areas of focus that include the following:

Cognitive
Motor
Social/emotional
Early literacy
Preacademic
Technology
And last, but certainly not least, communication skills—listening, language, and speech.

Preschool developmental milestones typically come from various sources on age-appropriate skill development for preschoolers as well as two standard sources:

- [Developmentally Appropriate Practices mandated by the National Association for the Education of Young Children \(NAEYC\)](#)
- Individual state standards

Inclusion in Typical Settings/Integration with Peers Who Are Typically Developing

For preschoolers with hearing loss, peers with typical hearing can provide excellent language models and many opportunities for exposure to typical peer behavior and social skills.

Inclusion in typical preschool settings provides opportunities for preschoolers with hearing loss to have exposure to typical language and speech models, develop appropriate pragmatic skills, and engage in play with preschoolers who are typically developing. Inclusion enhances the development of language skills for children with hearing loss beyond what they are able to learn solely from their teachers and other children with hearing loss. Preschoolers can learn directly from the models of their peers with typical hearing. Research shows that preschoolers with hearing loss require interventions with hearing peers—often including facilitation by teachers—to learn specific social strategies in peer

For preschoolers with hearing loss, peers with typical hearing can provide excellent language models and many opportunities for exposure to typical peer behavior and social skills.

groups (DeLuzio & Girolametto, 2011). Hearing peers' use of appropriate pragmatic language provides opportunities for teachers to facilitate interactions between preschoolers with hearing loss and their same-aged hearing peers.

Caregiver Involvement

When young children transition from Part C to Part B, their home-based service provision becomes less frequent or ends entirely. Yet parents' and caregivers' need for support and knowledge of LSL doesn't end there. Caregivers still require a tremendous amount of support as they continue to learn to teach LSL skills to their young child with hearing loss. To that end, LSL preschool programs often provide support to caregivers and families in a variety of ways (see *Table 6*).

Physical & Occupational Therapy & Preschoolers with Hearing loss

Though many preschoolers do not qualify for occupational and/or physical therapy services, children with hearing loss may have issues with gross and fine motor development, sensory integration, behavioral regulation, and cognitive processing. This could be because of the close proximity and connectedness of the auditory and vestibular systems, underlying sensory problems, environmental causes, or for unknown reasons. Many children do not show signs of motor, sensory, or behavioral issues until beginning preschool when they are required to sit, attend, follow directions, and focus their attention in order to acquire new listening, language, speech, and other developmental skills. Because of this, many programs offer physical and occupational evaluation as well as services.

Table 6 Ways That LSL Preschool Programs Provide Support

Meetings

Caregivers benefit greatly from regularly scheduled parent-teacher meetings in which LSL professionals act as coaches. The goal of these meetings is to build a relationship between caregivers and professionals. The relationship provides a foundation for sharing information and helping caregivers know what to do to foster LSL development within the context of their own family lives.

IEP Conferences

Because caregivers are the most important members of the IEP team, they work closely with other team members throughout the IEP process. Caregivers meet with professionals at least twice per year to write and review a child's IEP. For more information on IEPs, please see *Chapter 10*.

Table 6
(continued)

Home-School Connection

Besides meetings and conferences, teachers communicate with caregivers in a variety of ways to provide information and support:

Daily Communication

Many teachers choose to communicate daily with caregivers. This is often done in person, before and/or after school, in person as caregivers observe in the classrooms, by phone, text or email, or by notes written between teachers and caregivers.

Experience Stories

After teachers and children share an experience and write an experience story, teachers can send the stories home for caregivers to reinforce the concepts, vocabulary, and language. This helps caregivers see what their preschoolers are learning at school and gives caregivers yet another opportunity to help their children practice the language that they are learning through direct instruction while in their most natural environment.

Vocabulary Cards

Teachers may regularly send home vocabulary cards representing the vocabulary that is taught through direct instruction at school. Print is used to label the words, which helps preschoolers learn to make the connection between the picture and the word it represents. Vocabulary cards are a way for caregivers to know what vocabulary their children are learning at school, so they can continue to provide opportunities for their children to practice using those words in natural settings outside of school.

Picture Pages

Teachers might choose to send home a single page containing a picture of the preschoolers engaged in an activity and some target vocabulary and language from that activity. These are intended to provide caregivers with the theme, vocabulary, and language their children are learning at school. They provide a method for caregivers to practice the vocabulary and language at home by using the picture as a prompt.

Newsletters

Many preschool programs send home a weekly or monthly newsletter containing information about upcoming activities and events, a highlighted Star Student or Student of the Week, suggestions for improving listening and language skills at home, suggestions for increasing early literacy skills at home, and activities that relate to the themes for caregivers to try at home with their children.

Special Events

Preschool programs often provide a number of events for caregivers to attend. This could include informational seminars or workshops, back-to-school events, open house, field trips, holiday celebrations, parties, literacy fairs, science fairs, plays or other entertainment, graduation, and end-of-the-year events.

Family Support Services

Some of the best support a caregiver can get is that from another caregiver. Preschool programs often provide support groups for caregivers of young children with hearing loss. The purpose is to provide families with a scheduled time to talk about parenting issues with others who are in similar parenting situations. This could simply include time to talk as well as guest speakers, depending on caregiver

need and request, and/or a system for helping individual caregivers get in touch with each other. When caregivers feel comfortable and welcome in the school community, they not only respond to the school staff more effectively, but they are able to build system relationships with other supportive caregivers. A welcoming climate allows caregivers to support each other in addition to the support received from the staff.

**Prompting is
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Prompting

Prompting is the single most important instructional skill a professional uses to help children improve their language. Well-trained professionals in the field of LSL excel at prompting the use of language. It is an art that takes years of practice and guidance to master. Though it may seem simple by definition and description, it can be very complex and layered.

The importance of prompting lies in the fact that it promotes the child's use of language and development of verbal working memory. The more a child talks, the better he or she becomes at talking. Research shows that verbal working memory is partly developed by using new language, and that young children acquire vocabulary (and language) more rapidly when they have to use and process it frequently (Newbury et al., 2015). For language instruction to be most efficient and effective, a child must use or say the language. The child must talk. For this to happen, the professional must prompt the child to talk.

Prompting opportunities can be divided into three specific instances:

1	When the child has not said anything.
2	When the child has said something, but the utterance contains an error.
3	When the child has said something but did not provide enough information to get his point across.

The following prompting strategies can be used in isolation or in combinations to elicit the child's use of language. For a complete list of these prompting opportunities and strategies, see *Figure 1*.

Use an expectant/ puzzled look.	Use the language in the question.
Request information.	Recast.
Request clarification.	Model for imitation.
Request specific language.	Point.
Request a sentence.	Use print.
Repeat the error.	Withhold materials.
Use false misunderstanding or sabotage.	Use kinesthetic markers.
Comment.	Use mouth shapes.

In addition to prompting, effective instruction includes two key factors:


1	The teacher must use as many prompts as within reason to repeatedly achieve the full target utterance.
2	The teacher must recast or repeat the target again, so the child has another chance to hear the correct production.

For additional LSL teaching behaviors, please see the *Listening & Learning to Talk* chapter.

Framework for Successful Language Instruction for a Diverse Group of Learners

Quality preschool LSL programs may differ in appearance, culture, staff, and other factors. Yet they all include a standard framework for providing instruction. These factors are shown in *Table 7*.

Figure 1
Ways to Prompt Spoken Language

 <i>Ways to Prompt</i> Spoken Language			
Use a puzzled or expectant look in tandem with another prompt. Also try to: <ul style="list-style-type: none"> ■ maintain eye contact ■ tilt your head to the side ■ lean in toward the child ■ raise your eyebrows ■ shrug your shoulders ■ wait for a response 			
REQUEST INFORMATION	ELICITATION (new utterance)	CORRECTION (utterance with an error)	EXPANSION (utterance with insufficient detail)
	Tell me about your picture.	Can you fix that?	Tell me more about that. Tell me a whole sentence about that.
REQUEST CLARIFICATION		Pardon? Excuse me? What did you say? I'm not sure what you mean. I don't understand.	Pardon? Excuse me? What did you say? I'm not sure what you mean. I don't understand.
	Use the word or syntactic element in your request. Tell me about the pencil using <i>under</i> . Make that past tense since it already happened.	Lead the child to the correct language. You forgot an important little word. Let's use three words this time. There are two. There are two – so you can add an s. <i>Is that happening right now?</i> Can you ask a question? He isn't a girl.	Specify word/s the child should use. Tell me more about that using <i>first</i> and <i>then</i> .
REQUEST SPECIFIC LANGUAGE			
	Tell me a sentence about the bear's fur.	Can you tell me that in a sentence? Please tell me a sentence. Now tell me the whole thing.	Can you tell me that in a sentence? Please tell me a sentence. Now tell me the whole thing.
REPEAT A SENTENCE			
		Repeat the child's response with a puzzled look. Did you say "_____?" Add a request to fix the utterance. You said "_____?" Can you fix that?	Repeat the child's response with a puzzled look. Did you say "_____?" Add a request for more information. You said "_____?" Can you tell me more about that?
REPEAT THE ERROR			
	Sabotage the situation. Pour milk into a cup. Keep pouring until the child makes a communicative attempt, even when the milk spills all over the table and floor.	Indicate there was an error by doing exactly what the child says. Teacher holds a box. Ch: Open the bag. Teacher looks around, finds a bag and opens it. Ch: No! T: You said "Open the bag." Ch: Open the box. Ch: Milk on bowl. Teacher turns the bowl upside down and puts the jug of milk on top of it. Ch: Milk in bowl.	Attempt to make sense of the incomplete information. Teacher holds a box. Ch: Open T: Open the door? Ch: No! Open the box.
MISUNDERSTAND OR SABOTAGE			
	T: I went to the movies yesterday. Ch: I like Spiderman movies.	Ch: I have my boots and forgot my umbrella. T: I brought my boots, but forgot my umbrella today, too. (expectant look) Ch: I brought my boots, but forgot my umbrella.	Ch: (referring to a Spiderman lunchbox) I have Spiderman. Teacher points to a sticker on her desk. T: I have a Spiderman sticker on my desk. (gives an expectant look; nods toward the child's lunchbox) Ch: I have a Spiderman lunchbox.
COMMENT			
	Ask a question that obligates the target language. T: Where is the pencil? Ch: Under my desk. Use target language in your question. T: Where should you go? Ch: I should go to the library.	Ask a question while acoustically highlighting the target language. T: Where should you go? Ch: I go to the library. T: Where should you go? Ch: I should go to the library.	Ask a question containing the language of the answer. T: What are some things the native people used? Ch: The native people used fire. T: What did the native people use to cook meals and keep warm? Ch: The native people used fire to cook meals and keep warm.
TARGET LANGUAGE IN A QUESTION			

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Figure 1
(continued)

CID  CENTRAL INSTITUTE FOR THE DEAF *Ways to Prompt Spoken Language (continued)*

	ELICITATION (new utterance)	CORRECTION (utterance with an error)	EXPANSION (utterance with insufficient detail)
RECAST		Repeat the utterance but replace the error with the correct language. Consider acoustically highlighting the corrected word/s. Ch: She has more shoes. T: She has new shoes. Ch: She has new shoes. T: Yes, she has new shoes.	Repeat the utterance, but provide information that was missing. Consider acoustically highlighting the corrected word/s. Ch: She has shoes. T: She has new shoes. Ch: She has new shoes. T: She has new shoes.
USE IMITATION MODELS	Reduction model* T: I want to ... Ch: I want to... T: erase the board. Ch: erase the board. T: Tell me that all together. Ch: I want to erase the board. Complete model T: I want to erase the board. Ch: I want to erase the board. <i>*Use reduction models in two chunks – no more and no less.</i>	Reduction model* Ch: I want wash board. T: I want to ... Ch: I want to... T: erase the board. Ch: erase the board. T: Now tell me all of that. Ch: I want to erase the board. Complete model Ch: I want wash board. T: I want to erase the board. Ch: I want to erase the board. Partial model Ch: I want wash board. T: I want to... (expectant look) Ch: I want to erase the board.	Reduction model* Ch: Erase. T: I want to ... Ch: I want to... T: ...erase the board. Ch: ...erase the board. T: Tell me the whole thing. Ch: I want to erase the board. Complete model Ch: Erase. T: I want to erase the board. Ch: I want to erase the board. Partial model Ch: Erase. T: I want to... (with expectant look) Ch: I want to erase the board.
POINT	Point to an object/picture for the child to label.	Point to indicate an incorrect word. Teacher puts a baby under a chair. T: Where is the baby? Ch: On the chair. Teacher points under the chair with a puzzled look. T: Where is the baby? Ch: Under the chair.	Point to indicate a missing word. Teacher puts a baby under a chair. T: Where is the baby? Ch: Baby chair. Teacher points under the chair with a puzzled look. T: Where is the baby? Ch: Baby under chair.
USE PRINT	Point to target language on a paper or the board.	Write an elliptical sentence on paper or the board. Ch: Bears hibernate on winter. Teacher writes <i>Bears hibernate</i> ____ ____ winter. and asks the child to correct his utterance by filling in the correct words. Ch: Bears hibernate in the winter.	Write an elliptical sentence on paper or the board. Ch: Bears hibernate. Teacher writes <i>Bears hibernate in the</i> ____ ____ ____ and asks the child to expand his utterance by filling in the correct word. Ch: Bears hibernate in the winter.
WITHHOLD MATERIALS	Withhold materials until the child makes a communicative attempt. Place materials in a bag and look in the bag excitedly.	Withhold materials. Provide a corrective prompt until the child uses the target utterance. Ch: Cookie. T: I want... (withholds cookie, uses expectant look) Ch: I want cookie. Teacher gives the child a cookie.	Withhold materials. Provide an expansion prompt until the child uses the target utterance. Ch: I want cookie. T: I want more cookies. (withholds cookie, uses expectant look) Ch: I want more cookies. Teacher gives the child a cookie.
USE KINESTHETIC MARKERS	After a verbal elicitation prompt, use a physical marker to indicate the number of words expected. Hold up three fingers. Provide a complete verbal model. Point to the first finger and say the first word, to the second finger and say the second word, etc.		After a verbal expansion prompt, use a physical marker to indicate the number of words expected. If the child produced only two of the three words in the target utterance, hold up three fingers. Provide a complete verbal model. Point to the first finger and say the first word, to the second and say the second word, etc.
USE MOUTH SHAPES	Make the mouth shape of the initial sound of the target language before child has produced the utterance. Child reaches for more cookies. Teacher makes an /m/ mouth shape for more and holds a cookie next to her mouth. Ch: More.	Make a mouth shape while the child is correcting an utterance. Ch: Cow is on barn. T: The cow is <i>behind</i> the barn. (acoustically highlights <i>behind</i>) Ch: The cow is... Teacher makes an /b/ mouth shape. Ch: ... behind the barn.	Make a mouth shape while the child is expanding an utterance. Ch: I want cookies. T: I want <i>more</i> cookies. (acoustically highlights <i>more</i>) Ch: I want... Teacher makes an /m/ mouth shape. Ch: ... more cookies.

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Table 7

Standard Framework for Preschool LSL Programs

Keep Children Safe	Adjust Lesson Activities & Goals	Know Present Levels of Students
The number one goal for all preschool staff is to protect the children entrusted to their care.	Based on student interest and motivation. When preschoolers lose interest, the lesson stalls, and the learning stops. Yet when children are motivated, they remain engaged and attentive, which leads to more learning.	A student's present levels are the foundation for his or her instruction. Teachers must have a good understanding of the child's abilities in his or her delayed areas of development. These levels are the jumping off point for instruction.
Ensure Access to Sound	Create a Quality Listening Environment	Create a Language-Rich Environment
To learn to listen and talk effectively, preschoolers with hearing loss must wear their hearing devices during all waking hours. All day. Every day. No breaks (except for sleeping and bathing or water play if devices are not waterproof; White & Voss, 2015). Preschoolers should have optimal access to sound at all times, so appropriate and regular audiologic management is essential. Teachers must constantly ensure their students have appropriate access to sound by performing device checks and through the use of Ling checks. Issues with devices or responses to sound should be reported and alleviated immediately.	First and foremost for classrooms, this includes minimizing background noise and promoting the sound of meaningful talk. Background noise can be created in numerous ways in a classroom from functional sounds, such as radiators, fans, and humming of lights, to people-generated sounds, such as chatter, chairs moving across the floor, playing, laughing, and crying. Quality listening environments promote the sound of talk directed to the child and decrease the amount of competing noise.	The preschool environment should be filled with rich, robust, interesting, descriptive, and thought-provoking language. Teachers and all professionals create a language-rich environment by using language that is detailed and repetitive but interesting throughout the day. Preschoolers need practice listening to lots of language—most importantly the language that describes the world around them, including their activities, interests, belongings, work, play, and feelings.



Photo courtesy of John Tracy Clinic

Table 7
(continued)

Use a Continuum of Language Instruction with Varied Settings

Includes structured, conversational, and natural language lessons. The daily schedule should be strategically designed to give preschoolers an opportunity to learn in settings that vary in the amount of structured teaching. The most direct and contrived language periods are structured language lessons, which many preschoolers with hearing loss require to learn new vocabulary and syntactic skills. Structured language lessons

are direct, contrived, repetitive, and overt lessons that focus on repeated prompting of vocabulary and syntax targets. The natural setting for instruction is the typical preschool period called *developmental learning centers*, which is the least structured and most natural. The conversational language period is designed as a stepping-stone for practicing language learned in structured lessons before using it proficiently

in natural settings. Within each of these settings, a teacher can individualize instruction for each of the different children within that setting. This continuum is designed to promote carryover of skills from one setting to the next; thereby increasing preschoolers' facility using skills learned and practiced in each setting. For more information on the continuum of language instruction, see *Language Curriculum* in this chapter.

Purposefully Plan the Number of Children in a Group

Structured language lessons should include one child or two like-learners. Conversational language lessons should include at least two children—so they can have a conversation—but

a maximum of five-to-six—so there aren't too many talkers engaged in the conversation to be practical. Natural language lessons, such as centers, should include a large group of

preschoolers similar in size to a typical preschool classroom. This gives preschoolers with hearing loss a chance to practice their language in an authentic preschool setting.

Appropriately Group Like-Learners for Structured Lessons

Because it is common for preschoolers with hearing loss to exhibit a wide range of diversity in their listening, language, and speech abilities, a method for individualizing instruction for each student is essential. Specific grouping and scheduling techniques allow for

this. For explicit, structured language lessons—direct, contrived, repetitive, and overt lessons that focus on repeated prompting of vocabulary and syntax targets—students might receive individualized, one-on-one instruction. Alternatively, two students can be grouped together

if they are like-learners who are learning to understand and use language at about the same level. In addition, the students in these groupings should be relatively close in age, so that the instruction can be appropriate for the developmental level.

Understand Typical Development for Same-Age Students

Teachers must be very aware of typical listening, language, and speech skills for preschoolers to effectively target these skills in lessons. Many resources exist that

contain developmental milestones. (For a complete list of listening, language, and speech skills for young children, see *Chapter 13* of *Small Talk*, <https://cid.edu/>

[professionals/shop/small-talk-bringing-listening-and-spoken-language-to-your-young-child-with-hearing-loss/](https://cid.edu/professionals/shop/small-talk-bringing-listening-and-spoken-language-to-your-young-child-with-hearing-loss/); White & Voss, 2015).

Table 7
(continued)

Understand & Use the Zone of Proximal Development (ZPD)		
This is the level of learning a person can achieve with help and/or instruction. Teachers use the ZPD to promote learning by encouraging	children to function just above the level of their ability but not so far above their level of ability that they couldn't possibly succeed (Suskind,	2015). For more information on the Zone of Proximal Development, please see the <i>Listening & Learning to Talk</i> chapter.
Create Lesson Objectives		
Based on the skills these students need to be more successful at play. The most efficient way to know that preschoolers truly carry over skills they learn during direct instruction is to observe the use of	those skills during their play. This can include all developmentally appropriate skills, but most notably, listening, language, and speech skills. When direct instruction lessons are designed to foster skills	used during play, children have the advantage of learning those skills through direct instruction and then later, practicing them during their play, with teacher support, if needed.
Know When the Child Has Successfully Mastered a Target		
Then promptly move on. Though review is a good thing, teachers	must not spend time providing direct instruction of skills a child	has already mastered.
Constantly Teach Vocabulary		
Start with real objects and actions, then pretend objects, then real photos of objects/actions/descriptors, then cartoon-like pictures of objects/actions/descriptors. Teach	vocabulary in structured settings, during conversations, before and during read-alouds, walking to and from the classroom, in the lunchroom, at recess, walking to	the bus, and every other time of the day. Preschoolers must know the vocabulary of the world around them, and teachers can use every possible opportunity to teach it.
Use Specific Pacing	Know When Children Need Gross Motor Activity	Carry Over Listening, Language, Speech, & Concepts
That allows for the following: <ul style="list-style-type: none"> • Accomplish the lesson objective . . . • in the amount of time you have . . . • while keeping the students engaged and successful. 	Preschoolers in particular need time to move their bodies. Direct, structured instruction in a chair or at a table can be counterintuitive for a young child, especially for prolonged periods of time. It is typical for a preschooler to need to move. Listening, language, and speech instruction can include gross motor movement if and when necessary.	Children learn best through context and exploration. Allow for themes to tie into one another, so children can learn how concepts are related and practice the same language in a number of different contexts. For example, the language and concepts related to the <i>doctor</i> theme is closely related to that of the <i>pets and vet</i> theme.

Table 7
(continued)

Base Instruction on Experiences

There are two main methods for learning in preschool: through experiences (experience-based learning) and by being exposed to concepts that are not possibly experienced in preschool (abstract learning). Experiences include participation in actual real-life activities, such as gardening, baking, or digging for worms. Abstract learning includes learning about something not experienced in preschool, such as the beach or outer space, through conversations, books, magazines, video, and/or pictures. For typically developing preschoolers, experiences are key to developing the knowledge, understanding, and language

associated with their immediate environment and lives. Typically developing preschoolers learn to understand their environment and use language appropriately by simply “experiencing” events that are standard in their lives. For preschoolers with hearing loss and resultant language delay, experiences are not only critical for exposing them to aspects of their world, but more importantly, experiences serve as the foundation for remediative language instruction. Experiences and their related activities provide the building blocks for improving understanding of these events, improving comprehension of the

vocabulary and language that goes with these events, and improving expressive vocabulary and language related to these events. Teachers often choose to use an experience set to teach the concepts and language related to an experience. The experience set includes:

Activity I. Pre-Experience Activity

Activity II. The Experience

Activity III. Post-Experience Activity

Activity IV. Play or Conversation Activity

Provide a Specific Schedule That Targets All Areas of Development

Though the times and order of periods in the day may differ among preschool program schedules, the components of the schedule are generally the same. The schedule for a LSL preschool must include periods of direct instruction for the areas of delay resulting from hearing loss—auditory, language, speech, and early literacy. In the sample schedule below, note the balance between these specific areas, along with a number of natural learning opportunities typical of preschool programs in general.

8:25 - 8:35	Welcome & Device Check	
8:35 - 9:00	Circle Time	
9:00 - 9:30	Structured Language	
9:30 - 10:00	Gym	
10:00 - 10:45	Snack & Conversational Language	
10:45 - 11:30	Developmental Learning Centers	
11:30 - 12:00	Lunch	
12:00 - 12:45	Recess	Nap
12:45 - 1:30	Early Literacy	
1:30 - 1:40	Music	
1:40 - 2:05	Speech & Auditory Training	
2:05 - 2:30	Story Time & Small-Group Activity	
2:30 - 2:50	Recess	
2:50 - 3:00	Closing Circle Time & Dismissal	

Play

Play is one of the most important activities a preschooler does during the day. Children learn through play. They learn about themselves and their bodies as well as their thoughts, feelings, and abilities through play. They learn about the world through play. They learn about other people through play. Play allows children to develop every single category of age-appropriate skills:

Cognitive	Preacademic
Listening	Gross Motor
Language	Fine Motor
Speech	Social
Problem-Solving	Creativity
Literacy	

No longer is play thought of as a break from teaching and learning. While engaged in play, teachers can model play skills and language and encourage preschoolers to use these skills too.

The Importance of Pretend Play

By the time typically-developing children are about 5 years old, they're able to integrate the skills required for many kinds of play—such as associative, cooperative, symbolic, and dramatic—to then participate in pretend play. Pretend play is the ability to represent familiar experiences with many steps in the correct sequence and to re-enact events with new outcomes. It includes role-playing and requires a significant amount of world knowledge—or knowledge about how things are. Pretend play requires children to have certain cognitive and language skills. Each action in the play is in response to the other players, yet the play follows specific rules about the role of each character. Pretend play also includes goals toward which children work as they engage in play together.

In a doctor/patient play scenario, one child plays doctor while the other plays patient. The doctor follows the rules of play by acting out specific doctor behaviors—she feels the patient's forehead, looks at the patient's throat, gives the patient a shot, tells the patient to take some medicine, and sends the patient home. The patient follows the rules of play by acting out specific patient behaviors—she enters the office acting ill, tells

the doctor her symptoms, lies on the doctor's table, says “ouch” when she gets a shot, and thanks the doctor as she leaves. The goal of this play may be that the patient is treated and feels better after her visit to the doctor.

Preschoolers who are truly able to use pretend play can alter the events in the scenario while continuing to follow the rules and work toward the goal. If the children mentioned above were to switch roles, the patient might tell the doctor her ankle hurts. The doctor would then examine her ankle, tell her it's broken, and put a cast on it. The patient would thank the doctor and limp out of the office. These children are able to consider events associated with a doctor/patient scenario, act out the events in the correct order, and in future play using this same schema alters the events to create new outcomes. Both children work toward the goal of making the patient's ankle better.

Beyond real-life experiences, children who engage in pretend play also can re-enact events they didn't actually experience but learned about from someone else or through books or other media. For example, children often act out the events of a story like *Goldilocks and the Three Bears*. They might pretend to be astronauts who take a space shuttle to the moon, walk around on various planets, and interact with aliens. They might pretend to be cavemen who live among dinosaurs. These are obviously not experiences they've actually had, but through books, television, movies, and other experiences on these topics and the associated events, they can use their language skills, play skills, and imaginations to create scenarios that follow rules and work toward common goals.

Relationship Between Language & Play

By definition, language is a formal set of symbols and rules. It is very abstract. Language requires a person to mentally store and retrieve the words for objects, actions, and descriptors in addition to the rules for combining those words. Language itself is a symbol. Similarly, symbolic play requires a person to represent one thing with something else, such as when using a banana to represent a phone, using a miniature toy horse to represent a real horse, or even

Play is one of the most important activities a preschooler does during the day. Children learn through play.

zooming a little block through the air like an airplane. Both language and play require a person to be able to mentally represent reality (Westby, 2000). Therefore, the relationship between language and play is close and symbiotic.

Symbolic play is a prerequisite to learning language. A child must be able to represent reality with symbols before she can learn to use language. Once a child can represent reality with symbols, she is ready to learn language as a set of symbols. Then as the child develops language skills, she also prepares to use pretend play. When a child engages in pretend play, she is using symbols—toys, miniature objects, her imagination—to represent reality. Pretend play can develop only so far without specific language skills.

Play skills and language skills work like rungs on a ladder. The ladder represents success at play and language. Every other rung of the ladder represents language skills, and the other half of the rungs represent play skills. For a person to move one hand to a “language skills rung” on the ladder, she must have a solid grip with the other hand on the “play skills rung” right below. Then she has to have a solid grip on that “play skills rung” before she can move up to the next rung—“language skills rung.” Children build up to high-level play and language skills by working their way up from low-level play and language skills. Language and play skills are acquired in an alternating fashion. Children who don’t have age-appropriate play skills usually don’t have age-appropriate language skills. Children who don’t have age-appropriate language skills usually don’t have age-appropriate play skills.

Relationship Between Play & Language Skills for Children with Hearing Loss

The relationship between play and language skills is particularly crucial for children with hearing loss learning to listen and talk. If a child’s play skills are delayed, you can expect his or her language skills to also be delayed. If a child’s language skills are delayed, it’s possible that his or her play skills might be delayed. Many people assume children’s play skills just happen, because children are naturally curious and motivated

by toys. In the same way children with hearing loss don’t learn spoken language as readily as children with typical hearing, children with hearing loss often don’t understand or pick up on the intricacies of real-life events as thoroughly as children with typical hearing do. Pretend play requires a child to have a good, solid understanding of experiences and the language that goes with those experiences. For this reason, it’s imperative for professionals working with young children with hearing loss to monitor both language progress and play skill development. One area cannot develop fully without the other.

Relationship Between Play, Language, & Literacy Skills

Language and literacy skills are very closely related, and language and play skills are very closely related. Therefore, it makes sense that play skills are closely related to literacy skills as well. The use of language, the social interaction of play, and the ability to read require a child to have the prerequisite skills listed in *Table 8*.

Language & Play for Children with Hearing Loss

For some children with hearing loss, symbolic play skills are well developed by age 3. These children then must specifically learn the vocabulary and

language required to engage in that play with others (see *Table 9*). Other children with hearing loss have delayed play skills. For these children, the first order of business is to practice early play that doesn’t require language. They need early play skills before they can learn the language and vocabulary to be successful in more complex play.

Teacher-Modeled Play

For some preschool teachers, the concept of playing with students is second nature. For others, their students play with one another, but the teacher herself if rarely involved in the play. When teachers play with preschoolers, they can provide a necessary and important model of vocabulary, language, and play skills important to the play scene. They can also prompt students to use the vocabulary, language, and play skills taught during direct instruction.

Table 8

Prerequisite Skills for Language, Play, & Literacy

Mental Models		
A mental model is a person's thought process about an event or series of events. Pretend play requires a child to represent people, objects, and experiences	with symbols. A mental model is needed to picture in one's mind the people, objects, and experiences before they can be recreated with symbols. Similarly, understanding	a story read from a book requires a child to build in his or her mind a representation of the situation described in the text (Cain & Oakhill, 2007).
Episodic Memory		
Episodic memory is memory of experiences and the series of events that make up that experience. It is the ability to picture an experience in one's mind and tap into that memory when talking about it. It requires a person to relate the present moment to something that already has happened as well as something that could happen in the future	(Tulving, 1993). Episodic memory is required for telling stories, recognizing relationships, understanding cause and effect, making predictions, and making inferences. Episodic memory can be developed through play, which gives children a rehearsal of the experience (Westby & Wilson, 2008). Promoting episodic memory skills can be done using the following procedures:	1 Have an experience.
		2 Talk about the experience.
		3 Discuss feelings about the experience into emotional states that su
		4 Act out the experience. This memories of events.
Theory of Mind	Metacommunicative Strategies	
Ability to understand that others have beliefs, desires, and intentions that are different from one's own. This ability can be developed through pretend play when a child takes on a character and acts the way that character would act (deVilliers, 2005; Gopnik & Astington, 1988; Westby & Wilson, 2008).	Cues indicating how language should be interpreted. They include intonation, facial expressions, and gestures. For example, saying, "That's a nice shirt," with an excited intonation is different from saying, "That's a nice shirt," with a sarcastic intonation.	
Decontextualized Language		
Language that conveys meaning by using only grammar and vocabulary. Using decontextualized language effectively requires the ability to provide enough appropriate language for another person to understand without	background knowledge or contextual clues, such as intonation, facial expressions, or gestures. Children must understand decontextualized language to comprehend written text. Text requires the reader to understand	the details through language alone. In addition, children must be able to use decontextualized language to provide high-level and abstract details in their spoken language (Curenton & Justice, 2004; Westby & Wilson, 2008).
Metalinguistic Language	Metacognitive Language	
Language used to tell about language. For example, "He said . . ." or "She told me to . . ."	Language for telling what one is thinking. For example, "I know . . ." "I wonder . . ." or "I'm thinking that . . ."	

Table 9
Language Requirements for Typical Preschool Play Skills

Appropriately Plays with Toys Designed for Preschool-Aged Children

Examples . . .

Drives little vehicles around a toy garage, airport, or train set.	Though some preschoolers may have language-based thoughts during this play, production of language is not required.
Feeds a doll with a bottle; holds, burps, rocks, and dresses a doll.	
Builds structures with blocks.	
Completes puzzles.	

Understands Preschool Concepts through Experiences

Play skills require children have many “experiences” in their lives. Experiences include everything a child sees and does everywhere she goes. Experiences include baking, cooking, doing laundry, raking leaves, riding in a car, washing a car, bathing, shopping, eating at a restaurant, building things, gardening, going to the zoo, and so on. Experiences allow children to learn about and understand their world.

Examples . . .

Understands the steps to washing a car.	Language is not required but is helpful. Typically developing preschoolers have language at this stage.
Knows the parts of a car and general location of parts.	
Knows the steps in washing a baby.	
Knows the steps in taking a baby on a walk.	

Pretends Real-Life Experiences

Pretending real-life experiences requires that a child actually has the experiences, some understanding of the basic concepts associated with them, and the ability to talk about the play scene.

Examples . . .

Pretends to drive a car.	Language is required.
Pretends to bake a cake or make dinner.	
Pretends to be a passenger or ticket collector at a train station.	
Pretends to hail a taxi to the airport and get on an airplane.	
Pretends to be a schoolteacher or student.	
Pretends to be a waitress or restaurant patron.	

Including Problems in Play

One of the most effective strategies for facilitating play is to create a play problem. Students involved in play then have the task of acknowledging the problem and cooperatively finding a solution with their playmates. Play problems work particularly well within themes that allow for an authentic and meaningful experience. After the experience, teachers can set up a dramatic play scene that allows students to replicate the experience in play. A teacher can then present a problem and facilitate the play as the students work to solve the problem. Some examples of experiences with problems are shown in *Table 10*.

Quality LSL preschool programs can differ in many ways; yet they each have the goal of promoting preschoolers' ability to listen and talk. The general framework and standard programming components of these programs allow them to meet their mission to build LSL skills in young children with hearing loss within the context of play and experience-based learning. The framework and programming components provide a strong foundation upon which educators can use their good teaching skills to develop each child to his or her full potential.

**Quality LSL
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Table 10
Examples of Experiences with Problems in Play

Experience	Symbolic/Pretend Play	Play Problem
A baby comes to school.	Playing house with babies.	The baby is crying.
Going to the apple orchard.	Pretending to pick apples from a tree.	Our bag is empty, and we need to fill it with apples. We need apples to make apple pie.
Baking a birthday cake.	Pretending to bake a birthday cake.	We need to find the ingredients.

Suggested Resources

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 Suskind, D. (2015). *Thirty million words*.
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Chapter 10

Educational Settings

“Hearing loss of any type or degree that occurs in infancy or childhood can interfere with a child’s development of spoken language, reading and writing skills, and academic performance.”

—Cole & Flexer, 2016

Dawn Gettemeier



Photo courtesy of NCHAM

placements and the academic achievements of students who are D/HH. The decision regarding placement is often as contentious as the decision regarding communication methods and teaching approaches. Children who have more significant hearing losses—combined with other factors outlined below—may benefit from specialized programming, especially

when growth in listening and spoken language (LSL) is the goal or when the student needs access to communication partners who are fluent in American Sign Language (ASL).

When considering educational placement along with academic achievement and the importance of social relationships for children who are D/HH, it is important to consider the following topics that will be addressed in this chapter:

IDEA

- Continuum of educational placement options, services, and settings.
- Different roles that certified personnel hold.
- Indicators of academic readiness.
- Importance of social relationships.
- Process of determining placement.

Introduction

With support from qualified professionals in appropriate educational environments, students who are deaf or hard of hearing (D/HH) can achieve academically in ways commensurate with their hearing peers.

The purpose of this chapter is to describe the various educational placement options that can be available to children who are D/HH. Due to Public Law 94-142—passed in 1975 and later reauthorized as the Individuals with Disabilities Education Act (IDEA)—there has been a shift from residential and other separate schools and programs to more educational placements in general education settings. The concept of least restrictive environment (LRE) has increased the attention given to educational

IDEA Overview

Overall, the goal of IDEA is to provide children with disabilities the same opportunity for education as those students who do not have a disability. When reviewing educational options, it is important to understand the aspects of the law with regards to deaf education (Wright, Wright, & O'Connor, 2010). The Office of Special Education Programs—part of the U.S. Department of Education—provides information and resources about IDEA at the IDEA website (<https://sites.ed.gov/idea/about-idea/>). The Council on Exceptional Children provides another excellent source for information on IDEA (<https://www.cec.sped.org/Policy-and-Advocacy/Current-Sped-Gifted-Issues/Individuals-with-Disabilities-Education-Act>).

IDEA is composed of four parts:

A	General aspects of the law.
B	Education of all children with disabilities from age 3 to 21.
C	Services for infants and toddlers with disabilities from birth to age 3.
D	National support programs administered at the federal level.

IDEA has five elements that support the main points:

1	Individualized Education Program (IEP)
2	Free Appropriate Public Education (FAPE)
3	Least Restrictive Environment (LRE)
4	Parent and Teacher Participation
5	Procedural Safeguards

For the purposes of this chapter's focus on educational settings, knowledge of FAPE and LRE is essential.

FAPE

Special education and related services that are provided at the public's expense, under public supervision and direction, and without charge.

- Meets the standards of the state's educational agencies.
- Includes appropriate preschool, elementary, or secondary education.
- Aligns with the IEP.
- Results in educational benefit to the child.

The main idea is that it is the state's responsibility to provide an **appropriate** education with necessary services in order for students to achieve their IEP goals and demonstrate growth in an educational setting. Keep in mind that each state, agency, school community, and/or parents may interpret what is considered **appropriate** differently.

LRE

To the maximum extent appropriate, children with disabilities, including children in public or private institutions or care facilities, are to be educated with children who are **non**disabled; and special classes, separate schooling, or removal of children with disabilities from regular educational environment occurs only if the nature or severity of the disability is such that education in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily.

The LRE is the environment most like that of typical children in which a child with a disability can succeed academically as measured by specific goals on the IEP.

When discussing the LRE, there are two questions to consider:

1	Can an appropriate education in the general education classroom with the use of supplementary aids and services be achieved satisfactorily?
2	If placed in a more restrictive setting, is the student integrated to the maximum extent appropriate?

Overall, the goal of IDEA is to provide children with disabilities the same opportunity for education as those students who do not have a disability.

Again, the words *satisfactorily* and *appropriate*, along with supporting verbiage, is often viewed more subjectively than objectively. It can be difficult for an IEP team to come to a conclusion as to what is appropriate for a student, which is why it is so important for the team to work collaboratively and consider what is best for each individual student.

Continuum of Placement, Services, & Settings

While there are a variety of ways that terms related to placement, services, and settings are defined, the definitions found in *Table 1* will be used in this chapter.

Table 1
Definitions of Terms Related to Placement, Services, & Settings

Definitions of Terms for Placement		
Inclusion	Mainstreaming	Reverse Mainstreaming
<p>The placement of a student into general education classes regardless of the degree or severity of a disability. An inclusive classroom and the LRE may be the same placement for a child who is D/HH, but that may not always be the case.</p> <p>For example, a student with a moderate, unilateral hearing loss who does well academically, is socially appropriate, and has good self-advocacy skills could benefit from an inclusion placement. A student with significant gaps in language and literacy may not be able to learn in an inclusive setting. Special education professionals and parents may disagree on inclusive placements, and these decisions will be made in IEP meetings or through mediation or due-process hearings.</p>	<p>The process of integrating a student with a disability in a regular education school setting, but only if they can follow the mainstream curriculum academically without any issues and without the regular education teacher needing to make adaptations to the curriculum.</p> <p>An example of mainstreaming is a student with a profound, bilateral hearing loss who does well academically and socially in a general education classroom with support and/or consult with a teacher of the deaf (TOD). The TOD may preteach vocabulary, language, and academic concepts. However, the regular education teacher doesn't make any adaptations to the curriculum.</p>	<p>The practice of bringing typical peers into the special education classroom of students who are D/HH to provide opportunities for interaction.</p> <p>For example, a private preschool program for students who are D/HH enrolls typical hearing peers into their program. The hearing peers model age-appropriate language and social interactions.</p>

Table 1
(continued)

Definitions of Terms for Services			
Remediation	Accommodations	Modifications	
<p>Teaching that includes identification of a student's specific learning skill deficit and corrective, remedial, or clinical approaches to improve that deficit.</p> <p>For example, a student who is having trouble learning to read may get extra help on individual phonics work.</p>	<p>The adjustments that the school provides that will make a student more successful academically. These may include strategies to bypass a weak function or skill.</p> <p>For example, a student with handwriting issues may use a keyboard for written assignments.</p>	<p>Changes that a school or teacher may make to the curriculum. This may result in a modified grade or diploma at the high school level.</p> <p>For example, a student who has a challenging learning disability in math may have fewer math problems assigned.</p>	
Definitions of Terms for Settings			
Class Within a Class (CWC) or Co-Taught (CT)	Push-In	Pull-Out	Resource Room
<p>CWC is an inclusion model of service delivery for students with mild to moderate disabilities. CT is a collaborative teaching model that pairs a special education teacher with a general education teacher. These two professionals co-plan and co-teach. The general education teacher is the curriculum expert, and the special education teacher is the strategic expert when co-planning. Planning also involves deciding which teacher is the lead and which is the support for each lesson. Successful planning provides for the education of all students who are in a CWC classroom.</p>	<p>This type of therapy involves a TOD and/ or a therapist (speech-language therapist, occupational therapist, or physical therapist) working with a student in the classroom along with the general education teacher (Miller, 2014).</p>	<p>This type of therapy is provided by the TOD or other therapist outside of the general education classroom (Miller, 2014).</p>	<p>A classroom in a student's school where special program services are provided by the TOD.</p>

Placement Options

The placement options shown in *Table 2* are often used for students who are D/HH.

Certified Personnel

Students who are D/HH often receive services from a number of professionals, including those shown in *Table 3*.

Table 2
Placement Options for Students Who Are D/HH

Local Public School Classroom

Students with disabilities are taught in a general education classroom alongside their peers. Supports are offered in the classroom in several different ways. First a TOD and/or special education teacher may come into the classroom and co-teach with the general education teacher for portions of the day. Services may also be provided to the students by an instructional assistant or aide working under the direction of the special education teacher. Finally, the classroom teacher may provide services to the student by collaborating with the TOD and/or special education teacher. In any of these scenarios, the instruction and assignments in the classroom need to be differentiated in order to meet the needs of students with disabilities.

Pros	Cons
In a regular education public school placement, students who are D/HH receive the maximum exposure to nondisabled peers. This placement is beneficial for students who are able to learn in a general education classroom with minimal outside support.	Special education services in a local public school may not be as intensive as those offered in more structured environments. Students having difficulty with listening in noisier environments, expressive and receptive language skills, and academics may feel overwhelmed or frustrated.

Public School Classroom with Resource Room Support

The resource room is a classroom in the school setting where a TOD and/or special education teacher works individually or with small groups of students for certain subjects during the school day. Students attend a general education classroom but receive pull-out services in the resource room for portions of the day. The purpose of the resource room is to provide more intensive and individualized instruction for students with disabilities. This level of instruction is not available to students in a general education classroom. The amount of time that students spend in a resource room should be clearly defined in the services section of the IEP.

Pros	Cons
Students receive instruction in a quieter, small-group setting at an individualized level and pace. Instruction is tailored for the individual needs of each student.	While in the resource room, students are not educated with their typically developing peers. Students may encounter or perceive negative stigma from their peers for going to the resource room. This is more common in the upper grades than in primary grades.

Table 2
(continued)

Separate Classroom in Public School/Self-Contained Classroom

Self-contained classrooms are special education classrooms designed to meet the academic, social, and behavioral needs of students who would otherwise struggle in a typical classroom. Self-contained classrooms are taught by a certified special education teacher trained to work with a specific population of students. A TOD is usually in a more supportive role, although in some districts there may be resource rooms that are staffed by a TOD. These classrooms often have a specific focus, such as autism, behavior, or cognitive delays. There is a lower student-teacher ratio. Typically these classrooms have approximately ten students with one teacher and several instructional assistant, or paraeducators. Students may spend their entire day in a self-contained setting or have a combination of time in the self-contained classroom and time in mainstreamed classes with their peers.

Pros	Cons
Self-contained classrooms are usually highly structured and designed to provide enhanced services to students who require more support than services available in the general education setting. Students receive instruction in a small-group environment with a highly trained special education teacher.	Social interaction with typical peers is reduced. Access to a TOD is often limited.

Separate Nonresidential Schools—Public or Private/Out of District

Sometimes a student may have educational needs that cannot be met within the programs available in a public school district. At times, an out-of-district placement in a nearby public school district or in a private school setting may be necessary. Most communities have private or not-for-profit schools that specialize in a variety of areas, such as autism, behavior, and schools for students who are deaf and/or blind. Public schools vary in their available programming. If they are unable to provide the appropriate special education services that students need, they are legally required to pay for tuition and transportation to an out-of-district placement.

Pros	Cons
Out-of-district placements are highly specialized schools with certified staff trained to work with a specific population of students. Services are based on best practices, the most current research and materials are utilized, and most schools have direct access to more immediate audiological support. Students receive all day, direct support from staff who are highly trained and certified.	Exposure to typically developing peers is generally not available. Depending on the location of the school, it may be a long commute for the students. Due to students not attending their home school, they may find it difficult to fit in with their neighborhood peers and community. Such placements are extremely costly for school districts. School districts are held accountable to the state department of education for explaining such expenditures and balancing that with why they don't have their own program.

Table 2
(continued)

Residential State Schools for the Deaf

All states, except for Nebraska and Wyoming, have a public state school with a residential option (<http://www.deafed.net/PageText.asp?hdnPageId=105>). Most state schools use both sign language and spoken language with the emphasis being on sign language. For more information about state schools for the deaf, see the website for the Conference of Educational Administrators of Schools & Programs for the Deaf (www.ceasd.org/).

Pros	Cons
There is a sense of community for the students, since they are surrounded by their deaf peers at all times. Some students decide to attend a school for the deaf because of the academics and sense of community they find there.	Students may feel left out and isolated from their own families. And if LSL is the communication goal, there isn't as much support due to the focus of most state schools on Deaf Culture and sign language.

OPTION Schools, Inc.

This coalition of schools advance LSL education by supporting and promoting educational options for students, measuring outcomes, establishing and sharing best practices, and raising awareness through advocacy (www.optionschools.org).

Pros	Cons
Shared access to the most current research, methods, and best practices in deaf education that benefits families that have chosen the communication mode of LSL.	While an excellent resource and option, not always readily available due to the limited number of programs.

Teleintervention/Teletherapy

Teletherapy offers support for both families and schools towards helping students obtain services via the internet (Stredler-Brown & Alverson, 2012). Academic supports, speech therapy, audition therapy, and consultation are some of the options available. This is a good option for families and/or school districts that do not have immediate access to a TOD (<https://sjid.org/services/ihear-internet-therapy/>).

Pros	Cons
Teletherapy offers services for those who may not have access otherwise.	There are costs related to the technology and updating equipment. There may be issues with internet failure and internet access.

Homebound or Hospital Environment

Homebound instruction is a service available to students ages 3 to 21 who, because of their medical and/or psychological condition(s), require instruction outside of school as a result of hospitalization or a medical/psychological condition that prevents their school attendance for an extended time. The time allotted for these services is considerably less compared to time spent in attending school daily.

Pros	Cons
Students at least have access to some services and one-on-one time with a teacher.	The students usually have limited time with an educator and no opportunity to learn with peers.

Table 3

Professional Services for Students Who Are D/HH

Teacher of the Deaf (TOD)		
<p>A teacher that has completed college programming in deaf education to become certified to teach children who are D/HH. Depending on the deaf education program at a given college or university, communication modes are focused on LSL or sign language. Some programs are described as comprehensive and address both spoken language and sign language. TODs who attend a deaf education professional preparation program that focuses on LSL are trained in the components of receptive and expressive language, literacy, auditory development, speech, and academics. The curriculum includes content on hearing assistive technology, including hearing aids, cochlear implants, and classroom</p>	<p>listening systems. TODs who attend a deaf education professional preparation program that focuses on sign language will study receptive and expressive language, literacy, and sign language.</p> <p>Listening and Spoken Language Specialist (LSLS) Certification. Some TODs take the extra step of obtaining LSLS certification via the Alexander Graham Bell Academy. Teachers participate in professional learning and mentoring and demonstrate knowledge of the nine LSLS domains via a rigorous exam (http://www.agbell.org/Academy.aspx?id=555).</p> <p>A TOD may provide services in a variety of ways depending on the educational needs of the student.</p>	<p>The following terms describe some of the support provided by a TOD:</p> <ul style="list-style-type: none"> • Full access. When a student has access to a TOD the majority of the day. • Hearing itinerant. A TOD that will usually travel from school to school providing pull-out and/or push-in therapy and services (Compton, Appenzeler, & Kemmery, 2015; Luckner & Ayantoye, 2013). See the Itinerant Teaching chapter for more information about itinerant teaching. • Consult. A TOD that is available to the rest of the staff for advice, inservices, classroom observations, and for trouble-shooting issues with hearing devices and/or classroom listening equipment.
Special Education Teacher	Speech-Language Pathologist (SLP)	Regular Education Teacher
<p>Special education teachers can provide resource room and/or general education support.</p>	<p>Depending on training and experience, SLPs can offer speech and auditory therapy. Service options can include pull-out and/or push-in, individual, and/or small-group instruction.</p>	<p>A teacher who teaches in a general education classroom.</p>
Sign Language Interpreters	Paraprofessionals	
<p>A trained staff member whose job it is to sign information to students in a variety of settings—the classroom, assemblies, after-school activities, etc. It is not their job to assist the teachers, explain the content, or teach the student.</p>	<p>Also known as a shadow, teacher aide, teacher assistant—a trained worker who is not a member of a given profession but assists a certified professional. The paraprofessional is there to provide support to the students. This can include small-group review work, preteaching vocabulary, and academic support. It does not include direct instruction of new material.</p>	



Photo courtesy of NCHAM

Indicators of Academic Readiness

Academic readiness is one of many factors that the IEP team takes into consideration when determining placement for a student who is D/HH. The most obvious indicator, of course, is if the student is performing on grade level academically. Most classrooms have students who are functioning below grade level, on target, and above grade level. For example, if an IEP team is considering a student for placement in a fourth-grade class, some of the students may be reading at a third-grade level, some at the fourth-grade, and others at a fifth-grade level. Therefore, if a student who is D/HH is reading at the third-grade level, he could still possibly function just fine. However, it isn't always as simple as that. There are many other questions to ask that will also help determine if a student is academically ready for a given placement:

1	Does the student have appropriate classroom behaviors? <ul style="list-style-type: none"> • Raises hand to be recognized. • Follows directions. • Has good organizational skills.
2	How developed are the student's language skills, including vocabulary, content, structure, and pragmatics? For a student using LSL to communicate, can he comprehend what he has heard? Can he give that information back verbally or in a written format? For a student who uses sign language, can she understand and/or keep up with a sign language interpreter?
3	If a student uses hearing devices, does he receive good benefit? Is he a good reporter if something isn't working?
4	Is the student's speech intelligible to unfamiliar listeners?
5	How does the student cognitively process? <ul style="list-style-type: none"> • Learning style. • Awareness of one's strengths and weaknesses. • Knowledge of strategies to support challenges.
6	Is there a presence of other learning issues? If so, what supports would be needed?
7	Does the student advocate for herself?
8	How motivated is the student to succeed?
9	What kind of family support does this student have?

How Is Placement Determined?

Placement is determined by the IEP team, which consists of the parents, the student (if appropriate), TOD, general education teacher, and a representative of the local education agency (LEA). The LEA representative is usually the school administrator or principal. The team may also include related service providers, other administrators, school psychologists, school counselors, transition coordinators, or other individuals who have knowledge about the student. According to IDEA, placement decisions must involve the parent and cannot be predetermined prior to an IEP meeting (<https://sites.ed.gov/idea/>).

Placement decisions are based on the needs of the student. The law specifies that students must be educated in their LRE. This means to the maximum extent appropriate, students with disabilities should be educated with nondisabled peers in their home school. However, the general education classroom isn't always a student's LRE. For some students with disabilities, this setting can be highly restrictive, because the student may not be able to process the general education curriculum. Placement decisions are extremely individualized and must always take into consideration the unique needs of each student (Guardino, 2008).

In the last 15 years, many public school districts have formed working relationships with private schools that specialize in deaf education, especially schools that have created programs focused on LSL. Some school districts recognize the value of early intervention, auditory therapy, speech therapy, development of expressive and receptive language skills, emerging literacy skills, and academics. Educators are aware of how highly trained, certified, and knowledgeable the faculty are, and that they can't always replicate that. It is also expected that when a student exhibits good growth in consistently meeting their IEP goals that the team will work together to have her mainstream back to her home school with the proper supports in place.

Academic readiness is one of many factors that the IEP team takes into consideration when determining placement for a student who is D/HH.

“Cooperation is when one person engages another person to achieve the goals of the first person. Collaboration is when two or more people engage in a mutually beneficial relationship that allows all involved to achieve goals while remaining true to beliefs and mission.”

—National Association
of State Directors
of Special Education, Inc.

When determining placement, IEP meetings can be fraught with conflict—perceived or otherwise. Is the team working together in *cooperation* or *collaboration*? It is always in the best interest of the student to keep in mind that it is critically important for every member of the IEP team to approach each meeting, each discussion in the most collaborative manner possible. It is the team’s responsibility to go through the student’s IEP *first* to determine what the student needs to access his IEP goals. It is only after most of the IEP has been conducted, and the team arrives at the *Placement Decisions and Considerations* page that the team can determine placement.

In the broadest sense, parents have the responsibility to choose the educational setting for their child—public education, homeschooling, or education in a private institution. For the parent who has chosen public education, they are then part of a decision-making team

through the IEP process in determining services, supports, and placement issues. When a parent chooses homeschooling or a private placement, a different set of rules apply to what they can and cannot expect from special education under IDEA (<https://sites.ed.gov/idea/>).

When it comes to who is making the decision about school placement in public education, the law is clear.

For children who are D/HH, their communication needs set them apart from children with other disabilities. The law has delineated those needs.

IDEA states . . .

“The IEP team shall consider the communication needs of the child, and in the case of a child who is D/HH, consider the child’s language and communication needs, opportunities for direct communications with peers, and professional personnel in the child’s language and communication mode, academic level, and full range of needs, including opportunities for direct instruction in the child’s language and communication mode” (IDEA, Sec. 300.46 (a)(2)(iv); <https://sites.ed.gov/idea/>).

But how does the “consideration of communication needs” mesh with the general applicability of the LRE concept? The individualized needs of the student become the primary predictor of the placement decision. IDEA regulations state that in all cases, placement decisions must be individually determined on the basis of each child’s abilities and needs and not solely on factors, such as category of disability, significance of disability, availability of special education and related services, configuration of the service delivery system, availability of space, or administrative convenience.

IDEA states . . .

“Rather, each student’s IEP forms the basis for the placement decision. Further, a student need not fail in the regular classroom before another placement can be considered. Conversely, IDEA does not require that a student demonstrate achievement of a specific performance level as a prerequisite for placement in a regular education classroom” (IDEA, Appendix A, Section 1(1); <https://sites.ed.gov/idea/>).

In conclusion, the whole team, working collaboratively—diligently following the IEP process—should:

- First, discuss how to best support a student’s needs through the IEP goals developed by the team.
- Next, honor the mandate of LRE.
- Then, determine placement of what is in the **best interest of the student** educationally both academically and socially.

IDEA states . . .

“In determining the educational placement of a child with a disability, each public agency shall ensure that the placement decision is made by a group of persons, including the parents and other persons knowledgeable about the child, the meaning of the evaluation data, and the placement options” (IDEA, Sec. 300.552(a)(1); <https://sites.ed.gov/idea/>).

The Importance of Social Relationships

It is imperative to have all aspects of a student's academic education arranged and the appropriate supports put into place. Sometimes during the IEP process, professionals forget or do not place enough stress on the importance of a student's self-esteem and the correlation to positive social relationships. When asked, many parents will say it is more important for their child to succeed academically than to fit in with their peers. While that is important, a number of parents in their heart of hearts will admit that if asked to choose, they would pick social acceptance first. So why not make academics and social relations both a priority!

The U.S. Department of Education believes that it is important that state and local education agencies, in developing an IEP for a child who has a hearing loss, take into consideration such factors as:

- Communication needs and the child's and family's preferred mode of communications.
- Linguistic needs.
- Severity of hearing loss and potential for using residual hearing.
- Academic level.
- Social and emotional needs, including opportunities for peer interactions and communications (Deaf Students Education Services; Policy Guidance, U.S. Department of Education).

It is well documented that meeting a child's social and emotional needs contributes to positive self-esteem. Good self-esteem can help further academic success and lifelong happiness. Many studies have demonstrated that the more family support a student receives, the more likely it is the student will succeed academically and socially (Antia, Jones, Kreimeyer, Reed, & Luckner, 2011).

It is imperative to have all aspects of a student's academic education arranged and the appropriate supports put into place.

Families need to ...

- Include the child in family discussions.
- Be both realistic and positive about the child's strengths and weaknesses.
- Model good listening behaviors.
- Encourage appropriate risk-taking behaviors.
- Teach manners.
- Have consistent consequences for inappropriate behaviors.
- Have a positive attitude about the child's hearing loss and use of amplification.
- Be educated with regards to the child's audiological needs.
- Be involved in their child's school and community.

Oftentimes it can be difficult for a child with hearing loss to build appropriate social relationships. Families and schools can provide support by having the child engage in various activities with both hearing and non-hearing peers, including community and school activities.

Community Activities	School Activities
Sports	Choir
Religious Communities	Band
Scouts	Drama Club
Summer Camps	Dance Line
	Cheerleading
	School Newspaper
	Yearbook Committee
	Community Service Projects

The following strategies may support students who are D/HH in social interactions:

- Role-play new or doubtful situations at home before the encounter and rehearse conversational repair strategies.
- Use a buddy system.
- Find deaf support communities for both the students and families (online, local clubs, AG Bell, Hands & Voices).
- Monitor use of social media.
- Keep the lines of communication open regarding the child's hearing loss through the years as a toddler, child, adolescent, teenager, and adult. Most parents have already gone through the stages of grieving their child's hearing loss. Oftentimes upon becoming an adolescent, the realization that the hearing loss isn't going to go away can trigger one's own process of grieving. This may take a few days or a few years.

- Use humor to help children and their families when dealing with the unfairness of having a hearing loss, especially if a child has experienced someone making fun of them.



Photo courtesy of NCHAM

"I really hope we can laugh . . .

I believe that laughing was probably God's best idea. It will be the one thing that can bring joy to our lives the quickest. If I get stuck in a mud puddle, it is probably funny. If you are lifting me, and we both fall on the floor in a heap, that is probably funny too. A good joke is worth taking the time to laugh at. Help me not get so caught up in the serious problems we face every day to forget about laughing."

—*The Ten Things I Wish You Knew*, Sally Brown/AG Bell

Resources

- Individuals with Disabilities Education Act, Office of Special Education Programs, <https://sites.ed.gov/idea/about-idea/>
- AG Bell Association, <http://www.agbell.org/families/family-resources/educational-law-definitions.aspx#idea>
- Council for Exceptional Children, <https://www.cec.sped.org/Policy-and-Advocacy/Current-Sped-Gifted-Issues/Individuals-with-Disabilities-Education-Act>
- Hands & Voices, School Placement Considerations for Students Who Are Deaf and Hard of Hearing, <http://www.handsandvoices.org/needs/placement.htm>
- Success for Kids with Hearing Loss, <http://successforkidswithhearingloss.com/social-skills-dhh/>

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Chapter 11

Instructional Planning: Evidence-Based Assessment & Intervention

Lauri Nelson & Blane Trautwein

Children with hearing loss receive many assessments beginning early in life. The first assessment—an audiological evaluation—typically occurs soon after birth as a result of universal newborn hearing screening. Please see the *Pediatric Audiology* chapter to learn more about ear anatomy, physiology, and the components of the audiological evaluation. Other assessments throughout early education and beyond include:

- Evaluation of listening skills development (auditory perception)
- Speech production
- Language comprehension (receptive language) and expression (expressive language)
- Academics



Photo courtesy of Sound Beginnings/Utah State University

As 25-40% of children with hearing loss also have additional disabilities (Dettman et al., 2004), other evaluations may include:

- Assessments of cognitive functioning
- Fine/gross motor skills
- Attention
- Developmental delays
- Vision

It is important to understand the various

types of assessments available and how to make appropriate assessment selections and intervention decisions. This chapter will describe:

- Assessment types, including criterion-based, norm-referenced, and language sampling.
- Considerations in developing language targets and language scripts.

- Components of weekly and daily lesson plans.
- Curriculum selections and common components of the preschool day.

Assessments

When evaluating a child, measurement type must be considered.

Criterion-Based Assessments

Measure performance based upon a set of standards similar to a test given in a classroom environment. Results reflect individual performance relative to the criteria being measured. Sources for test items may be related to academic subject content, specific skills, or criteria established by typical developmental milestones. For example, a test item may ask a child to identify the main idea of a brief story after presentation. These sources should reflect validity—the notion that test questions or responses accurately measure each criterion. As criterion-based assessments are based upon individual performance, it's plausible that each person taking the test could achieve a passing or even a high score. Results can be used as an ongoing assessment of skill attainment (formative evaluation) or at the end of a unit to determine an end score (summative evaluation).

Norm-Referenced Assessments

Measure individual performance on an evaluation relative to a peer group (i.e., the language performance of a 4-year-old compared to other 4-year-olds participating in the same evaluation). Norm-referenced assessments are **standardized**—meaning that controls regarding test administration, chronological ages of participants, dates of testing, and other factors are established in order to provide uniformity. **Reliability**—related to consistent overall assessment results over time—is also considered with validity. When describing results of a norm-referenced test, a bell curve is used.

The bell curve—more formally known as **normal distribution**—is a graph that represents a distribution of test scores relative to a group. The center of the graph contains scores in the average range, which represents the performance of the majority of test participants. Standard scores are used to describe average performance within a range of 85 (low average) to 115 (high average). A standard score of 100 represents the average—or mean—of all standard scores. Scores below 85 are described as standard deviations with ranges

including 85-70, 70-55, and <55. Typically a child must score 2 standard deviations below (<70) to qualify for special education services. Conversely, scores above 115 are also described as standard deviations with ranges including 115-130, 130-145, and >145. Typically a child who scores 2 deviations above (>130) is considered gifted.

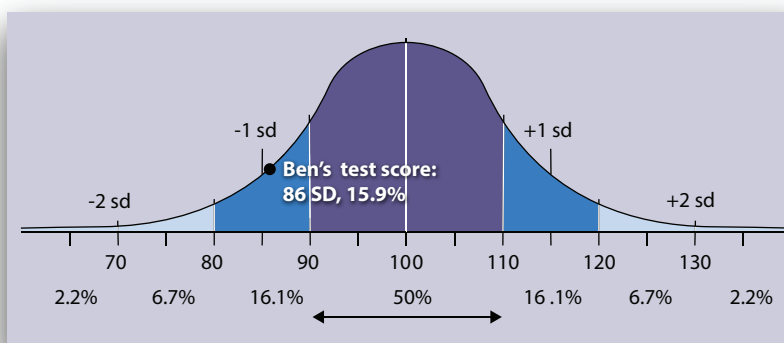
Percentile ranks are also typically reflected on a bell curve. This ranking provides additional information regarding individual test performance relative to a group. For example, a standard score of 105 relates to a percentile rank of 63. If 100 individuals took this same test, we would assume (based upon a percentile rank of 63) that 37 individuals would achieve a higher score.

Consider the following scenario:

Ben and his family have participated in a listening and spoken language (LSL) program since infancy. He has a profound hearing loss and has bilateral cochlear implants. His language was evaluated using a norm-referenced test, and he received a standard score of 86 for language.

The information on the bell curve in *Figure 1* reflects his current overall score on a norm-referenced evaluation.

Figure 1
Bell Curve for Ben



1	How would you describe Ben's current language functioning in terms of the bell curve and percentile?
2	Ben received a similar score last year on the same assessment. What does this say about his language growth?
3	Do you think that Ben would receive services in a public school program? Why or why not?
4	What rationale could be used to support the provision of services?

Ben is currently functioning in the low-average range. When considering performance relative to his peers, a percentile rank would be used. In this example, Ben is at the 16th percentile—meaning that if 100 peers participated in the evaluation, 84 would score higher than him.

Ben's similar score from a previous year indicates that he has made a year's language growth in a year's time. Keep in mind that his peers without a hearing loss also continued language growth during the year. As they made a year's growth, Ben had to make similar strides to maintain his score. In order for Ben to move into average or above-average performance, he would need to make more than a year's growth. Current testing places Ben within the low-average range of the bell curve. Typically school districts stipulate that a child must score 2 deviations below average to qualify for special education services. Rationale to support continuation of services may include a listing and discussion of services previously provided with the argument that all were necessary to reach this level of performance. This may, however, be difficult to advocate as services are often provided for remediation rather than maintenance.

Language Samples

Norm-referenced evaluations provide clinicians and teachers a comparison of individual differences relative to a group of peers. Because not all areas of language can be assessed in one test administration, results reflect general assumptions regarding language performance. These assumptions may point to a general area of weakness rather than a particular language target. In addition, norm-referenced evaluations often

incorporate imitative or highly structured responses that may not reflect production in an unstructured (spontaneous) environment. **Language sampling** allows professionals to gain specific insights regarding a child's natural language production. For example, is a child able to use "is" in a structured activity, but fails to do so during unprompted conversation? Ideally, language sampling occurs within the context of spontaneous language used throughout a child's day and is recorded by both parents and professionals.

Practitioners may also elicit a spontaneous language sample from a young child. There are several methods that can be employed:

Play-Based

Use familiar or novel toys in a free-play activity.

Conversation

Engage in dialogue within a familiar or novel (open set) context.

Narrative

Ask for details regarding a life event or a story (literature or sequence cards).

Expository

Provide a description or delineate the sequence of a process. Can you tell me how to make a peanut butter sandwich (Westerveld & Claessen, 2014)?

In each activity, the teacher seeks to continue spontaneous language by asking open-ended questions, encouraging play, seeking clarification, and providing relative comments. Samples can be taped and later analyzed to determine both language strengths and deficits.

When analyzing a language sample, three aspects of language known as **form**, **content**, and **use** are considered (see Table 1).

Language sampling allows professionals to gain specific insights regarding a child's natural language production.

Table 1
Three Aspects of Language

Form

Refers to *syntax*, *morphology*, and *phonology*.

There are many resources available to assist with analyzation of language samples and selection language targets. Here are a few:

Cottage Acquisition Scales for Listening, Language, & Speech	Teacher Assessment of Spoken Language	Mean Length of Utterance
Provides a tracking system of language development based upon typical development from preverbal to complex production. Also included are listening, cognition, pragmatics, and speech (Wilkes, 1999).	Evaluates sentence structure development (Moog & Biedenstein, 2010).	Evaluates language complexity by counting phonemes from a language sample consisting of 50-100 utterances. The total number of morphemes is then divided by the total number of utterances—resulting in a mean length of utterance (MLU). MLU is correlated to language complexity levels (Brown, 1973).

Syntax

Also known as grammar, syntax includes items, such as nouns, verbs, adjectives, adverbs, infinitives, etc.

Morphology

The smallest grammatical units of language are called *morphemes* and are identified as indivisible units. For example, the word *boy*, the prefix *pre-*, the suffix *-ment*, and the tense marker *-ed* cannot be divided without creating meaningless units.

Phonology

Refers to the individual sounds of speech and the rules associated with placement in words (English has 43!).

Table 1
(continued)

Content

Also known as semantics, content is the meaning of language. A child's conceptual framework—or world knowledge—is impacted by attainment of vocabulary. Three levels—or tiers—are often used to describe amount or breadth of vocabulary known by a child.

Tier 1	Tier 2	Tier 3
Consists of basic words, typically without multiple meanings, which appear in a child's vocabulary without direct instruction, such as book, run, and boy.	Vocabulary is described as the language of literature, adult conversation, and learning in schools. Words such as fortunate, obvious, and verify are included in this level.	Consists of low-frequency vocabulary used in specific content areas, such as isotope, otolaryngology, and integer (Beck & McKeown, 1985).

In addition to word knowledge, children also learn word characteristics, such as:

Phonemic	Syntactic
Morphemic	Semantic
Graphemic (letter or letters that represent a sound in a word)	
Collocational (words that often appear together, such as "take a risk")	
Phraseological (idioms) properties	

Type Token Ratio (Templin, 1957) can be used to evaluate vocabulary diversity within a spontaneous language sample. To calculate, words from utterances are placed under the following headings:

Nouns	Pronouns
Verbs	Conjunctions
Adjectives	Negatives/Affirmatives
Adverbs	Articles
Prepositions	Wh-words

Each word is counted once to gain a total of different words used. The total number of words, which includes each instance of a word being used, is determined next. Type Token Ratio is calculated by dividing the total number of different words by the total number of words used. Ratios can then be compared to norms associated with same-age peers.

Table 1
(continued)

Use

Refers to pragmatic aspects of language or the way language is used. A child's ability to successfully participate socially in conversation relies on a knowledge of discourse initiation, the back and forth aspects of conversation, and dialogue completion. To initiate a conversation, rules related to selecting the appropriate type of language to be used with a conversational partner (i.e., speaking to a peer versus an adult) must be followed. Conversation is maintained when a speaker is able to use language for a variety of intents, such as a greeting, asking permission, demanding, etc. Effective use of both verbal and nonverbal cues assists with changing a topic or the ending of a conversation.

When evaluating pragmatic aspects of a language sample, both contingent responses and conversational turns should be considered. A contingent response follows the conversation topic, such as being asked, "How are you feeling today?" and responding, "I'm feeling much better." Conversational turns relate to the number of exchanges occurring within a dialogue that assist in continuing discourse. Limits in form and content may cause deficits in contingent responses and conversational turns. These limits should be assessed before consideration of pragmatic remediation.

Language Targets

Results of standardized testing and language sampling assist with choosing language targets when working with children who have hearing loss. *Table 2* briefly describes each step.

Teachers of children with hearing loss create language educational settings in which individual and common language targets have been identified, are used and elicited throughout daily learning activities, and can be easily identified by anyone observing.

Table 2
Steps to Choosing Language Targets

Step	Description
Assess & Sample	Assess: Standardized testing. Sample: Language sampling.
Analyze	<ul style="list-style-type: none"> What are the general strengths and weaknesses as determined by the evaluation? What does the language sample reflect specifically in form, content, and use?
Target	What language targets are needed to develop?
Model/Conversation	Targets are used by the teacher to build receptive comprehension.
Production	Language targets are elicited via structured activities with the goal of spontaneous usage in daily life.

Consider the following scenario:

After an analysis of standardized testing and a language sample, Beth has chosen the following language targets to use in a prekindergarten language activity:

Take two conversational turns.
Uses color/size adjective.
Uses subject pronouns you, I, it.
Uses adverbs of place (on top of, under).

Beth has created two language activities for use in a current thematic unit about different forms of transportation. Review *Table 3*, and then answer the following questions:

1	How do the two language activities differ?
2	What is the purpose of a language script?
3	How do comments (“ <i>I wonder where the airplane will go.</i> ”) and questions (“ <i>What do think he will do?</i> ”) encourage conversational turns? What other learning do these promote?

The first language activity involves the creation of an airplane as a means of discussing this form of transportation. At the end of the experience, children have used language to provide activity instructions (imperatives), descriptions of airplanes, and the sequence of events related to making an airplane. This type of language activity is **process** focused. Process language activities often have a tangible ending product—as in the peanut butter sandwich language sampling example previously mentioned. These activities develop sequencing abilities needed to relay narratives and comprehend literature.

In the second example, an imaginary trip to an airport is used. The activity begins by building a conceptual framework by reading a book about airports. Children are then

encouraged to “visit” an airport and discuss what they see (perhaps a pair of pretend binoculars are used at the pretend airport). This type of language activity is **conversation** focused. Conversational language activities are play-based and encourage discourse with both adults and peers.

The sample scripts noted in each activity ensure that language targets are both modeled and elicited by a practitioner. Modeling involves the use of a target repeatedly to build receptive comprehension. Elicitation is the process of creating conversational interactions that necessitate the use of a desired target. Techniques, such as wait-time, expansion, recasting, building from the known, and auditory sandwich, are used (see the *Listening & Spoken Language Strategies* chapter).

Open-ended conversational questions require a response that the child must generate from his/her conceptual framework. This type of question encourages higher-level thinking skills that involve multiple solutions to address a given question. Conversational turns are facilitated as additional information is sought, clarified, or enhanced through play.

Now that you have your assessment data, the identified language targets and scripts, and you have explored a few possible activities, you are ready to jump into the classroom with all the great ideas you have in mind. Right? Actually, no!

Lesson Plans

Now that you have your assessment data, the identified language targets and scripts, and you have explored a few possible activities, you are ready to jump into the classroom with all the great ideas you have in mind. Right?

Actually, no! Consider a construction worker with all the best tools and a truck filled with supplies—yet no blueprints or building plans. You probably wouldn’t want this person building your house.

Likewise, it is essential to have a purposeful and well-constructed weekly and daily lesson plan to optimize each child’s growth opportunities throughout the day and across the curriculum.

Table 3
Language Activities

Activity 1

Students will make an airplane.

Objectives		Language Script Sample
1	Students will use appropriate language to provide instructions, describe airplanes, and sequence actions while making an airplane.	What are you going to make? (<i>Airplane . . . I'll make an airplane, too!</i>)
2	Students will identify an airplane as a means of transportation.	Do you want a big box or a small box? (<i>Children will ask each other.</i>)
Materials <ul style="list-style-type: none"> Box Construction paper Brads Glue Scissors 		Let's put the wings on top (of the box).
		The black wheels go under (the airplane).
		I have a big/small airplane.

Activity 2

Students will take a pretend trip to the airport.

Objectives		Language Script Sample
1	Students will identify an airplane as a means of transportation.	Let's go the airport!
2	Students will use appropriate language to describe airplanes and make predictions.	I see a big/little airplane (over there).
Materials <ul style="list-style-type: none"> <i>The Airport</i> (Goldsmith, 2015) to introduce. Large pictures of airplanes as if looking through an airport window. 		I see wheels under the airplane.
		Do you see some suitcases? I wonder where the airplane will go.
		I see a man on top (of the airplane). What do you think he will do?

It is common when new teachers think about developing lesson plans to envision a time-consuming process. Although initially it may seem daunting, with practice it can soon become an efficient and essential component of your classroom preparation. Ultimately it will save time, help keep you organized, and most importantly will facilitate your ability to be very child-centered and purposeful in your educational implementation.

There is more than one right way to construct your lesson plans, and you can customize your lesson plan template to meet your needs. However, for many teachers, utilizing both a **weekly schedule** as well as **daily lesson plans** provides an effective combination to ensure purposeful, goal-oriented preparation (see *Table 4*).

Curriculum

As you approach your lesson plan development, you will need to consider if you will use **theme-based instruction**, a **criterion-based commercial curriculum**, or a combination of both.

Components of the Preschool Day

Table 5 lists descriptions of typical components of the preschool day, including learning goals commonly associated with each segment. Consider how your lesson plans will reflect the learning priorities for each segment, including how you will differentiate your instruction to meet the individual needs of each child.

REMEMBER: Each component of the day should emphasize listening priorities by utilizing effective LSL teaching strategies. Please see the Listening and Spoken Language Strategies chapter for a comprehensive description of strategies, techniques, and practical application for creating a rich auditory learning environment and promoting LSL development in children with hearing loss. The Listening & Spoken Language Preschool Programs chapter provides additional content describing early childhood deaf education.

Theme-Based Instruction

Your teaching objectives and child learning goals are connected to a topic or theme. Most themes extend over a 1- to 2-week period, although sometimes themes might be used over a longer period of time. When utilized effectively, theme-based instruction can promote learning experiences that are not necessarily divisible into isolated subject matter areas but rather as integrated and connected experiences throughout the school day.

When selecting a theme, the topic must be worthy of study and implemented such that it promotes growth across skill content areas. The theme-based activities should be relevant to the child's world outside the classroom with opportunities for meaningful application of skills learned. Theme-based instruction can be done poorly if it contains no real content or is selected just because it is a cute idea. For example, "apples and pumpkins" could be a fun theme during October, but you must be specific and goal oriented in identifying how this theme will promote the specific language, literacy, or academic goals for the children. If the theme does not consider prior knowledge of the children with targeted educational goals, or if activities are not individualized, critical learning is compromised—and children with language delays cannot afford an ineffective teacher. Be careful of determining the entire year's themes before the needs of the children are known. Even if general themes are known, instruction must be goal oriented and individualized utilizing developmentally appropriate practices.

Criterion-Based Commercial Curriculum

Commercially available criterion-based curricula typically outline subject matter content areas into distinct academic or topical segments—with most including intervention suggestions and lesson plan outlines. These curriculum programs can be effective in providing intervention guidance with prepared or accessible accompanying materials across language or academic subjects. However, keep in mind that these curricula often do not include adaptations for children with special needs, and/or the suggested adaptations are not optimal for the children in your class. It is essential for teachers of children with hearing loss to understand how to effectively adapt the curricula to meet the learning objectives for each child.

Furthermore, prior to adopting a commercial curriculum, teachers should evaluate the research evidence that documents the validity of the product. The What Works Clearinghouse, supported by the Institute of Education Sciences (2017), is an excellent resource to assure you are implementing programs backed by research evidence.

Table 4

Weekly Schedules & Daily Lesson Plans

Weekly Schedules

Most teachers use a weekly schedule along with daily lesson plans. The weekly schedule provides an “at-a-glance” look at the organization of the week, including the topical or thematic focus. The weekly schedule can aid in remembering and organizing around special events and ensuring a well-rounded plan to include each essential language and academic priority.

Daily Lesson Plans

The daily lesson plan provides the details of the weekly schedule and should contain some essential elements, including the following:

The Lesson or Topic Segment

This section describes the segment focus, such as “*Journal Sharing*,” “*Morning Circle*,” or “*Language Arts*,”

and the anticipated start and end time for the activity.

Learning Goals & Objectives

Sometimes students can get so caught up in planning fun activities they may tend to forget that identifying the learning objectives or the teaching goals of the activity is the most important part. In fact, for many new teachers, understanding the difference between activities and goals will take guidance and practice.

The selection of goals for each segment should be purposeful and data-driven. Segment goals can be identified from an ongoing curriculum-based assessment tool, standardized assessments, ongoing language samples, the Individualized Education Program (IEP) documents for each child, aligned with an objective from state or national core competencies or a combination.

Activity 1. Create an Experience Book

For example, is the statement, “*The children will create an experience book about school*,” a goal or an activity? If you answered this statement is an activity, you are correct. The statement provides no specificity as to the targeted learning goals. What do you want them to know about school? Do you have language targets? Vocabulary targets? Auditory perception targets? Social skills targets?

There are many different objectives that could be an appropriate focus, but they must be specified.

Possible Objectives

1

The students will identify 4 out of 6 locations in the school building after creating an experience book about school.

2

While looking at the experience book about school, the students will correctly name pictured teachers and students 80% of the time.

Table 4
(continued)

Learning Goals & Objectives (continued)							
Activity 2. Create a Mother's Day Gift							
<p>Imagine how enjoyable it would be for preschool children to paint a small vase and then plant flower seeds in preparation for Mother's Day. It is easy to determine this is an activity not a learning objective. But what if throughout the activity the teacher makes a purposeful effort to talk about what the children are doing and to highlight springtime and Mother's Day vocabulary. Does this now constitute an appropriate learning objective? Hopefully you still responded, "No."</p> <p>Imagine the rich language opportunities that could have been utilized in such an activity. For example:</p> <ul style="list-style-type: none"> Sequencing (prepare vase, add dirt, place seeds, then water). 	<ul style="list-style-type: none"> Auditory memory objectives. Specific action verbs (pour, dig, mix, stir). Science foundations. Social skills. Numerous syntactic or semantic language targets specific to each child. <table> <tr> <th colspan="2">Possible Objectives</th></tr> <tr> <td>1</td><td>The students will correctly sequence the steps in making the Mother's Day gift with no more than one error.</td></tr> <tr> <td>2</td><td>The students will use the correct past tense of at least four verbs while describing the making of the Mother's Day gift.</td></tr> </table>	Possible Objectives		1	The students will correctly sequence the steps in making the Mother's Day gift with no more than one error.	2	The students will use the correct past tense of at least four verbs while describing the making of the Mother's Day gift.
Possible Objectives							
1	The students will correctly sequence the steps in making the Mother's Day gift with no more than one error.						
2	The students will use the correct past tense of at least four verbs while describing the making of the Mother's Day gift.						
Lesson Activities & Materials	Evaluation & Data Collection Procedures						
<p>In this section, you will describe the activities and materials that will help achieve the learning goals and objectives. Step-by-step procedures and inclusion of expected language for directions, questions, and responses will ensure an effective lesson. Children learn best through fun, engaging, and age-appropriate activities. Maximizing the learning and goal-oriented opportunities for each segment requires advanced planning to identify how the same activity can be adapted—or differentiated—to be individually appropriate for each child. Materials should be identified and gathered ahead of time, so that everything is readily available before the start of each day. Imagine the disruption if the teacher had to search for needed materials halfway into an activity.</p>	<p>An effective teacher is one who consistently approaches each segment of the school day with a diagnostic eye to each child's performance and progress. Such a teacher is ready to make immediate adjustments to lesson goals or child expectations to meet their individual needs. Although data collection is an important component of effective teaching practices, there is also the risk of wasting time with unproductive data collection activities. For example, a teacher might diligently collect vocabulary data on each child in the class to document their expressive and receptive understanding of the targeted words for each weekly unit—only to place these records into a file cabinet. Although this teacher could describe to the principal or parents that she collects vocabulary data, it is not of value if the findings fail to inform the next weeks' planning or drive the specific learning goals for each child.</p>						
Generalization & Home Carryover Activities							
<p>When developing lesson plans, consider the activities or supports that parents could implement at home or other</p>	<p>contexts outside of school. It is important for children to generalize skills they have learned across environments.</p>						

Table 5

Descriptions of Typical Components of the Preschool Day

Circle Time

When children first arrive at school, predictability in starting their day can be an important reassurance to them. The morning welcome routine is common among most preschool classrooms and often consists of:

- A welcome song.
- Discussion of who is present and why a classmate might be absent.
- A calendar activity to identify and reinforce days of the week.
- A discussion of the weather that morning and what the children are wearing.

It is also a time for direct instruction in teaching targets consistent with the weekly schedule and daily lesson plans, particularly since children are most alert and ready to learn at the beginning of the school day.

Examples of goals. Children should . . .

- Learn names of classmates.
- Discuss and acknowledge feelings and emotions.
- Learn that others have feelings different from one's own.
- Accept responsibilities for classroom jobs.
- Meet objectives in calendar academics, for example:
 - Days of the week, names of months.
 - Counting, one-to-one correspondence.
 - Patterns and sequences (example AABA).
- Participate appropriately in learning activities.
- Practice social skills, turn-taking.
- Develop friendships.
- Meet objectives in cognition and critical thinking. For example:
 - Logic and problem solving.
 - Visual and auditory memory.
 - Descriptive language to ask and answer questions.

Journal Sharing

Journaling can be a valuable opportunity to connect home and school activities and provide students authentic opportunities to engage with their peers to describe an activity or event that happened outside of school. Children can learn social interactions, such as maintaining eye contact, delivering a message, and answering questions. They can learn to formulate and pose questions to other based on information they hear.

Examples of goals. Children should . . .

- Use language to describe real-life experiences.
- Recall and describe previous events.
- Understand time concepts—yesterday, today, tomorrow.
- Answer simple questions, recall details.
- Increase use of descriptive or complex language.
- Practice repairing communication breakdown.
- Learn that pictures can convey meaning.
- Practice writing symbols and words.
- Pose questions to peers.
- Express thoughts, likes, and dislikes.
- Speak in front of peers and use social language.
- Maintain eye contact during interactions.
- Increase number of conversational turns.
- Begin to understand cause and effect.

Table 5
(continued)

Centers

Many teachers incorporate “centers” into their daily schedule. Typically centers involve less-direct instruction and provide children with natural opportunities to practice spontaneous language and guided social interactions. Activities should be well planned to promote goal-oriented language, literacy, cognitive, and academic objectives as described in the weekly and daily lesson plans. Centers activities can increase generalization of language and academic targets, along with meaningful social skills objectives. Teachers should have a strong understanding of early childhood development and recognize age-appropriate play behaviors and social interactions.

Examples of goals. Children should . . .

- Engage in activities to reinforce and generalize language, vocabulary, and academic targets.
- Participate in activities that are differentiated to meet the individual needs of each child.
- Learn cooperative and age-appropriate play behaviors.
- Practice social skills (e.g., conversational turn-taking, eye contact, changing speech depending on listener).
- Learn to be a leader and follower with opportunities to win and lose, negotiate conflicts.
- Follow directions.
- Engage in age-appropriate pretend play that has a story or logical sequence.
- Have opportunities to explore and create, use their imagination, predict “what would happen if . . .”
- Expand generalization of language skills, such as proper use of pronouns, verbs and verb tense, attributes, grammar and sentence structure, spatial concepts.

Snack—or More Appropriately Named “Language with Food”

Everyone knows what snack time is, but we prefer that you consider it “language with food.” Whether a simple snack of fish crackers and water or a more elaborate array of preschool delicacies, there are plenty of opportunities to reinforce language and listening. Avoid the tendency to use the same ritual each snack:

Teacher: “What do you need?”

Child: “A plate, please.”

Teacher: “What do you need?”

Child: “A cup, please.”

Snack is a great time to reinforce a variety of language, vocabulary, math, or other academic targets consistent with the daily lesson plan. Even if the children are eating and cannot fully engage in expressive language tasks, it can be an excellent opportunity for the teacher to reinforce receptive language and listening. It is a lost opportunity if the teacher views snack time as prep time while an aide monitors eating.

Examples of goals . Children should . . .

- Learn and practice social and cooperative behaviors in the preparation or consumption of a snack.
- Take turns with snack responsibilities (pass out food items, fill the water pitcher) while describing the tasks.
- Ask and answer questions about food attributes.
- Learn about taste and smell, foods they like or dislike.
- Follow directions to create a food item (e.g., steps to make a sandwich).
- Consider creative or pretend play with food items (e.g., celery, peanut butter, and raisins to make “ants on a log”).
- Increase receptive language and listening skills (e.g., teacher tells a story while children eat).
- Use food activities to reinforce language, literacy, or academic concepts consistent with daily lesson plan goals.

Table 5
(continued)

Academics

Effective teachers are mindful of the individual priorities of each child and can reinforce academic goals embedded across the curriculum throughout the day. In addition, teachers often have some element of direct instruction for academic targets as a component of the weekly schedule.

Teachers must ensure their teaching objectives and lesson plans encompass academic priorities through meaningful learning experiences to promote

kindergarten readiness in mathematics, science, and other general academic studies. Literacy development, including phonemic awareness, phonics, oral reading fluency, vocabulary development, written language, and reading comprehension skills, should be an integrated priority throughout the day. Children should learn how to learn, and teachers who effectively embed learning activities that promote cognitive development can help each child establish strong foundations for future learning success.

Music Integrated into the Curriculum

You may wonder why music was not mentioned as a specific segment of the preschool weekly or daily schedule. It would be hard to imagine a preschool without music, and in fact many teachers do have consistent music time built into the schedule with purposeful musical activities to advance a variety of learning objectives. Music can encourage creativity, enhance academic instruction, and promote positive learning experiences for linguistic, social, and academic development (Gfeller et al., 2011; Hallam, 2010; Heald, 2008; Legg, 2009; Rocca 2012).

However, let's take this a step further. It is completely appropriate to maintain "music time" within the weekly schedule, but you are encouraged to think more broadly about the role of music throughout all segments of the day. Children with hearing loss who use hearing technology have unique auditory perception development needs. The auditory pathways require consistent stimulation to maximize neurological development. The complex sounds found in music can enhance auditory perception development in ways unattainable through speech alone.

Consider the impact of using music to support and enhance your circle time, centers, or academic goals and objectives. Colors, numbers, shapes, and math concepts are easily put to music. Vocabulary, language, and literacy development can be enhanced through music and musical instrument activities (Nelson et al., 2016). According to Heald (2008),

music aids the comprehension of language, and language aids the understanding of music. When embedded into the language and literacy curriculum, music can be a powerful tool to enhance the patterns and rhythms of sound as they relate to language structures and literary sequences.

Systematic use of music embedded within and throughout the instructional day in preschool classrooms can enhance the language and literacy experiences of young children.

A few things to keep in mind . . .

Make sure songs are age appropriate with a simple melody.

Children particularly enjoy songs that use props or hand and body motions.

Help children be active participants in the musical activity.

Reinforce concepts (e.g., high/low, fast/slow, up/down, happy/sad) with the musical score.

In addition to songs with words, use songs without words to reinforce rhythm, pitch, and timbre.

Use musical instruments, rhythm sticks, scarves, or other props to encourage creativity.

Develop listening activities, such as following a sequence of directions using instruments.

Promote multicultural appreciation of music through songs and musical instruments unique to various regions or cultures around the world.

Provide opportunities for children to change the words of a familiar song to match a particular learning target or theme.

Be mindful of the role of the instrumental background in recorded songs. Exposure to complex music, such as a symphony, can provide valuable listening experiences. However, if you are using music to reinforce an academic concept, keep the background to a minimum.

Pragmatic Language Development

This chapter has emphasized the assessment and intervention priorities to optimize the speech, language, and academic development of children with hearing loss. However, even children who can express a complex sentence with correct grammar can still experience communication breakdowns. Consider the communication experiences of a child who cannot convey an appropriate greeting with other people or who cannot stay on topic or engage in conversational turn taking. These skills are referred to as **pragmatic language skills**—or the ability to use social language appropriately. According to the American Speech, Language, Hearing Association (2017), pragmatics can generally be described as having the skills to:

- Use language for different purposes (e.g., greetings, informing, requesting).
- Change language appropriate for the situation (e.g., talking differently to friends than one might talk with an adult).
- Follow rules for conversations (e.g., taking turns, staying on topic, facial expressions, nonverbal cues).

Effective and purposeful instruction in the early childhood curriculum is needed for young children to learn pragmatic skills for successful social interactions with peers. Children who fail to appropriately acquire pragmatic and social skills development during their early formative years are at a substantial disadvantage in establishing peer groups and friendships that are essential during childhood and adolescence.

Friendships are vital to a child's social and emotional development. Through early childhood social experiences, children learn the dynamics of peer interactions and social behavior.

- They learn how to play appropriately with others.
- They begin to understand which behaviors are acceptable and which are not, and they experience the social consequences of bad behavior.

- They learn how to win and how to lose.
- They learn how to express positive or negative emotions.
- They learn how to make decisions when faced with dilemmas.
- They even learn about social standing and power at a very young age, including how to lead and how to follow.

Friendships and social interactions help children to understand the viewpoints of other people—recognizing that each person has opinions and preferences.

Pragmatic skills development should not be considered elective or noncompulsory curricula but rather as essential components of educational instruction for healthy psychological development. Children with poor peer interactions are more likely than other children to feel lonely, be victimized by peers, have problems adjusting to school, and engage in deviant behaviors (Rose & Asher, 2000). Acquisition of all age-appropriate pragmatic skills during the preschool years should be an educational target for parents and professionals to promote child readiness for positive social interactions in preparation for transition into the general education setting.

Early interventionists and preschool teachers can facilitate improved child outcomes in social-emotional development by being aware of early learning recommendations and implementing effective instructional practices within the early childhood and preschool curriculum. For example, incorporating social stories or guided social play utilizing adult role models into the preschool curriculum can be effective teaching tools to facilitate

social skills development. Direct instruction to teach children to respect other people, develop friendships, and help preschool children understand the social expectations of a kindergarten classroom can help prepare young children as they transition from preschool to kindergarten.

According to the National Association for the Education of Young Children (NAEYC), the establishment of clear, attainable learning goals is critical to ensuring that

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all children receive the highest quality of educational experiences and has encouraged states and agencies to cooperatively develop learning standards for young children founded on evidence-based best practices (NAEYC, 2009). In a policy report for the National Institute for Early Education Research, Boyd et al. (2005) recommended that states should:

Establish preschool education programs that enhance social-emotional development without de-emphasizing cognitive development.

Include in learning standards the outcomes that preschool programs are expected to achieve for social-emotional development.

Expand access to high-quality preschool education that adequately supports social-emotional development.

Provide administrators and teachers with training to help them implement effective curricula and teaching practices supporting social-emotional development.

Unlike some objective skills measured in educational settings (e.g., math, spelling, or grammar), pragmatic skills can be more subjective and typically involve teacher and parent evaluations using pragmatic skills checklists or standardized assessments to document performance across environments.

Conceptual Framework of the Classroom

As a new teacher, the conceptual framework of your classroom will be determined by your teaching

As a new teacher, the conceptual framework of your classroom will be determined by your teaching philosophy and/or that of your school or employer.

philosophy and/or that of your school or employer. For example, views regarding theories of learning likely will influence your instruction methods and the curricula you establish and follow in your classroom (Carotta, 2016). The teaching philosophy often is driven by the goals or priorities that are emphasized in the curriculum, such as a behavior emphasis for children with autism or a language and listening emphasis for children with hearing loss. The philosophy also informs how the teacher interacts

with students. For example, an academic preschool is more teacher-centered and primarily utilizes direct instruction with most play occurring during recess. A play-based program is more child-centered and encourages learning through play and exploration of the environment, such as the Montessori philosophy.

Other programs can be considered project-based, driven heavily by student interests, such as Reggio Emilia. Please be sure to read the *Listening & Spoken Language Preschool Programs* chapter for further details regarding the theoretical framework of services and instructional philosophies. Although some programs adhere tightly to a specific instructional format, many programs utilize a combination of teacher-centered direct instruction and child-centered play or project-based instruction.

Regardless of the philosophical or theoretical framework that guides your approach, an effective curriculum model should incorporate evidence-based, age-appropriate foundations and principles. Although there are many national, state, and local agencies that can provide resources and curriculum information, educators should be aware of two influential national membership organizations that provide early childhood and preschool service delivery guidance.

Division for Early Childhood (DEC) of the Council for Exceptional Children

Promotes policies and evidence-based practice recommendations for professionals who serve young children who are at risk for or who have developmental delays or disabilities and their families. Through a collaboration with the Early Childhood Technical Assistance Center (ECTA), the DEC Recommended Practices (2014) were developed to provide guidance to professionals as to the most effective ways to improve the learning outcomes of young children.

NAEYC

Works to promote high-quality early learning for all young children, birth through age 8, by connecting early childhood practice, policy, and research. The NAEYC provides comprehensive teacher resources and is influential in promoting public policies for early childhood best practices.

These organizations apply to young children broadly and not specifically to children with hearing loss.

However, a central tenet of the LSL approach is for children to communicatively and academically integrate with their same-aged hearing peers in general education settings. Therefore, they should have similar performance expectations with implementation of recommended developmentally appropriate practices.

Being an effective teacher takes skill, creativity, patience, and a lot of energy. There are challenges—and some days will be easier than others—but you will soon learn that one of the most exciting and rewarding places to be is in a preschool class!

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Conclusion

Your assessment selections, lesson plans development, and the curriculum model for your classroom should provide for all areas of a child's development, including their linguistic, cognitive, social, emotional, and physical needs. When developing the curriculum model and the details of each weekly and daily lesson plan, you should ask yourself if the lesson components are linguistically meaningful, intellectually engaging, and socially relevant. They should support each child's home culture and language while also developing the abilities to participate in the shared culture of the program and community.



Photo courtesy of Sound Beginnings/Utah State University

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Appendix A

Lesson Plan Templates

Lesson Plan Template 1 *(Continue to add tables as needed to plan for each segment of the day.)*

Activity: <i>Circle Time</i>	Theme:
Week of:	Day of week: <i>Monday</i>
Lesson/Activity Procedures	Language Scripts <i>(May need separate document for some activities.)</i>
Child Goals/Objectives <i>(Be specific for each child.)</i>	Teaching Objectives
Data <i>(To inform next-step teaching objectives.)</i>	Materials Needed
Home Carryover	Reflections <i>(Consider what went well and aspect that may need to be adjusted.)</i>

Lesson Plan Template 2

Fontbonne University Deaf Education Lesson Plan Format *with Tips**

**When creating a lesson plan, use the tips to help you plan, but remove them from your plan once completed.*

Name:	Date:
Age/Grade Level:	Cooperating Teacher/Mentor:
School:	University Supervisor:
Title of Lesson:	

Standards/Quality Indicators/Skills

(State and national standards, quality indicators, and skills addressed by this lesson.)

For Missouri use: www.missourilearningstandards.com

Learning Outcomes/Goals

(The lesson's goals and learning outcomes are appropriate for meeting curricular and student need. Include the goal and learner outcomes in four-part format.)

Goals

- State the broad intention for lesson.
- Align with the state learning standards listed above.

Outcomes

- Write in four-part format (who, what they will do, level of mastery, under what conditions).
- Determine what students will have accomplished when the lesson is completed.
- Include two or more learner outcomes.
- Make the outcomes appropriate to learner needs.
- Include Bloom's levels addressed.

Listening, Speech, & Language Targets

- Identify the specific listening, speech, and language targets addressed in this lesson.
- These targets may be a learner outcome for the lesson or may be skills practiced within other outcomes.

Assessment

[Assessment(s) may be used before the lesson to assess prior knowledge. Assessment(s) during and after the lesson align with outcomes. Indicate depth of knowledge (DOK) for each assessment.]

- Align assessments with outcomes.
- Measure what the students learned after the lesson has been taught.
- List the assessment tools/artifacts used to collect data for each learner outcome.
- Include copies of all assessment tools after the lesson plan for each day.
- Utilize a variety of assessment tools to collect assessment data.
- Include differentiated assessments to meet different learning profiles, readiness, and interest levels.
- Record data in an efficient manner (e.g., data collection sheet, spreadsheet, Grade Book, etc.).

Lesson Procedures

(Sequence of events of the lesson, e.g., Introduction, Procedures, Activities, Conclusion.)

- List what you—the teacher—will do to teach and ensure student learning.
- Align procedures directly with outcomes and assessments.

Introduction

(How lesson will begin and engage students)

Step-by-step description of teacher and student activities.

(May include teacher modeling, guided practice, and/or independent practice. Include specific and detailed directions, questions, and expected responses. Consider including a script for the lesson if outcomes are focused on specific language use.)

Closure/Follow-Up

(How the lesson is ended. May include review of lesson and/or preparation for next lesson. May include ways to extend learning to home environment.)

Instructional Strategies

(List the strategies used to promote listening, spoken language, and learning. Use Instructional Strategies and Learning Activities document.)

Include differentiated teaching and learning strategies to meet diverse learning profiles, readiness, and interests.

Learning Activities

(List activities used to develop knowledge and skills of learner outcomes. Use Instructional Strategies and Learning Activities document.)

Use Gardner's Multiple Intelligences for each activity.

Resources & Materials

(List of materials used in the planning of the lesson and during instruction.)

Technology

(Instructional, assistive technology, and/or hearing assistive technology incorporated into the lesson to enhance instruction and student learning.)

Differentiation/Accommodations/Modifications/Increase in Rigor

(To help meet the needs of all learners, learning differences, cultural and language differences, etc.)

- What will I differentiate? Content, Process, Product, Environment, Affect
- How will I differentiate?

Classroom Management

(Strategies consistent with the learning needs of the lesson that meet student behavior needs to keep students on task and actively engaged. May include grouping and classroom environment information.)

Consider how your procedures promote effective management of the classroom and student behavior.

Extensions

(Activities for early finishers that extend student understanding of, and thinking about, the learner outcomes by applying new knowledge in a different way.)

Chapter 12

Itinerant Teaching

John L. Luckner

What is itinerant teaching?

Itinerant teachers are specially trained professionals who provide direct instruction to students with a hearing loss, consult and collaborate with professionals and families, and generally travel from school to school (Antia & Rivera, 2016). Where, how, and how often itinerant teachers travel varies—often depending on how many students they have on their caseload, how many different schools the students attend, and the distance between the schools.

In some school districts, itinerant teachers travel to three or four schools in one day—all in the same city. In rural areas, itinerant teachers may travel to three schools to work with three different students in a day. In remote areas, such as Alaska, itinerant teachers may fly to an island and stay there for a few days, fly back to the mainland, and then work with the student weekly using synchronous technology (e.g., Skype, Zoom) for the remainder of the month.

Itinerant teachers are specially trained professionals who provide direct instruction to students with a hearing loss . . .



Photo courtesy of Sound Beginnings/Utah State University

Why do we have itinerant teachers?

A variety of factors, which are discussed in greater detail in other chapters in this eBook, have significantly changed where students who are deaf or hard of hearing (D/HH) receive educational services, what the specific focus of

those services are, and who provides the services, such as:

Universal newborn hearing screening (UNHS).

Early intervention.

Cochlear implants.

Improvement in the quantity and quality of hearing assistive technology that can be used to provide meaningful auditory input.

Legislative mandates.

Since the early 1970s, the enrollment of students who are D/HH in schools for the deaf has been decreasing (Mitchell & Karchmer, 2006). Currently, approximately 88% of all students who are D/HH attend general

education classes with typical hearing peers for some portion of their school day (U.S. Department of Education, 2019). As noted above, the students are supported by itinerant teachers who provide educational services to students and consultation services to the general education teachers, administrators, school staff, the students' parents, and sometimes members of the community.

What do itinerant teachers do?

We live in a sound-oriented society. Extensive amounts of information are exchanged via speech. Most of our interactions in the community (e.g., consumer, healthcare, work, nutrition, recreation, and socializing) occur through talking and listening. News and entertainment are transmitted on televisions, radios, smartphones, and sometimes computers through sound. Most conversations with families, friends, acquaintances, and strangers occur through spoken language.

Speech is the preferred mode of communication for most people, because the majority of individuals are hearing and have grown up in households where family members discuss the events of the day, work through problems, and talk about upcoming activities using spoken language. It is through daily routines and interactions with skilled speakers that the majority of children acquire and refine their communication skills, learn concepts, and develop social skills (White & Voss, 2015). In contrast, many individuals who are D/HH often are cut off from such direct and incidental language development experiences. This not only affects their ability to develop communication and language skills, but it also negatively affects their experiential background as well as their knowledge of the world.

A hearing loss is considered a low-incidence disability. It affects approximately 1.5 in 1,000 school-age children. As a result, most families, educators, and members of the community don't have either direct or vicarious experience with what life is like when you are D/HH. Specifically, they don't know what it is like to hear speech that is unintelligible, distorted, too soft, or not heard at all. In addition, most people acquired their language skills effortlessly and naturally at an early

age through interacting with others. Students who use hearing aids or cochlear implants do not "overhear" language in the same way as their typical hearing peers and as a result often miss out on incidental learning. While amplification is helpful, it typically works within limited distances. Also, amplification makes everything louder—not just the student's conversation partners but also the background noise, such as clanking chairs, heating and cooling units, and hall traffic. This often makes discrimination between what a student wants to hear and does not want to hear particularly difficult.

As a result, students who are D/HH usually receive less language input, affecting their acquisition of receptive and expressive language skills, which in turn negatively affects the development of other key areas, such as reading, writing, behavior, emotional regulation, and career awareness.

Working directly with students to address areas of need caused by a hearing loss and helping adults who have limited knowledge and skills in teaching and interacting with students who are D/HH are the primary responsibilities

of itinerant teachers. More specifically, they provide direct instruction by addressing individualized education program (IEP) objectives in academic areas, such as reading, writing, and math, as well as nonacademic areas, such as self-advocacy, study skills, assistive technology, auditory skills, social skills, and learning strategies.

In addition, itinerant teachers often provide academic support to help students succeed in the general education classroom. Examples include preteaching and reteaching vocabulary and concepts and reviewing for upcoming tests. Itinerant teachers also collaborate and consult with general education professionals, families, and sometimes community agencies. They usually focus their collaboration and consultation on:

- Helping others understand the potential impact of a hearing loss.
- Appropriate accommodations and/or modifications.
- Gathering and sharing data about students' performance.
- Improvement in the quantity and quality of hearing assistive technology that can be used to provide meaningful auditory input.
- Shared problem solving and decision making.

Itinerant teachers often have the opportunity to work with students and their families over the course of several years. Being able to support as well as observe students' development for several years can be very fulfilling.

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Another pleasing aspect of itinerant teaching often mentioned is the independence the teachers have. Not being tied to a classroom or one school, they get breaks as they transition to the next school and student. If a lesson or consultation did not go well, they have time to reflect on what they could have done differently, collect themselves, and start fresh in the new building. In contrast, if the lesson or consultation was successful, they can congratulate themselves and optimistically prepare for the next situation. In addition, they don't have many of the additional responsibilities

What are the joys of itinerant teaching?

Itinerant teaching is significantly different from being a classroom teacher or an early interventionist working in the home. Similar to all jobs, there are aspects of the position that are rewarding as well as demanding. One of the most enjoyable facets of the work mentioned by itinerant teachers includes being able to focus on one student or a couple of students at a time rather than an entire class. Similarly, itinerant teachers often have the opportunity to work with students and their families over the course of several years. Being

that many classroom teachers have, such as taking attendance, bus and playground duty, and fundraising.

Additionally, the caseload of students that itinerant teachers serve is often very diverse and stimulating (Yarger & Luckner, 1999). Itinerant teachers frequently have caseloads composed of students who differ across a variety of factors, including age, functioning ability, primary mode of communication, interests, IEP goals and objectives, family involvement, and school climate.

Given the caseload diversity, itinerant teachers are usually cognitively stimulated. They are required consistently to increase their knowledge and skills in a variety of areas, including academic content, appropriate resources, adaptation of classroom materials, hearing assistive technology, additional disabilities, cultural diversity, and how to work collaboratively with a variety of individuals with distinct personalities, which includes participating in IEP and transition planning meetings where they are expected to work in partnership to problem-solve as well as advocate for the needs of the students they serve.

As noted above, an important component of itinerant teaching is collaborating and consulting with the adults—education professionals, parents, and community members—who interact with students who are D/HH. The relationships itinerant teachers develop with these adults are often almost as enjoyable as the relationships they have with the students they serve. They have consistent opportunities to observe and interact with skilled professionals and caring family members who all work together to create environments where students with a hearing loss can succeed.

What are the challenges of itinerant teaching?

Like all jobs, itinerant teaching has some accompanying challenges. The most frequently identified struggles all relate to time constraints. Specific areas of difficulty include (Luckner & Ayantoye, 2013):

Not having enough time to work with students or collaborate with educators or families.

The complications of working around student and general education teacher schedules.

The time it takes to get from one school to the next.

The lack of planning time built into their schedule.



Photo courtesy of Sound Beginnings/Utah State University

Another complication relates to the requirement of having to travel from school to school, not having a home base, and being a guest in each school. Each school has a different climate, different rules and procedures, and a different administrative structure. Consequently, there is a need to be perceptive of those differences, considerate of what is expected, and able to adjust one's attitude accordingly, while simultaneously being professional and personable. Aligned with this challenge is the style differences of the general education teachers that itinerant teachers work with. Some are open to suggestions and are highly motivated to do whatever is needed to help students who are D/HH succeed. Others feel as though they already have their hands full and would rather the student with a hearing loss not be in their classroom. And of course, there are some who function at a point between those two extremes.

Working with families can also be difficult at times. While families who have a child with a hearing loss experience many of the same successes and challenges as other families, the hearing loss tends to change family dynamics and the home environment (Meadow-Orlans, Mertens, & Sass-Lehrer, 2003). Three issues that frequently surface that itinerant teachers deal with include the following.

First Issue

Ninety-five percent of children with a hearing loss are born to hearing parents (Mitchell & Karchmer, 2004). They don't know what to expect, what to do, and how to deal with the uncertain feelings they have regarding having a child who is D/HH.

Second Issue

The parents have to acquire an understanding of the potential impact of a hearing loss on development, learn about and decide on communication options, as well as find appropriate services and support—often trying to sort through opposing views and bias resources.

Third Issue

Some parents become over-reliant on itinerant teachers, especially if the itinerant teacher has worked with the student for a few years. When problems at school arise or at times of crisis or transition, the parents feel more comfortable contacting itinerant teachers about issues, even when the itinerant teachers have no authority to deal with the issue.

How can I effectively consult & collaborate?

In order to effectively consult and collaborate, itinerant teachers have to have a positive attitude about working with adults and helping them to effectively interact and teach children and youth who are D/HH. This is a bit trickier than it initially seems, because most individuals went into education to work with students not adults. However, effective itinerant teachers are aware of the total time that students spend in general education classrooms and at home in comparison to how much time teachers have to provide direct instruction. That is why it is important to have a good attitude about consulting and collaborating and to work diligently to develop the knowledge and skills to be successful.

Effective consultants and collaborators know that they are in the relationship business. When they initially work with educators, parents, or members of the community, they focus on developing rapport by finding out what they have in common, being empathetic, trying to see things from their perspective, and using good communication skills (e.g., active listening, asking open-ended questions, appropriately responding nonverbally and verbally). The objective is to be perceived as an ally, a resource, not someone who is going to judge them or make their life more difficult. Once rapport has begun to develop, then the focus turns to helping others increase their understanding of the potential impact of a hearing loss and the actions they can undertake to assist students who are D/HH to access the social and learning opportunities that exist in school, home, and the community.

Another important skill is shared problem solving. It is best to engage in a dialogue to make sure the issue and context in which the problem has occurred is understood rather than jumping in with advice. A five-step problem-solving process (Friend & Cook, 2017) is a framework that many itinerant teachers use—although it is not always necessary to adhere rigidly to the steps.

While families who have a child with a hearing loss experience many of the same successes and challenges as other families, the hearing loss tends to change family dynamics and the home environment.

The sequence includes:

1	Define the problem.
2	Gather facts and data.
3	Generate possible solutions.
4	Analyze and judge each proposed solution.
5	Select the solution to the problem, assign responsibility for carrying out the solution, and set up a timeline for evaluating the results.

Finally, given the nomadic requirement of the itinerant position, it is important to establish a communication system that allows professionals to exchange information about students on a regular basis. Because everyone in schools is busy, and often schedules do not match-up, it is vital to have a quick way to gather information about how students are functioning, as well as to find out what concepts, vocabulary, and/or strategies may benefit from additional attention. Checklists and short-answer forms can be used to supplement the communication process. Email, voicemail, and video conferencing are additional tools that can be used on a regular basis to monitor students' progress and maintain rapport.

How can I effectively provide instruction to students?

As noted above, itinerant teachers often provide instruction to students who are D/HH focusing on academic and nonacademic IEP objectives. They also use their time to address some of the gaps students have in their background knowledge, vocabulary, and concept knowledge that they miss out on as a result of not being able to overhear conversations or access the dialogue included in mass media.

Whether teaching academic or nonacademic content, effective itinerant teachers try to adhere to the principles of explicit instruction (e.g., Archer & Hughes, 2011; Goeke, 2009). Explicit instruction addresses three processes to show students what they are expected to learn, give them opportunities to practice the skill under conditions that promote high levels of success, and provide opportunities to demonstrate that they can perform the skill independently at a high level of success.

The three steps of the process are:

Step 1	Modeling or demonstrating the skills.	"I do" stage.	The teacher.
Step 2	Providing guided practice.	"We do" stage.	The teacher & student together.
Step 3	Providing unprompted practice.	"You do" stage.	The student independently.

A more in-depth sequence is shown in *Table 1*.

Table 1
Process Sequence of Explicit Instruction

Review (when applicable)	<ul style="list-style-type: none"> Review homework and relevant previous learning. Review prerequisite skills and knowledge.
Presentation ("I do" phase of lesson)	<ul style="list-style-type: none"> State lesson goals. Present new material in small steps. Model procedures. Provide examples and non-examples. Use clear language
Guided Practice ("We do" phase of lesson)	<ul style="list-style-type: none"> Require high frequency of responses. Ensure high rates of success. Provide timely feedback, clues, and prompts. Have students continue practice until they are fluent. Reteach when necessary.
Independent Practice ("You do" phase of lesson)	<ul style="list-style-type: none"> Monitor initial practice attempts. Have students continue practice until skills are automatic.
Provide Occasional Reviews	

What strategies do successful itinerant teacher use?

Strategies are plans of action. To be successful, itinerant teachers need to have the right attitude; good interpersonal communication skills; and as noted above knowledge and skills in providing direct instruction to students, as well as in consulting and collaborating. Additional characteristics and strategies that are important to highlight are flexibility, organization, time management, and managing stress proactively.

Flexibility refers to being able to positively respond to change. Change is something that happens to itinerant teachers all the time. Examples of situations that occur that require flexibility at the functional as well as emotional levels are:

- A student is absent.
- A field trip is scheduled.
- The standard travel route to the school is under construction.
- An assembly is planned.
- The principal wants to talk about a student.
- The classroom listening system is not working.
- The room you work in is being used.
- A student is upset about what is happening at home.
- A cochlear implant has been flushed down the toilet.

Accepting change as a constant, not allowing oneself to get irritated, and seeking to be a collaborative problem solver are essential behaviors.

In order to be organized, individuals must have well thought-out systems, as well as the motivation and ability to implement the systems. In addition to planning lessons for each student on their caseload, itinerant teachers need be able to access materials, such as equipment, books, supplies, toys, magazines, teaching tools, assessments, and other items for students, and files, such as students' IEPs and schedules. In addition, they need to plan and participate in meetings with general education teachers, parents, and other service providers. They need to have reliable transportation and be knowledgeable of primary and secondary routes for getting from school to school. They are required to keep detailed intervention notes related to students'

progress, as well as document how they use their time. Also they are expected to maintain an updated list of resources, such as agencies, service clubs, volunteers, and organizations in the community, that can be shared with families and other educators.

Given the need to be organized, it is essential that itinerant teachers are able to manage time effectively. However, as noted above, not having enough time is the number one complaint of itinerant teachers. Coordinating schedules—theirs, students', and professionals'—as well as orchestrating travel from working with one student in one school to another student in another school requires that itinerant teachers use their time effectively and productively. Creating workable schedules, using travel time well, and skillfully using technology to communicate with others in addition to taking care of paperwork are strategic.

Accepting change as a constant, not allowing oneself to get irritated, and seeking to be a collaborative problem solver are essential behaviors.

Stress is an active ingredient in 21st-century life. Many of the characteristics of itinerant teaching have the potential to increase the amount of distress that one experiences on a daily basis, as well as cumulatively over time. Consequently, to be effective, itinerant teachers need to be proactive and make on-the-job and personal life adjustments. One activity that has both professional and personal benefit is planning social interactions with other itinerant teachers and friends. Another practical action is to make self-care a priority. Examples include, exercise, eating well, sleeping well, and getting help from family, friends, or a professional counselor when feeling out of balance.

What resources should I be aware of?

Following are some valuable text and Internet resources:

- Bullard, C., & Luckner, J. L. (2013). *The itinerant teacher handbook* (2nd ed.). Hillsboro, OR: Butte Publications, Inc.
- Central Institute for the Deaf, <https://cid.edu/professionals>
- Clarke Schools for Hearing and Speech, <http://www.clarkeschools.org/for-professionals>

- Dorn, B. (2019). The changing role of teachers of students who are deaf or hard of hearing: Consultation as an increasing part of the job. *Journal of Educational and Psychological Consultation*, 29(2), 237-254, DOI: 10.1080/10474412.2018.1502087
- Friend, M., & Cook, L. S. (2017). *Interactions: Collaboration skills for school professionals* (8th ed.). Boston: Pearson Education, Inc.
- Gallaudet University Regional Centers, <http://www.gallaudet.edu/outreach-programs/regional-centers.html>
- Hands & Voices, <http://www.handsandvoices.org>
- Laurent Clerc National Deaf Education Center, <http://www.gallaudet.edu/clerc-center.html>
- Luckner, J. L., Slike, S., & Johnson, H. (2012). Helping students who are deaf or hard of hearing succeed. *Teaching Exceptional Children*, 44(4), 58-67.
- National Deaf Center on Postsecondary Outcomes, <http://www.meadowscenter.org/projects/detail/national-deaf-center-on-postsecondary-outcomes>
- Supporting Success for Children with Hearing Loss, <https://successforkidswithhearingloss.com/teacher-tools-2/>
- The Iris Center, <http://iris.peabody.vanderbilt.edu>

Summary

Itinerant teaching is significantly different from teaching in a self-contained classroom or resource room.

Itinerant teachers travel from school to school—their cars serving as their portable offices.

They provide direct service to students to help them succeed in the general education setting, at home, and in the community. Simultaneously, they collaborate and consult with families, education professionals, and community members to help them develop the attitude, knowledge, and skills that enable children and youth who are D/HH to have access to the social and learning opportunities that will enable them to become successful adults who participate in and contribute to society.

Given current trends, it is very likely that increasing numbers of individuals with a hearing loss will be provided with home intervention, education, and transition services by itinerant teachers. Having experiences while enrolled in a teacher preparation program, such as job shadowing an itinerant teacher or student teaching with a seasoned itinerant teacher, will help develop the knowledge and skills needed to become effective. Yet because the job varies from school to school, district to district, and student to student, being on the job is the optimum way to develop the skills and wisdom needed to be effective and make a difference in the lives of students, their families, and the educators who serve them.

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Chapter 13

Literacy Growth & Development

Paula Gross & Lyn Robertson

Introduction

The importance of literacy development in all children cannot be overemphasized—for education and the cultivation of knowledge depend upon a person's ability to read for the acquisition of knowledge as well as the enjoyment and appreciation of language and story. These are termed “the efferent” and “the aesthetic,” respectively, by Rosenblatt (1978). Much is involved in transacting with a text

of any sort for any

purpose, and Rosenblatt points out that every time a person reads a text—whether it is a sign, a paragraph, a chapter, or something else—a new comprehension result is produced, because the person



Photo courtesy of Oticon A/S

changes over time in terms of his or her background knowledge, purposes for reading, and mood at the time of the reading. These matters have great bearing on whether and how individuals, including individuals who are deaf/hard of hearing (D/HH), are able to make use of information and story in order to navigate their worlds in meaningful ways.

In this chapter, we address the literacy development of the child with some degree of hearing loss—all the way from mild to profound. Our emphasis is children whose families have

chosen a listening and spoken language (LSL) approach. For information on literacy with a focus on students using a sign language approach, see Trezek, Wang, and Paul (2010). For a discussion of studies of literacy development in children with hearing loss, see Robertson (2014). The student who has access to LSL is at a distinct advantage

The importance of literacy development in all children cannot be overemphasized.

for making academic progress, because academic work depends so heavily on being able to read and write at increasingly more complex levels. Fortunately, using LSL approaches with children with hearing loss is a promising way of making sure they develop the requisite language capabilities underlying literacy.

Literacy as a term encompasses the interaction of all the ways people come to use language.

Literacy as a term encompasses the interaction of all the ways people come to use language. While it is commonly thought to refer simply to reading and writing, in fact the interaction of listening, speaking, reading, and writing all function to produce thinking, which in turn informs the processes of listening, speaking, reading, and writing. At the beginning, a child learns

to listen and after a time begins to speak as though she or he has been “filled” up with language in order for it to begin to spill out into speaking. But listening and speaking are in constant flux, with each affecting the development of the other. Soon, if enough opportunities and experiences present themselves, the child begins to explore and experiment with reading and writing, and a lifetime of thinking using these four processes based on spoken language begins. This is the case for children with typical hearing and for children with hearing loss as well. Please note that this chapter focuses on reading development and recognizes that writing development as its expressive counterpart.

A Framework for Understanding Literacy

Scarborough (2001) offers an illuminating way of understanding the interaction of the many processes involved every time a person reads a text (see *Figure 1*). As literacy develops to the skill levels required for in-depth comprehension and appreciation, the reader learns to direct these processes with intention and execute them with a high degree of automaticity. The literacy goal is that the child becomes skilled at identifying and bringing meaning to the words on the page and putting them together so that comprehension results.

First, though, such identification and comprehension must be achieved using spoken language. Much spoken language knowledge is required for the words on the page to make sense—particularly at the beginning. Making meaning of the words on the page depends upon

the child having the words in his or her mental lexicon—complete with a way to pronounce them. Scarborough writes about children with typical hearing, yet the categories she lays out apply to all readers of a spoken language. Indeed, the child with hearing loss with whom a LSL approach is used is in the same situation as the child with typical hearing. The fact that he or she may not have acquired age-appropriate spoken language capabilities does not mean that these abilities cannot be developed through more emphasis on and practice with using spoken language in a wide variety of ways.

In this chapter, we discuss Scarborough’s eight categories in terms of hearing and listening and emphasize that if a child/reader is weak in one area of processing, the overall process of reading and writing suffers. LSL therapy naturally focuses on developing categories 1-6 (Estabrooks, 2012, 2016).

Scarborough divides the eight categories—or strands—of early literacy development (2001, p. 98) into two sections—language comprehension and word recognition. Scarborough places language *comprehension* first, because language knowledge is a prerequisite for *recognizing* words on a page.

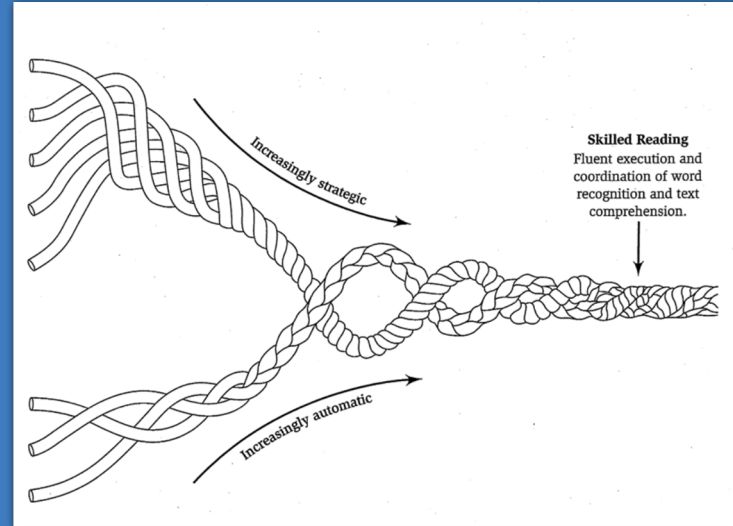
Language Comprehension

Cognitive psychology provides us with Schema Theory—a durable theory that enables us to conceptualize what the reader does in interacting with an experience in life or in text. Rather than only taking meaning *from* the text, the reader can be seen as *interacting* with text and making meaningful sense of it by using both prior knowledge and experience as well as linguistic and procedural knowledge. All such knowledge is stored in a person’s memory in networks of idea units—or schemata (the plural of schema)—that overlap and connect with each other—often in flexible ways. When confronted with an experience in life or text, the person uses his or her memory structures to construct its meaning.

One task for the reader is to connect what is new on the page to what he or she already knows. Problems arise when the reader’s prior knowledge is not sufficient or if it does not become activated during the reading process. The fact that different people have had different experiences and have learned different conventions and procedures accounts for different interpretations of the same texts by different people. Schemata are defined as operating in a number of ways (Anderson, 2004, pp. 598-599; see *Table 1*).

Figure 1
Many Strands Weave Into Skilled Reading

Language Comprehension (comprised of five components)	
1	Background Knowledge (facts, concepts, and so on)
2	Vocabulary (breadth, precision, links, and so on)
3	Language Structures (syntax, semantics, and so on)
4	Verbal Reasoning (inference, metaphor, and so on)
5	Literacy Knowledge (print concepts, genres, and so on)
Word Recognition (comprised of three components)	
1	Phonological Awareness (syllables, phonemes, and so on)
2	Decoding (alphabetic principle, spelling-sound correspondences)
3	Sight Recognition (familiar words)



Source: Scarborough (2001)

Table 1
Ways That Schemata Operate

1	Schemata contain “slots” that enable reasonable prediction making. For example, if the text is about planting a garden, the reader who has some gardening experience expects to read about seeds or seedlings, soils, seasons, and so on.	4	A schema is helpful in searching one’s memory in putting together the series of steps needed in planting a garden in order to tell someone else about it. The seasoned gardener will be better at recounting a text on the subject in appropriate order than the novice.
2	Schemata help the reader decide where to put his or her attention. To continue the gardening example, the reader with gardening experience may decide to give greater thought to details in the text about the amount of moisture needed by the particular plants he or she is interested in cultivating during a particular year.	5	The interaction of schemata help one to decide how to describe the text, depending upon what one judges to be most important.
3	Schemata help the reader make inferences. Knowing about the cycle of planting, watering, and harvesting vegetables helps the gardener look for similarities and differences in information about planting flowers.	6	Schemata help one remember and decide later on what the text must have included. For example, it would be reasonable to assume that the gardening text probably didn’t mention how to take a trip.

An important part of comprehension is *comprehension monitoring*—the ability to think about the meaning one is making while reading. This involves expecting the reading to make sense and stopping to question and consolidate the meaning one has made.

Schema Theory explains why it is crucial for children with hearing loss to be introduced to many different experiences and the spoken language that represents them. These need to be concrete life experiences as well as virtual experiences gained through the shared reading of books with adults. Meaning cannot be created from words in the absence of some connection with experience and the words that describe it.

Vocabulary

“Knowledge as it relates to reading is closely linked to vocabulary” (Marschark and Hauser, 2012, p. 105). The term “vocabulary” involves current and evolving understandings of the concepts and contexts represented by words. Simply put, vocabulary is the body of words a person must know in order to comprehend both spoken and written language, and effective communication cannot proceed without such content held in memory. Because the ultimate goal of reading is comprehension, vocabulary is of critical importance in enabling readers to bring meaning to print. A reader uses his/her own background knowledge and experiences and makes sense of text by linking this background knowledge with both actual and virtual experience. For this reason, vocabulary is linked to reading comprehension and academic success.

The National Reading Panel of 2000 identified vocabulary as one of five core components of effective reading instruction:

1	Phonemic awareness
2	Phonics
3	Fluency
4	Vocabulary
5	Comprehension

For children with typical hearing, during the language acquisition years, most vocabulary is learned incidentally in various oral language contexts. Even so, direct vocabulary instruction is still needed, especially when one considers the number of words that students need to learn: “On average students should add 2,000 to 3,000 new words a year to their reading vocabularies” (Beck, McKeown, & Kucan, 2002). This statistic signals a more daunting challenge for the child with a hearing loss. Learning to listen and speak during frequent interactions with adults and other children is essential.

“Knowledge as it relates to reading is closely linked to vocabulary.”

Historically, acquiring sufficient vocabulary has been a particular challenge for children with hearing loss. Smaller vocabularies can result from language delays secondary to deafness. Prior to current practices that include newborn hearing screening and the use of ever-advancing technologies, Paul (2001) commented, “Because of their reduced access to auditory and oral language, children who are deaf and hard of hearing typically bring a partial and still-evolving language system and an impoverished vocabulary to early reading instruction” (Trezek, Wang, & Paul, 2010, p. 124). We are now in an era in which a diagnosis of deafness no longer signals these limitations (Madell, 2015).

Literacy theory regards beginning readers as able to identify in print a small portion of the words in their receptive and expressive vocabularies. They make sense of the words they see in print by using the sounds and words they have heard or said. If the words they know in this way are limited, they are at risk for failure in developing adequate reading and literacy skills commensurate with hearing peers and must be provided with explicit instruction in basic vocabulary and oral language (Trezek, Wang, & Paul, 2010, p. 121-122). The LSL approach is an ideal way to work with children from the earliest age possible on developing and expanding their vocabularies. A framework for effective vocabulary teaching for all children, especially those with hearing loss, includes both direct and indirect instruction techniques, provides horizontal and vertical vocabulary expansion, and targets both content and function words.

Indirect learning occurs naturally in everyday language exposure and experiences with conversation and written language, being read aloud to by an adult, and later through independent reading. Reading

aloud with children is one of the most effective means of assisting vocabulary building. Conversations before reading establish a purpose (enjoyment, information, communications, etc.) and help provide background knowledge (setting, author, characters, general knowledge, and the vocabulary that refers to them). Conversations during reading help monitor comprehension and help children create mental images. Conversations after reading help a child respond to text through making personal connections and expanding ideas (Vacca & Vacca, 2010; Yopp & Yopp, 2010). An additional important

Reading aloud with children is one of the most effective means of assisting vocabulary building.

benefit is that through these conversations, the adult provides a role model of fluent reading. Independent reading builds confidence, improves vocabulary knowledge, and allows for the choice in selecting materials that promotes reading for pleasure.



Photo courtesy of Advanced Bionics

Direct instruction promotes vocabulary acquisition, particularly as academic content becomes increasingly complex or technical and deals with abstract concepts. Teaching strategies include:

- Specific word instruction where the focus is on individual words and their corresponding meanings.
- Word-learning strategies that utilize dictionaries and other reference aids.
- Word analysis in which word parts and origins are studied (Trezek et al., 2010, p 123).

The use of pictures or other visuals and authentic representations of targeted vocabulary also aids in instruction.

Vocabulary instruction should promote horizontal and vertical expansion. Williams (2012, p. 28) explains: “Horizontal expansion refers to adding features to current definitions. An example is the knowledge that whales, porpoises, and dolphins are not fish but rather mammals. Vertical expansion allows for deeper understandings of words, such as their nuanced and multiple meanings. Word nuances include degrees and shades of meaning.”

For example, how can a student distinguish between these words:

Warm	Brisk
Hot	Chilly
Burning	Cold
Boiling	Cool
Scalding	Frigid

Although the words are similar, they are different in degree and can be learned through comprehensive instruction of multiple meanings, synonyms, antonyms, and the use of graphic organizers addressing examples, nonexamples, and attributes.

Content words and function words must both be addressed in vocabulary instruction for children with hearing loss. Trezek (2010, p.126) defines content words as “nouns, verb, adjectives, and adverbs, or words that can express an idea or concept.” Function words, on the other hand, are those words, such as articles, determiners, pronouns, and prepositions, that convey something about the relationships between and among people, places, and things. Trezek reminds us that “function words provide semantic and grammatical connections between content words” (2010, p. 126). Function words are often abstract in nature and can be difficult to learn for a child who is deaf, especially if the child is not immersed in LSL by listening to it and conversing in it.

Kamil (2004) suggests the following practices to improve vocabulary learning:

- Integrating new words into a child’s background knowledge.
- Providing repetition and multiple exposures.
- Providing conceptual frameworks for new words.
- Utilizing a variety of methods to meet needs of individual students.
- Preteaching of specific words before reading.
- Restructuring of vocabulary tasks as needed.
- The use of technology to enhance instruction.

Acquiring adequate vocabulary knowledge will help students develop comprehension and critical thinking skills (Vacca & Vacca, 2002; Vacca & Vacca et al., 2010; Yopp & Yopp, 2010).

In choosing strategies for teaching vocabulary, the teacher and therapist need to keep in mind the need for new words to be built upon the concepts and words the child already knows. This involves eliciting known concepts and words, so that the child is aware of them as new ideas that fit with them are introduced. Attempting to teach words in isolation is less successful than helping the child pay attention to his or her schemata and incorporating new information into them.

In *Reading and Learning to Read*, Vacca and Vacca et al. (2010) suggest the following principles to guide vocabulary instruction:

1	Choose words that the students will encounter during reading. This would include both words that are crucial to understanding content and those that are interesting and unique.
2	Teach words in relation to others, as with synonyms, antonyms, and words with multiple meanings.
3	Relate words to students' background knowledge.
4	Use prereading activities to generate interest, teach vocabulary, and follow-up with post-reading activities/responses.
5	Teach words systematically. Students should know more than a textbook definition. Provide them with opportunities to share definitions in their own words, use newly learned vocabulary in sentences they create, or relate vocabulary to their own experiences.
6	Generate enthusiasm for words and make vocabulary learning fun. Use technology and incorporate pictures, charts, and other visuals. Teacher-made games or adaptations of commercial games, such as Scattagories, Pictionary, Balderdash, and/or Outburst, can also enliven vocabulary instruction.

Williams (2012) also suggests guidelines for vocabulary instruction that include using vocabulary role-play, hands-on activities, and visualization. Utilizing graphic

organizers, such as Venn diagrams, Semantic Feature Analysis Charts, and Word Chains, allow students to classify words by attributes, compare and contrast, and link new words to previously learned concepts. Similarly, Johns and Lenski (2010) provide step-by-step directions and resources for enhancing vocabulary skills. The interested practitioner is urged to consult these sources.

Language Structures

As Scarborough points out, language knowledge and comprehension are prerequisites for reading. Indeed, language development and literacy development are intertwined and dependent upon one another. The language foundation is established early in the home environment, with its development spanning the school years and beyond (Williams, 2012). Bloom and Lahey (1978) maintain that language has three components—form, content, and use—and that when these three components interact, language occurs. They further assert subsystems within these three components, and that children who are deaf will need instruction within each of the five subsystems to ensure mastery of language and literacy (see *Table 2*).

Table 2
Language Components & Subsystems

Content	<ul style="list-style-type: none"> Semantics—meaning system
Form	<ul style="list-style-type: none"> Morphology—word parts Syntax—word order Phonology—sound systems
Use	<ul style="list-style-type: none"> Pragmatics

The language foundation is established early in the home environment, with its development spanning the school years and beyond.

Content

Semantics. Under the broad system of content is the subsystem of semantics—or put another way, knowledge about the real, the abstract, and the imagined coded in language: knowledge about people, objects, actions, events, and relationships. Skills within this subsystem include vocabulary growth and development. They are of critical importance, because they ultimately affect reading comprehension and allow the reader to bring meaning to print, as discussed earlier.

Form

Subsystems in the form category include morphology, syntax, and phonology. Literacy skills that comprise these subsystems are structural analysis; word identification strategies; and syntactic, phonological, and phonemic awareness.

Morphology. Morphology deals with morphemes, or the smallest unit of meaning within a language. “As building blocks of a language, phonemes and morphemes are combined to form words and phrases” (Trezek, Wang, & Paul, 2002, p. 51). There are two types of morphemes: free and bound. Free morphemes are those that can stand alone as a word with meaning, such as *cat*, *run*, and *house*. Conversely, bound morphemes are those that cannot stand alone, such as prefixes and suffixes. Bound morphemes must be attached to a free morpheme to have meaning. For example, the bound morpheme *-ing* is meaningless by itself, but when added to a word such as “*jump*,” it changes the tense of the verb, thus indicating a grammatical change.

There are two categories of morphemes: derivational and inflectional. Derivational morphemes are those suffixes and prefixes that can change a word’s meaning or category of a word, such as when one adds the prefix *-un* to the word “*happy*.” A word with a completely different, in fact, opposite meaning can be created—*happy* vs. *unhappy*. Inflectional morphemes are suffixes that indicate tense, plurality, or possession. For example, when adding the suffix *-ing* to a word such as “*jump*,” the verb tense becomes the present progressive form:

“*jumping*” can also function as a noun. Likewise, adding the suffix *-s* to a word changes it to its plural form, as with “*cat*” vs. “*cats*.”

In ways similar to vocabulary development, children with typical hearing are exposed to morphemes through everyday incidental learning experiences and arrive in kindergarten with a basic mastery of English morphemes. “When children enter school, learning about word parts becomes a topic of formal language instruction referred to as ‘structural analysis’” (Williams, 2012, p. 67). Structural analysis provides students with working knowledge about word origins, root words, base words, suffixes, prefixes, and compound words. Similarly, some specific word structure knowledge, such as Greek or Latin origins, can aid in comprehension of complex vocabulary within the realm of science and technology so often prevalent within academic content in secondary and higher education.

Williams suggests the use of word sorts, where groups of words are classified by various characteristics. For example, words with prefixes might be sorted by the meaning of the prefixes (*re-*, *un-*, *mis-*) or suffixes, such as those used to change adjectives into adverbs (*-ly*). These word sorts can be open (the student decides the grouping criteria) or closed (the teacher defines such criteria), and many possibilities exist. This strategy is also useful for vocabulary enhancement, and open sorts can engage students in higher-level thinking skills. Other suggestions include semantic and concept mapping (e.g., see Frayer et al., 1969; Buehl, 2001). Morphemic development is critically important to achievement in comprehension and informs writing, spelling, and the expansion of vocabulary.

While morphology is concerned with the structure of words and word parts, syntax focuses on how these words are ordered and arranged to create phrases and sentences that conform to the rules of the spoken language used in a child’s environment. By about the age of five, the average child with typical hearing has acquired the structures of the spoken language (Fry, 1966; Ruddell & Ruddell, 1994). She can understand and create sentences of various types, even when they are rearranged syntactically.

“When children enter school, learning about word parts becomes a topic of formal language instruction referred to as ‘structural analysis.’”

For example:

1	Leila went to school on the bus, because she liked to be with the other kids.
2	Because she liked to be with the other kids, Leila went to school on the bus.
1	Jack hit the ball with the bat.
2	The ball was hit by Jack with the bat.
3	The ball was hit with the bat by Jack.

Being able to manipulate the structures and add new content is an important meaning-making skill that speakers of a language make use of throughout their lives. Without this foundation, a reader/writer is at a distinct disadvantage.

Syntax. Readers may use syntactic knowledge when presented with new or unknown words by replacing the unknown with possible words that are the same part of speech in an effort to determine meanings. Poor syntax skills may also have a negative effect on writing skills. While extensive shared reading experiences help children learn much about written language, explicit teaching of grammar, punctuation, and mechanics is usually necessary. Other teaching recommendations include having students do the following (Snow, Griffin, Burns, 2005, pp. 97-100):

Arranging and rearranging words of sentences that have been cut apart and mixed up.
Making several short sentences into one long one.
Paraphrasing.
Reducing very long sentences into smaller ones.
Exposing students to texts with varying levels of linguistic complexity.

Phonology. The final subsystem of form is phonology—the sound system of a language and the rules that govern combinations of sounds. Phonology has long been viewed as critical to reading success and is accessed by skill in phonemic awareness, the foundation for access to the alphabetic principle, decoding, and phonic coding, all described in the *Word Recognition* section.

Use

The third component of language is use, and its corresponding subsystem is pragmatics, which governs the use of language in social contexts. “In addition to learning the content and form of language, students must also learn the use of language” (Williams, 2012, p. 95). Within the typical classroom, communication between teachers and students is often more formal than casual conversation, and students may need guidance to navigate its nuances. Williams (2012) also maintains that “pragmatics in reading also refers to knowledge about books, including text features and patterns.”

Verbal Reasoning

We can say that:

Reading comprehension is built upon a foundation of verbal reasoning.

Reading comprehension is verbal reasoning.

Reading is thinking.

In considering these statements, we further our concept of reading by doing—and writing about—the very verbal reasoning we are investigating.

To say that something intangible (verbal reasoning) is built upon a foundation is to compare its elements to those of an actual structure made of wood, brick, steel, concrete, and/or stone. This metaphoric language alludes to our general knowledge of how a building rests upon and is supported by some sort of wall or framework, and that without such support, the building would fall down. So comprehension depends greatly upon being able to reason in terms of words—just as the building depends upon its foundation in order to stay in place.

To say reading comprehension is verbal reasoning is another metaphoric way to make the same point—this time in an even more direct way. Without the reasoning done by manipulating words in relation to each other, there will be no comprehension. Such reasoning about metaphoric language

“In addition to learning the content and form of language, students must also learn the use of language.”

takes into account the various ways the reader knows how to use the words used in the comparison. For example, one might say, “My computer is an antique, and I hope I’ll be able to trade it in.” For people steeped in computer use, this is normally thought to mean that the computer being referenced is at least three years old. But one definition of an antique includes that it is at least 50 years old, and that it’s not used much in the present. Sometimes the definition includes that it is valuable. Verbal reasoning—using this metaphor—comes to see that the term “antique” is being stretched and made ironic in this case. The inference is made that the person’s computer is older than three years, is useless in current technological terms, and is anything but valuable.

Making inferences involves mental gymnastics (another metaphor!) in which the listener or reader considers what might be the case if a word is defined in one way or another. In the “antique” case, the “50-years-old” sense of the word is impossible, because computers haven’t been in general use for that length of time. So it is discarded as not applicable, and the listener/reader must reconsider. Having the knowledge that people trade in old items for newer ones allows for an adjustment of what it means for a computer to be old.

Other verbal reasoning may hinge on sequencing events or items according to a known structure, such as counts from 1 to 10; rating systems, such as “good, better, best,” and extremes represented by antonyms, such as cold vs. hot, slow vs. fast, tiny vs. huge. Conventional ways of expressing such structures (from the least to the most in these examples) help people share their verbal reasoning with each other, and readers and writers in particular social settings come to depend upon others having knowledge of and facility with the same ways of thinking.

Literacy Knowledge

Literacy knowledge is gained over a lifetime and begins with initial communicative attempts as an infant. These early communication behaviors grow into conversations and social interactions as children play, explore, and manipulate their environments. They attempt with increasing success to copy adults and build language and cognitive skills that promote learning to read. Through these actions, they also learn print concepts—the foundation of later reading and writing skills.

Concepts of print include learning book handling behaviors and directionality of print—that in English we read from top to bottom and left to right, one line at a time. From early experiences with print, children learn that symbols and letters are associated with particular meanings. For instance, how many children recognize the golden arches for McDonald’s? Children learn that pictures within a storybook correspond to print, and print is what we read. Learning the purpose and use of punctuation also fits here. Marie Clay calls these concepts about print “the rules of the road” as children develop literacy skills (Clay, 2000, pp. 24-25).

These print concepts evolve further as children mature and come to understand elements of literature through exposure in academic content and in reading for pleasure as well. They learn the elements of literature, such as author, main characters, setting, etc. They also learn that there are different types or genres of text, such as fiction, nonfiction, or informational text, and that each serves a different purpose. Further categorization includes genres, such as poetry, fantasy, fairy tales, science fiction, realistic or historical fiction, legends, mystery, myths, and fables. Duke and Purcell (2003) define a genre as “a form of text that uses a particular format and structure.”

Literacy knowledge is gained over a lifetime and begins with initial communicative attempts as an infant.



Photo courtesy of NCHAM

Genre categories often overlap, and using a variety of them helps students build background knowledge and strategies to approach and respond to new and/or unfamiliar texts. For instance, nonfiction materials generally comprise science instruction, so exposure to informational text helps the reader develop a familiarity with such text. Features of this text might include bold typeface and the use of tables, figures, and diagrams that are not present in other types of materials. Teachers and parents should also share that good readers often read a variety of books and encourage students to do so too.

Donalyn Miller (2009, p. 34) writes of her teaching experiences . . .

“Students need to be surrounded with books of all kinds and given the opportunity to read them every day. Conversations about reading—what is being read and what students are getting from their books—need to be an ongoing event. In my classroom, students have access to hundreds of books of all genres and reading levels and encouragement to read widely.”

Word Recognition

Phonologic skills can be viewed along a developmental continuum where skills are acquired incrementally. Initially, phonological awareness develops when a child first begins to notice differences among sounds. Next, phonemic awareness skills develop—providing the child with the ability to hear and manipulate specific sounds. This generally happens in play when children are exposed to nursery rhymes, songs, finger plays, and games, such as *Ring around the Rosie* or *The Farmer in the Dell*, for example. Finally, skills prompted by phonics instruction emerge, allowing the child to recognize and interact with sounds in print (Easterbrooks & Estes, 2007, p. 111). According to Adams (2002), when children discover the relationship between a few sounds and letters, they develop a sense of the alphabetic principle and then are able to apply the principle to the rest of the letters and their related sounds.

Williams (2012, pp. 80-81) identifies and explains specific skills associated with the acquisition of phonemic awareness and phonics knowledge (see *Table 3*). These phonemic awareness skills are considered to be important foundational skills for later reading success and accordingly have been identified as critical

components of effective reading instruction by the National Reading Panel (2000).

While phonology has been viewed as a key factor in word identification skills, research in deaf education has been fraught with controversy as educators and other professionals grapple with questioning whether or not deaf readers use phonologically based codes (Williams, 2012, p. 79). But with advances in technology for cochlear implants and assistive listening devices, children who are deaf are increasingly able to access all aspects of spoken language, including phonology, and difficulties in language acquisition, literacy, and academic progress can be avoided or at least minimized (Joint Committee on Infant Hearing, 2007).

Beyond making it possible for children to listen, the development of phonologic skills can be accomplished in many ways. There are numerous approaches and an abundance of commercial curricula available. Programs that provide students with systematic/explicit instruction allow for practice and review, but these should not comprise a whole reading program. Additionally, the importance of promoting such awareness through the use of authentic literature and other classroom reading materials and activities cannot be overlooked.

Decoding

The natural extension of sound to symbol skills is the understanding of the relationship between the sounds and letters. Decoding is the application of the alphabetic principle. In one way of describing this phenomenon, when a new word is encountered, a reader identifies the individual letters in the word, matches the letters to known sounds, blends the sounds to produce a word, says the word, recognizes the word, and attaches meaning to it. One cannot assume, however, that the words a child can decode are understood. Easterbrooks and Estes (2007, p. 111) caution, “Decoding should be practiced within the context of words within a child’s vocabulary.”

The natural extension of sound to symbol skills is the understanding of the relationship between the sounds and letters.

Table 3
Specific Skills Associated with Phonemic Awareness & Phonics Knowledge

Phoneme Isolation	Phoneme Identity	Phoneme Categorization
Identifying individual sounds in words.	Ability to recognize common sounds in a series of words.	Ability to identify which word in a set of words has a sound different from the others.
<i>"What is the first sound in fat?"</i>	<i>"What sound is the same in day, dog, and deer?"</i>	<i>"Which word has a different first sound: run, red, mop?"</i>
Blending	Phoneme Segmentation	Deletion
The ability to form words by combining a series of phonemes presented orally.	Identifying and counting the number of phonemes in a word presented orally.	Identifying a word that remains when a phoneme is deleted.
<i>"What is /d/ /o/ /g/?"</i>	<i>"How many sounds do you hear in cat?"</i>	<i>"What word is left when you take away /s/ from spill?"</i>
Addition	Substitution	
Recognizing a new word that is made by adding a phoneme.	Identifying a new word that is created when one phoneme is substituted for another.	
<i>"What word do you have if you add /b/ to rain?"</i>	<i>"The word is ran. Change the 'r' to 'm.' What is the new word?"</i>	



Photo courtesy of Sound Beginnings/Utah State University

Another challenge with decoding is the fact that in the English language there is not a perfect match for all letters and sounds. There are only 26 letters in the alphabet but approximately 40 phonemes, and the sounds are represented in numerous spellings. For example, the letter "g" can be produced as /g/ in the word *goat*, or /j/ as in the word *giraffe*. The /f/ sound can be spelled with the letter *f*, as in *fan*, or with the digraph *ph*, as in *phone*. Vowel teams, digraphs, and diphthongs add a layer of complexity to decoding. For example, the long /o/ sound can be spelled using *oa* as in *boat*, *ow* as in *low*, *ough* as in *though*, with a silent *e* at the end of a word as in *rope*, or even in isolation at the end of a word as in *no*. Similarly, words with irregular spellings, such as silent letters (*comb* or *knight*), can further complicate learning. Using affixes

to change verb tense or meaning, such as changing *jump* to *jumping*, presents still another layer of complexity. The systematic and explicit teaching of spelling patterns and rules can advance decoding and encoding (writing) skills. Ongoing practice will result in automaticity and fluency.

Children with hearing loss will require extensive experience and instruction training in learning to listen coupled with systematic training to develop phonological and phonemic awareness skills. One must not assume that just because particular children wear hearing devices that they can decode and understand words. "Hearing technology in and of itself will not provide access to the sounds of words. Children must have extensive, systematic, and comprehensive instruction in learning to listen"

(Easterbooks & Estes, 2007, p. 110). In the past, auditory training focused on the development of listening skills with consistent use of amplification and speech reading. LSL therapy is a refinement that focuses on the development of listening skills with no emphasis on visual cues. The goal is to provide intensive auditory stimulation and to scaffold learning from awareness of individual sounds to putting words together in a meaningful way. Easterbooks and Estes (2007) emphasize that teachers need to screen and select both auditory development and phonemic awareness curricula to match the individual needs of students.

Sight Recognition

In numerous cases, word recognition—or “word identification”—must be done on the basis of whole words and/or word units, as many words do not lend themselves to decoding as described above. Many words used in English come from languages other than English, as well as from old forms of written English [e.g., words such as *esprit de corps* (French origin) and *sign* (Middle English, French, and Latin origins)] and are pronounced in ways that must be learned by sight rather than decoding. To be sure, both offer alphabetic clues to their pronunciations. And those clues can help a reader come to some approximation in going from text to speaking, so it can be observed that decoding and sight word reading interact with one another.

Learning all of the ways sounds, patterns, word parts, and whole words are represented when written requires a great deal of experience with listening and pronouncing spoken words, comprehending them, and matching them up with their written counterparts. In some words, the sounds of particular letters depend upon where they fall in relation to other letters. Think of how the combination of “o” and “u” (“ou”) is pronounced in *bough*, *rough*, and *though*, and think about how words such as *save* and *have* look as though they will rhyme according to the usual decoding instruction but do not. Some words spelled in the same ways are pronounced differently depending on their meanings and the words around them (e.g., “I like to *read*, so I have *read* many books”). Such instances in which the decoding rules do not apply must simply be learned,

so the words and their meanings can be recognized quickly. Clearly word recognition is not done in isolation when meaning-making is the goal but in context. It is easier to master the vast number of “sight” words when one has a large and flexible listening and speaking vocabulary for which meanings are readily available.

Making Literacy Development a Reality

Teachers and therapists have important work to do with children and their parents and need to focus on the goals of building independence, collaboration, self-monitoring, and self-worth throughout the individual’s life. While these goals may not seem to apply to the acquisition of literacy, when they are absent, literacy processes are less likely to flourish.

Independence equips the learner to seek more information, ask questions, and believe that she is capable of making sense of sound, symbols, words, and ideas. Being able to collaborate helps the learner trust the professional and work with others to learn more. Self-monitoring ranges from learning to listen to and evaluate one’s own articulation, to checking in on one’s language use in speaking and writing (e.g., have I chosen the right word and put it in the best place?), to evaluating the meaning one is making while listening and reading. Self-worth is necessary, so that the learner feels it is possible for him or her to make progress in learning.

Teachers and therapists have important work to do with children and their parents and need to focus on the goals of building independence, collaboration, self-monitoring, and self-worth throughout the individual’s life.

In this section, we address how to help learners of different ages grow in knowledge and process abilities.

Early Literacy Development

As discussed previously, language development and literacy development are intertwined. Literacy development for the child with typical hearing begins at birth when he is exposed to spoken language, and for the child with hearing loss, the beginning is the exposure to and interaction with usable spoken language. This initial exposure broadens over time to include interactions with

print, which in turn becomes more refined reading and writing skill as the child matures.

Two of the most important experiences adults need to initiate with children both with and without hearing loss to promote their later literacy achievement are frequent shared readings and the use of Language Experience Books. It is never too soon to read aloud to and with an infant, and it has long been documented that children who engage in frequent shared reading become readers more easily than children who do not have this experience. Many researchers assert this.

In the words of one (Adams, 1990, p. 86) . . .

" . . . the most important activity for building the knowledge and skills eventually required for reading is that of reading aloud to children. In this, both the sheer amount of and the choice of reading materials seem to make a difference. Greatest progress is had when the vocabulary and syntax of the materials are just ever so slightly above the child's own level of linguistic maturity."

Language Experience Books (LEBs) are homemade books based upon the child's experiences (Robertson, 2014, pp. 189-214). The progression from the adult creating the book and its language, to a sharing of its composition, and finally to the child's being able to take on the writing of his or her own language makes excellent use of the natural progression of language development in all of the ways we discussed in this chapter. Each book becomes a "reading" book for the child that has the advantage of being precisely within the child's actual and linguistic experience as well as his or her interest (see *Table 4*).

The LEB accomplishes many functions simultaneously. It brings the parent and child together in a routine behavior that focuses on the child, it introduces the child to remembering and talking about recent experiences, it builds vocabulary, and it demonstrates how to write and then to read that writing. As the child grows and learns more language, the LEB process grows accordingly, and the parent and child use the

Table 4
Essentials First Steps in Using LEBs

1	The parent (or other adult who spends time with the child) says, "We're going to make a book about you!"	6	The parent and child talk about the experience as much as possible on that occasion.
2	The parent opens the notebook to the first page and draws or pastes a picture related to an experience they have had together.	7	In a day or two, the parent says, "Let's read your book about you!" They look at the first page, the adult reads it, and they talk about it. Then the adult creates the next page, and they follow the same procedure.
3	The parent talks about the experience with the child using words the child knows. When possible, the adult sprinkles in a few new words so as to expose the child to new words—usually synonyms—related to the picture. The adult waits patiently for the child to speak about the experience and may ask questions to help the child come up with words or a sentence. Very young children may not be able to do this yet, but it is always important to invite the child to speak about the experience and to wait expectantly for the day the child's spoken language is up to this interaction.	8	As often as possible, the parent adds new pictures and experiences to the LEB, and the pair enjoys using it for read-alouds.
4	The parent writes words and/or sentences about the experience. For example, "Mommy and I went to the park. I liked the swings. I climbed up the slide. Mommy helped me slide down."	9	As possible, the parent shares the book with the auditory-verbal practitioner, child's teacher, daycare provider, and/or grandparents, thus acquainting the adults in the child's life with the child's experiences and the language being used with the child about them.
5	The parent reads the words out loud, pointing to them as s/he does so.		

LEB as a book to read together frequently and as a place to record the child's experiences:

1	The child can begin to supply the subject and the picture.
2	In addition to pictures, the parent or child may tape or paste to the page a ticket, a postcard, or some other bit of memorabilia that sparks remembering.
3	The parent chooses more complex words and language for the sentences in order to stretch the child's language knowledge.
4	The child can begin to tell the parent what to write on the page.
5	The child can begin to write on the page.
6	Both the parent and child read the sentences and words on the page.
7	The parent and child both initiate conversation about the experience.
8	The child takes charge of the LEB, using it as a notebook for school projects and as a journal for self-reflection.

Other sources helpful in creating a practice of shared reading include Fox (2008), Ozma (2012), and Trelease (2013).

These early reading and writing behaviors include:

Sharing books with adults.
Proper book handling.
Pointing to pictures and words.
Drawing and scribbling.

Babies and toddlers need to be exposed to board books and interact with simple and bright illustrations or photographs. As a child matures, these books are replaced with more complex illustrations and texts. Board books become simple storybooks. Reading aloud with young children allows opportunities for bonding and teaching. Typically developing children become aware of environmental print and gain letter knowledge. Narrative skills are developed through talking, describing, and storytelling.

Trelease (2006, p. 34) writes . . .

"One-on-one time between adult and child—be it reading or talking or playing—is essential to teaching the concept of books or puppies or flower or water."

School-Age Literacy

Early literacy skills need to become more refined as the child prepares to enter school. When language development is on track, and early literacy skills are well established, a child is more likely to succeed in academic tasks encountered in school. Phonemic awareness and alphabetic awareness skills are honed, and instruction transitions to developing fluency and comprehension strategies, including metacognitive abilities.

Fluency is the ability to read expressively and meaningfully, as well as accurately and with appropriate speed, that allows readers to construct meaning (Rasinski, 2012). When readers are able to identify words with automaticity, more cognitive energy is available for comprehension. Indeed, Rasinski (2012) describes fluency as the bridge from word recognition to text comprehension and suggests wide and repeated reading of authentic texts as a way to improve fluency. A word of caution here is that material used for fluency exercises should contain vocabulary and grammar with which a child is familiar, as fluency is the dynamic interaction linking background knowledge, vocabulary, and word identification.

Just as with promoting early literacy, using predictable stories is beneficial for promoting fluency. These stories usually have natural language patterns, repetitive language, and illustrations that support the text—qualities that help children know what to expect. Poetry and music also have repetitive language and rhythm that can be used to enhance fluency too. Choral reading can provide less-able readers with simultaneous support while reading. Similarly, Readers' Theater offers opportunities for students to participate in drama, prose, or poetry.

Attention to chunking—a cognitive phenomenon (VandenBos, 2007)—is yet

Early literacy skills need to become more refined as the child prepares to enter school.

another useful teaching strategy for improving fluency. Chunking helps students recognize and store in short-term memory words that go together—*out of sight, in the woods*, etc.—or natural breaks in text—*The little bunny / hopped away*. These exercises provide visual models for reading short bits of text while building prosodic skills. Teaching about different types of punctuation informs students of prosodic elements, such as pauses, inflection, intonation, emphasis, and even the meaning of text. Repeated readings of passages provide continued practice and allow students to become familiar with particular texts over a period of time.

Paired readings are where students are grouped in pairs and select different passages to share. Students read passages silently and then to one another. A benefit of paired readings is that partners are not seen as threatening or imposing.

As students grow older and transition from “learning to read” to “reading to learn,” instruction should prepare students to comprehend and respond to text in meaningful ways. This is not to lessen the importance of comprehension strategies in early literacy development, as they should be emphasized at all ages/grades.

The National Reading Panel (2000) recommended six strategies for increasing comprehension. These six strategies increase in complexity moving down a continuum:

1	Monitoring comprehension.
2	Using graphic organizers.
3	Answering questions.
4	Generating questions.
5	Recognizing story structure.
6	Summarizing.

Monitoring comprehension occurs as readers actively think about what they are reading and recognize when they do not understand something—knowing when you know and when you don’t know. They apply

metacognitive (thinking about thinking) strategies to address difficulties.

Armbruster, Lehr, & Osborn (2001, p. 42) note . . .

“For example, using comprehension monitoring, a good reader may clarify the purpose of reading and preview the text, examine his/her understanding, modifying reading speed to correspond to the difficulty of the text and ‘fix up’ evolving comprehension problems during reading, and finally verify his understanding of the text afterward.”

Table 5 lists thinking or metacognitive prompts that might be applied during this monitoring process. Readers might also ask themselves the questions shown.

Table 5
Thinking or Metacognitive Prompts & Possible Questions

Thinking or Metacognitive Prompts	Possible Questions
I’m thinking . . .	Is this making sense?
I’m seeing . . .	What is going on?
I’m wondering . . .	Do I need to reread?
I’m feeling . . .	What does this word mean?
I’m noticing . . .	How is it pronounced?
	What have I learned thus far?
	Should I read further?
	Can I explain what I have read?
	Can I put it in my own words?
	Why is this important?

Graphic and semantic organizers are visual representations (maps, charts, webs, graphs, frames, semantic maps, semantic webs, T-charts, Venn diagrams, K-W-L charts, etc.) of concepts or themes that promote comprehension by emphasizing concepts and relationships between concepts. They are particularly useful for content areas in which there is a great deal

Answering and generating questions are important in furthering comprehension.

of technical detail or complex vocabulary, as in scientific areas. However, they can be used across subjects and content areas. They help organize content, help students make connections, structure thinking, and facilitate writing.

Answering and generating questions are important in furthering comprehension. When the teacher poses questions, students are afforded the opportunity to review what they have read, make inferences, and gauge comprehension. They are also able to learn text structure as they look for answers within the text. Generating questions based on their reading gives students an opportunity to connect with text through higher-level thinking skills and determine importance of what they have read. Answering and generating questions before, during, and after reading leads students to delve into text deeper, thus promoting a clearer understanding.

Recognizing story structure helps students guess about what to expect during reading. For example, students recognize that characters and setting of a story are usually identified at the beginning of a story, a problem occurs midway through reading, and a solution occurs at the end of a story. This structure provides a basis for understanding. Knowing the structure also helps. When students are asked questions, they know where to look for answers. Graphic and semantic organizers help with this.

Summarizing gives students the opportunity to decide what is important in the text, identify main ideas, understand the author's purpose or message, and put the outcomes of such deliberations into their own words. This strategy offers the most support when students are able to

summarize small bits or sections of text. For example, students summarize individual chapters in a novel and then a final summary at the end of such.

Metacognitive skills associated with comprehension and learned during these years include making connections between old and new information, building and activating background knowledge, and visualizing or creating mental images. Comprehension strategies can be taught explicitly across grade levels, especially for struggling readers. Instruction may be more intensive initially and then slowly give way to student independence in a gradual release of responsibility from teacher to student. In teacher modeling, the teacher explains the strategy and demonstrates the skill. Guided practice provides opportunities for students to try out a specific strategy with guidance and feedback from the teacher. Independent practice occurs when the students practice independently, and finally application occurs when students can use a newly learned strategy on their own with new reading material. Such scaffolding allows students to learn new strategies and grow in confidence.

For children who are deaf, Williams (2012) recommends that a balanced literacy approach is used to promote reading skills, and that teachers must critically evaluate all reading materials. Such an approach reflects a continuum of practices with varying levels of support—reading to students, reading with students, and students finally adding independent reading. This approach is similar to the suggested teaching of comprehension strategies mentioned in the above paragraph in that students become more accountable as their skills increase.

Reading **to** students (Read Aloud) stimulates interest, provides a good role model, and exposes them to multiple genres. Reading **with** students (Shared Reading, Language Experience Approach, Guided Reading) increases their involvement, and the teacher helps them make connections and implements instruction for specific strategies. Independent reading gives students the opportunity to apply learned strategies and skills. Similarly, Schirmer (2000) promotes a balanced literacy in which reading and writing are interrelated and the reading behaviors of readers guides instruction (formative teaching),

Comprehension strategies can be taught explicitly across grade levels, especially for struggling readers.



Photo courtesy of Sound Beginnings/Utah State University

students are given choice and ownership in selecting reading materials, and they become metacognitive readers. Practice in reading a large number and wide variety of books is probably the most important developer of high levels of literacy. *The Book Whisperer* is an important book by a sixth-grade teacher who has turned many nonreaders into readers by encouraging them to read widely and often, and we recommend it as an excellent resource (Miller, 2009).

Literacy Across the Curriculum

The shift from learning-to-read to reading-to-learn in third or fourth grade suggests the need for proficiency in foundational skills, such as reading and language use. Often teachers assume unrealistically that all students—both those with typical hearing and those with hearing loss—bring prerequisite skills to the classroom. Teachers need to be especially aware that many learners who are D/HH come to them less ready to make the jump, particularly into reading in the content areas and making sense of more demanding types of literature (Evans & Clark, 2015). As such, educators are charged with the task of minimizing educational gaps while recognizing that students who are D/HH have a variety of language histories, learning needs, and communication preferences (Dostal et al., 2017). Addressing these educational gaps may require that instruction is modified or augmented to support individual learner needs and facilitate growth, particularly in content areas where text becomes increasingly complex and less concrete. Many learning activities and tasks require abstract reasoning and other higher-level critical thinking skills, and students need explicit and systematic instruction. Learning about text structure and print features (e.g., boldface type, use of italics, headings, graphs, tables, figures, photographs, and captions) characteristic of these texts can prepare learners to engage with reading materials in the content areas.

Instructional strategies that generalize across all content areas and optimize learning for learners who are deaf include:

- Robust discussions.
- Repeating or restating questions and comments to fill in gaps for students.
- Rephrasing, as needed.
- Asking open-ended questions.

Students need help in making personal connections with text, making predictions and inferences, and learning to confirm or rule out those predictions and inferences. Other instructional strategies include:

- Presenting materials in multiple modes.
- Using visuals, digital, and multimedia or multisensory formats.
- Explicitly teaching background knowledge.
- Using graphic and semantic organizers.
- The pre-teaching of targeted vocabulary that provides links to previous knowledge (context).
- Cooperative learning activities.
- Summarizing material.
- Using leveled texts.
- Using captioning and other assistive technology.
- Encouraging independent reading.

A designated notetaker, providing additional processing time, and extended time for completing assignments and tests may also facilitate learning.

Content-Specific Strategies

The subject of math can prove especially difficult. Problem solving and computational skills are often dependent on reading and language competency of spatial relationships and quantitative reasoning. Unique symbols, numbers, and alphabetical characters represent abstract concepts, as well as vocabulary and text structure that differ from everyday language (Ming, 2012). The linguistic demands for word problems can be difficult for a learner who is D/HH. Using manipulatives; drawing pictures, charts, or diagrams; modeling think-alouds; and the scaffolding of tasks can promote understanding and independent thinking. Additionally, instruction can be augmented with expressive writing activities whose goal is to describe concepts. Collaborative learning can promote academic success while providing good interpersonal communication experiences.

Practice in reading a large number and wide variety of books is probably the most important developer of high levels of literacy.

Although science is experiential in nature, it presents its own set of challenges due to its complex technical and procedural vocabulary, as well as requisite critical-thinking skills. Students of all ages can find the words hard to read, write, and spell. Therefore, the concepts and associated vocabulary are best explored and supported by offering pre-teaching, explicit teaching, and post-teaching through semantic mapping, charts, diagrams, and other graphic or visual organizers. Cooperative learning and hands-on activities can enhance success with content material, as can using trade books or leveled texts.

Equally demanding, social studies and geography contain specialized and often abstract vocabulary or concepts that may necessitate pre-teaching and explicit teaching. Teaching that emphasizes text structures and print features can support learning, and including cooperative learning activities, role-playing, and community service opportunities as often as practical are appropriate hands-on learning experiences. As with other content areas, the use of graphic and visual organizers, maps, and manipulatives helps all learners.

Other important components of the general education curricula that should not be overlooked include art and music. Indeed, art instruction provides opportunities for children to hone fine motor skills through drawing, painting, cutting, sculpting, etc., as well as developing creativity and imagination. Likewise, participation in music education through vocal/choral engagement or by learning to play an instrument can provide many learning opportunities. As is the case for typically hearing learners, the ability to read music promotes literacy skills, as well as speaking and listening skills. An extensive study of D/HH learners who participated in music instruction showed increases in auditory working memory, sound perception and discrimination, recognition of pitch, prosody and rhythm patterns, as well as increased phonological awareness (Torppa & Huotilainen, 2019).

Irrespective of content, it is critical that educators attend to characteristics of the physical classroom to ensure an optimal learning environment for students with hearing loss. This includes minimizing background noise, providing visual access, and the scaffolding of learning tasks, as well as employing instructional strategies discussed herein. Good attention should be given to assistive technology devices and services that enhance the physical environment, including:

- Classroom amplification or remote microphones.
- Captioning and transcripts of audio and video information.
- Peer notetakers.
- Frequent comprehension checks.
- Allowing one speaker at a time, when possible.
- Facing the child with hearing loss.

The Question of a Reading Curriculum

We have both, on occasion, been asked to suggest a curriculum that teaches children to read and write, and we understand the desire to have in hand the “perfect,” “foolproof” roadmap to literacy. This does not and cannot exist. Children do not progress in a lockstep, entirely predictable fashion. Many fine curricula exist, however, and teachers and therapists need to learn as much as possible about theories of language acquisition, reading, writing, and thinking in order to evaluate and make wise choices when consulting one or more of them. Using the Listening and Spoken Language domains and guidelines allows for the professional to decide upon content that is accessible to the child and compatible with the family’s interests. The goal of auditory-verbal intervention is to prepare the child to enter mainstream schooling with the age-appropriate receptive and expressive language that readies him/her to participate in whatever approach is in use in that school.

Children do not progress in a lockstep, entirely predictable fashion.

The question of a reading curriculum in some minds involves thinking about a phonics approach versus a sight word approach, as though they are in opposition with each other. It is more useful to regard phonics and sight words as two necessary approaches to word identification, as neither one “solves” all words. As discussed earlier in this chapter, comprehension is the purpose for reading, and creating comprehensible text is the purpose for writing. Both guide and are guided by the written symbols and language structures in complex interactions that involve prior knowledge and the content at hand.

College & Beyond

Even when students arrive at college and the world of work with well-developed LSL comprehension, skills, and strategies, they need the understanding, support, and assistance of those around them—professors, fellow students, employers, colleagues, and support staff. It is not uncommon for a student to enroll in college or begin a new job with the intention of not mentioning the hearing loss and proceeding “just like everyone else.” While this strategy may work for some, most find that it is necessary for others to understand their situation, as there are times when spoken words are inaccessible. Technology can break down, batteries can go dead, there may only be one seat left in the back of a large room where no microphone is being used, and so on.

Students and employees need to speak for themselves with the people who need to understand. The first point of contact can be the Americans with Disabilities Acts (ADA) coordinator or the human resources department. Students should initiate a conversation with the ADA coordinator and with professors at the beginning of every course in which they describe how they hear and listen and give information about seating needs and preferences during classes. The ADA coordinator is charged with assisting the student with gaining appropriate accommodations. New employees need to talk with supervisors and colleagues about how best to get their attention and make sure they’ve received and had a chance to digest communicated information. None of this need be intrusive—though legal recourse is available and sometimes necessary. In fact, professors and employers need to think about these matters in the case of all students and employees—both with and without hearing loss.

College students are expected to become increasingly independent during this phase of their education. Students with hearing loss who have been coached and expected to speak up for themselves throughout their education will have an easier time than those who have been kept dependent by parents and teachers.

Even when students arrive at college and the world of work with well-developed LSL comprehension, skills, and strategies, they need the understanding, support, and assistance of those around them.

Academic learning during the college years takes place in numerous venues. Students need to have considerable, extensive facility with spoken language as they attend lectures, participate in discussions, prepare and give reports, write lengthy pieces, and study for and take exams. Hands-on laboratory and fieldwork demand written and spoken responses and analyses. One learning task is to identify, transfer, and transform the language of lectures, readings, and discussions into one’s own spoken and written words, as the language a student encounters helps the student ask questions about content. Various sources of language and ideas can bolster each other as students become aware in their reading of words they have encountered in listening to a lecture, and words heard in lectures and discussions are discovered in readings. Learning demands continuously ratchet up, as it is increasingly not enough to listen, read, and remember. Students now have to remember, comprehend, apply, analyze, synthesize, and evaluate (Bloom et al., 1956).

Perhaps surprisingly, learning becomes more social, and the need for a network of fellow students, faculty, and advisors becomes apparent. The expectation that individuals become part of learning, research, and working groups intensifies, and cooperative and collaborative learning are prominent in many courses.

In order to prepare for the demands of not only “knowing” but of carrying out the more complex levels of dealing with and creating new knowledge, students can benefit from engaging in “how to study in college” advice that includes strategic reading, note-taking, rehearsing, and concept mapping (see *Table 6*). These four strategies are just a few of the many offered for college students. In fact, many college and university websites supply good advice about studying and learning for students.

College professors often require their students to explain a concept—verbally and/or in writing—in order to discover what they know and do not know. Then they use this knowledge to fill in gaps they see in students’ thinking. They address faulty explanations by asking

Table 6
“How to Study in College” Advice

Strategic Reading	Note-Taking
<p>Strategic reading involves preparing for reading course materials instead of just starting on the first page. The <i>Three Ps for Effective Reading</i> (http://lsc.cornell.edu/wp-content/uploads/2016/08/Three-Ps-for-Effective-Reading-.pdf) involve establishing a purpose for reading by looking at the assignment and thinking about where it fits into the course, previewing the material by looking at chapter titles and section headings and thinking about the meanings of the words used, and making a plan according to what one needs to be able to do as a result of doing the reading.</p> <p>Underlining important information during reading is good practice, but it is not sufficient. The student can add notes in the margin that organize the ideas and/or take notes in a notebook based on the underlined material while seeking not only to remember but to organize and translate the ideas into his/her own words.</p>	<p>Note-taking can be done in a system known as Cornell Notes (e.g., http://lsc.cornell.edu/study-skills/cornell-note-taking-system/, http://lsc.cornell.edu/study-skills/cornell-note-taking-system/). In this system, the student creates a 2- to 3-inch margin on the left side of the note-taking paper, a broad main area on the page, and a 2- to 3-inch footer at the bottom of the page. The broad area is used for notes and drawings, the left-hand margin is used for key points and consolidating labels, and the footer is used for general conclusions. This mode of note-taking enables the student to impose order on the material—thus preparing it in advance for studying and being able to do something with the material in other settings, including examinations.</p>
Rehearsing	Concept Mapping
<p>Rehearsing is a way of practicing the retrieval from memory of particular words and ideas. It is particularly helpful to students with hearing loss, because it involves saying and/or writing a list of words, a memorable passage from a book, a series of causes and effects, and so on.</p>	<p>Concept mapping helps a student connect and thereby remember related information. It is accomplished by creating a drawing or map of the relationships (http://lsc.cornell.edu/wp-content/uploads/2015/10/Concept-Mapping.pdf). Creating the map itself is an exercise in understanding how the parts of a concept, historical event, or process relate to each other, and the resulting map becomes part of the student’s study materials to use in preparation for an examination and other uses for the information. Concept mapping can help a student see where s/he understands and does not understand.</p>

probing questions and involving students in carrying out specific processes. They direct students to library faculty who provide instruction in how to find and use texts, such as reference books and online sources. They help students understand learning as teasing out and making conventional and fresh connections.

College students must be encouraged and shown how to control their academic and social lives. They need advisors who welcome them, so that they seek meetings with them. If an assigned advisor is not a good fit for the student, the student needs to be encouraged to find an advisor with whom he feels comfortable. It must be stressed that students not attempt to do everything on their own. This advice is for all students with and without hearing loss.

Students need reminders, and they need to learn to create their own systems of reminding themselves about what they need to do and when they need to do

it. A major part of becoming independent during the college years involves taking on one's own scheduling responsibilities. Students also need to learn to monitor their own progress, so that they can recognize when and where they are succeeding and doing less well.

The skills associated with independence in college extend to the workplace and can be learned in the workplace whether the employee has been a college student or not.

Individuals with hearing loss who learn to listen and speak have the advantage and capability of operating in the world in the same independent and collaborative ways that people with typical hearing do.

Conclusion

Literacy skills are among the most important skills that a child must learn. Certainly such proficiency has a profound impact on one's academic and vocational future. It is critical that literacy instruction be meaningful, effective, and grounded in the best literacy theory and teaching practices. Parents, teachers, and other professionals must work together with the child in mind to ensure delivery of quality literacy instruction. Children who are deaf can become proficient readers and skilled writers when provided with high-quality interactions with teachers and other literate people in the context of instruction tailored to meet individual needs.



Photo courtesy of Sound Beginnings/Utah State University

Literacy skills are among the most important skills that a child must learn. Certainly such proficiency has a profound impact on one's academic and vocational future.

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Chapter 14

Deaf/Hard-of-Hearing Students with Disabilities

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The population of students who are deaf/hard of hearing (D/HH) has changed dramatically over the past 60 years. Students that teachers were accustomed to seeing in their classrooms in the 1960s, 1970s, and 1980s were predominately



Photo courtesy of NCHAM

children deafened during the rubella outbreak of 1964-1965 and had few disabilities in addition to deafness (Marazita, Ploughman, Rawlings, Remington, Arnos, & Nance, 1993; “Rubella,” 2016). Students that teachers of the deaf (TOD) see in their classrooms now present more complex needs—with many students who are D/HH also having additional disabilities.

Case Study Example #1

Kelli, a recent graduate from New State University’s deaf/hard of hearing education program, just accepted her first teaching position. The classroom was described to her during the interview as being new to the district and having students ages 4 to 9 who were deaf and had additional needs. Excited to prepare for the beginning of the school year, Kelli sat down in her new classroom to review her caseload. A sinking feeling overwhelmed her. On her caseload were three girls and two boys, none of whom used sign language for communication. Two of the students were deaf with visual impairments, one student had deafness and autism spectrum disorder, one was medically fragile and had both a cognitive impairment and a seizure disorder in addition to deafness, and the last student had deafness and cerebral palsy. As she looked around the empty classroom, she wondered, “Where do I *even* begin?”

The purpose of this chapter is to:

1	Describe the current population.
2	Provide an overview of service provision.
3	Discuss a guidance framework for professionals supporting students who are deaf with disabilities.

Describing the current population of students who are deaf with disabilities is a challenging task and one that has been attempted by several authors in the past (Ewing & Jones, 2003; Guardino, 2008). Inevitably, many subgroups will not be addressed, as the possible combinations of disabilities are almost limitless. While some specific subgroups [deaf students with autism spectrum disorders (ASD)] may allow for detailed discussion, we will approach our conversation within the framework of individualized approaches based on student strengths and needs.

We will also discuss the challenges that this population of students bring to the classroom and the impact of teacher training and pedagogical frameworks. Unfortunately, while most teachers report having experience with this population, there is limited research that parents, teachers, and professionals can access for guidance. This chapter will capitalize on knowledge and experience garnered through adjacent fields that have perhaps not been utilized during past discussions.

Various terms have been used in the field and classrooms (not particularly in written research)

to describe this particular population of students who are D/HH with additional disabilities. Some examples include “deaf plus,” “deaf with additional disabilities,” “deaf and diverse,” and “complex deaf.” Paul (2015) posited the term “deaf with disabilities” (DWD) in his special editorial of *American Annals of the Deaf* as a way “to be as inclusive as possible and to recognize (read: respect) that there is a range of perspectives on the use of labels in our field” (p. 339). In

order to demonstrate our respect for cultural differences embraced by readers approaching this text, we will use the same terminology in the remainder of this chapter.

Paul’s (2015) editorial points to the consistent difficulties present in this discussion. Questions posed in the 1970s regarding this population still exist today, and little progress has been made in addressing several of the issues. Paul cited previous work (Paul & Quigley, 1990, p. 234) to illustrate that the discussion has changed very little over the past 25—or frankly 50 years (*terms in brackets were changed to reflect current terminology*):

Previous Discussion of DWD Population

The nature and extent of educational problems of [students who are D/HH with disabilities] have not been systematically investigated. Historically, this has been a very complicated task. For example, Stewart (1971) stated several problems in developing adequate programming that are still evident today:

- Incomplete descriptions of the population.
- Little use of effective training procedures, such as behavior modification techniques (cf. Jones, 1984).
- Lack of sufficient instructional and curricular materials.

There is also a need for adequately trained professionals (Konar & Rice, 1982; Shroyer, 1982). The difficulty of providing adequate training and establishing effective programming cannot be overemphasized. As stated aptly by Mencher and Gerber (1983): The special nature of multiple [disabilities] is that their effects are not simply additive, but rather they interact with each other in ways not thoroughly understood to create a complex array of secondary consequences (p. 2). Thus, [students who are D/HH with disabilities] complicate the tasks of identification, classification, assessment, selection of instructional and curricular activities, management, and educational goals (Paul, 2015, p. 340).

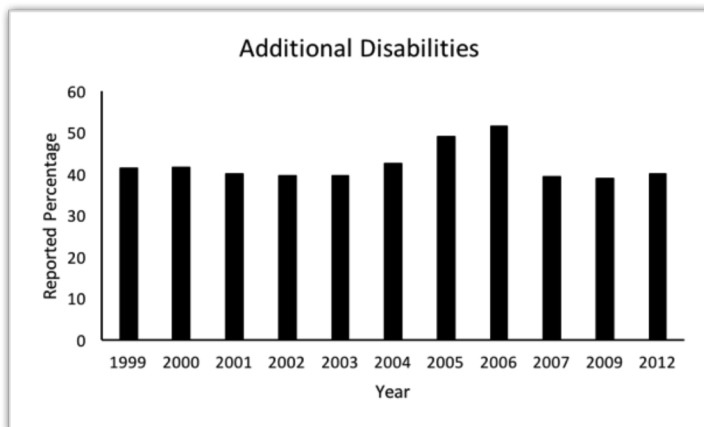
Prevalence of Additional Disabilities

The Gallaudet Research Institute (GRI) conducts periodic surveys on the current population of students who are D/HH in the U.S. Survey results were posted annually from 1999-2007 and have only periodically been published since (once in 2009 and once in 2012; see <https://research.gallaudet.edu/Demographics/> for data published).

We will also discuss the challenges that this population of students bring to the classroom and the impact of teacher training and pedagogical frameworks.

Figure 1 illustrates the consistent prevalence of DWD since 1999, with percentages falling around 40-50%.

Figure 1 Percentage of Reported D/HH Students With Additional Disabilities Across GRI's Annual Reports



There are many authors who would disagree with this prevalence. Reported prevalence rates vary across studies. Recently, Guardino and Cannon (2015a) illustrated that the inconsistencies in reporting across agencies make the overall prevalence a difficult number to calculate. While research reports numbers of DWD around 40-50%, classroom teachers view this as a large underestimation of the students who are actually represented in their classrooms. Teachers stated that the numbers of DWD students in their classrooms were one and a half to six times higher than that reported on the GRI across disability areas (Guardino, 2015). In addition to the number of students who are D/HH reported with additional disabilities, there is also a wide range of disabilities experienced in this population. Borders, Bock, and Szymanski (2015) reported that TOD were seeing students in their classrooms that fell across all 13 disability categories with specific learning disabilities, cognitive impairment, and ASD listed after deafness, hearing impairment, and speech/language delay.

Possible Medical Factors Impacting Prevalence

Prematurity has a direct impact on cochlear development. Babies often survive now even if they are

born at 22 weeks' gestation (Rysavy et al., 2015). The fact is, more babies survive congenital disorders (e.g., congenital heart defects, digestive system anomalies) and birth trauma now than ever before. With medical advances comes an increase in complex medical needs. In fact, many premature infants or children with complex medical needs have disorders that are indicative of in utero developmental disruption. During this gestational period, the cochlea is not fully developed. While the cochlea is formed during weeks 10-12 of pregnancy, it is not functionally mature until between weeks 30-35 (Pujol, Lavigne-Rebillard, & Uziel, 1991). Hepper and Shahidullah (1994) indicated that fetuses were first observed to respond to sounds at the 500 Hz level at around 19 weeks' gestation. While response was indicated at 19 weeks, hearing was observed to develop downward in frequencies (e.g., 250 Hz and 100 Hz) before developing up into the higher frequency levels. Fetuses did not consistently show response to the full range of frequencies until 35 weeks' gestation, with no fetuses showing response to 1000 Hz or 3000 Hz even at 27 weeks' gestation.

Coupled with premature babies' survival rates is the intensity of medical intervention often required. When babies are in the neonatal intensive care unit for complex medical conditions (e.g., respiratory failure frequently associated with neonates with underdeveloped lungs), they often receive a number of different medications to combat infection and certain disorders (i.e., diuretics for liver transplantation). It is important to note that several medications needed for these conditions are ototoxic—or those that destroy components of the cochlea (Berg, Spitzer, & Garvin, 1999; Bucuvalas et al., 2003; Cooper et al., 2011; Robertson, Juzer, Peliowski, Philip, & Cheung, 2006). It is clear why babies born at premature gestational ages will have a higher rate of hearing loss than those who are delivered full term.

Available Information

Recent interest in DWD students is evident. Special issues of *Seminars in Speech and Language* (2014), *American Annals of the Deaf* (Guardino & Cannon, 2015b), and the *Journal of Developmental and Physical Disabilities* (2017) have been published on this topic. Even

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a direct impact
on cochlear
development.**

more specific, special issues of *Odyssey* (2008) and a series in *Loud and Clear* (2015) on deafness and autism have been published as well. Guardino and Cannon (2015a) expanded previous work (Guardino, 2008) to illustrate that there has been a recent increase in the number of articles related to the DWD population. Even with new information, much of what is available is non-empirical and does not offer a clear direction for parents and professionals.

Parents/Guardians

Parents/guardians of DWD students often feel isolated in the educational process (Sass-Lehrer, Mertens, & Meadow-Orlans, 2001). As a result, they have developed their own support groups on social media (e.g., Facebook group *Sharing Our Journey with Autism*) and have worked to create a retreat (*Deaf Autism Retreat*), so they can gather together and share concerns and successful approaches. To address parent/guardian needs, organizations have developed websites devoted to supporting them in their search for information (see *Table 1*).

Teachers/Professionals

TOD are equipped to discuss issues related to deafness but may not feel confident in their advice on additional disabilities (Guardino, 2015). They have reported their lack of familiarity with practices outside of the field of deaf education (Borders, Bock, et al., 2015;

With the pervasiveness of newborn hearing screening, hearing loss is often the initial diagnosis for DWD with mild or language-impacting disabilities.

Guardino, 2016). The concerns expressed by TOD have led to changes in the professional standards for the Council for Exceptional Children. While specific standards were not written for this particular population of DWD, the preface sets the stage for the professional standards, indicating they are inclusive of DWD students as well as students who are D/HH with multiple language learning needs.

A focus on the DWD student population can also be seen at the international level with the 22nd International Congress on the Education of the Deaf's (2015) theme, "Educating Diverse Learners: Many Ways, One Goal." The program (<http://www.iced2015.com/en/index.php>) is evidence of the importance of this topic around the world.

Differential Diagnosis

Comorbidity complicates diagnosis of DWD, as it is not merely additive in terms of symptomology but rather multiplicative. With the pervasiveness of newborn hearing screening, hearing loss is often the initial diagnosis for DWD with mild or language-impacting disabilities. In the case of severe disabilities present at birth, the opposite may occur with some documented difficulties and inconsistencies in the neonatal intensive care unit hearing screening (Jacobs, Roush, Munoz, & White, 2010).

Table 1
Organization Websites Providing Information on the Students Who Are DWD

Resource	Website
Cincinnati Children's Hospital Medical Center, Cincinnati, OH	https://www.cincinnatichildrens.org/service/e/ear-hearing/more-than-hearing-loss
University of Northern Florida*	http://understandingdad.net/
Illinois Service Resource Center, Northbrook, IL	http://www.isrc.us/deaf-plus
Clerc Center, Gallaudet University	http://deafwdisabilities.grou.ps/home

*NOTE: Collaborative effort.

For years, many authors have articulated difficulties associated with assessment and diagnosis of additional disabilities in deaf students (Cawthon, 2015; Daneshi & Hassanzadeh, 2007; Easterbrooks & Handley, 2005, 2006; Guardino, 2008; Hoevenaars-van den Boom, Antonissen, Knoors, & Vervloed, 2009; Roper, Arnold, & Monteiro, 2003; Schum, 2004). Wiley and Moeller (2007) published a seminal work to guide the decision-making process for parents/guardians, TOD, and medical professionals when trying to decide if an additional disability may be present. The authors' combined background in developmental pediatrics, deafness, and focus in DWD makes their experiences and perspective on the population unique. They detailed "red flags" for disabilities across several domains, including the following:

- Gross motor
- Sensory integration
- Receptive and expressive language.

To assist with concerns in differential diagnosis, they provided the following framework for innovative assessment:

Assessment, Evaluation, & Programming System (AEPS)

"A system for developing functional and coordinated cycles of assessment, goal development, intervention and evaluation of outcomes; ecological assessments (e.g., observations in real settings, checklists, language samples); and monitoring learning rates over time" (p. 28).

Guardino (2008) presented a detailed review of 25 years of literature that described the identification practices of some specific disabilities in DWD. She discussed the identification, incidence, and educational placements for students who are D/HH with ASD, emotional/behavioral disorders, attention deficit disorder/attention deficit hyperactivity disorder, and intellectual disability (termed mental retardation in the article). Particularly poignant is Guardino's statement:

Guardino's Statement . . .

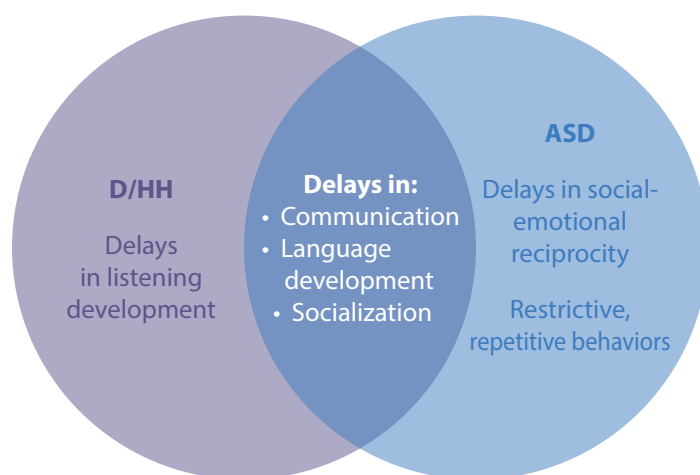
"The literature discussed in the present review shows that if researchers continue to repeat the practices of the past, the education system for deaf students with multiple disabilities will not advance, now or in the future" (p. 62).

ASD

One area receiving recent attention has been DWD with a specific comorbid diagnosis of ASD. Diagnosis of ASD is complicated by overlapping symptomology with deafness (Borders, Bock, & Probst, 2016). While ASD is typically characterized by deficits in the areas of language, socialization, and sensory integration, deafness characteristics overlap in two of the three characteristic areas (language and socialization). *Figure 2* illustrates the described overlap.

One area receiving recent attention has been DWD with a specific comorbid diagnosis of ASD.

Figure 2
Overlap of Characteristics Between D/HH & ASD



ASD has a range of severity depending on the level of impact. A child may receive an initial diagnosis anywhere between the ages of 2 and 8 (Christensen et al., 2016). Research on comorbid diagnosis of D/HH and ASD is limited, and therefore the typical age of diagnosis is difficult to estimate. However, in a recent study conducted by Meinzen-Derr et al. (2014), the median age of an ASD diagnosis for children with permanent hearing loss was 66.5 months. They also concluded that children who had a diagnosis of severe to profound hearing loss were diagnosed with ASD earlier than those with lesser degrees of hearing loss.

The delays in diagnosis are likely a direct result of . . .

“ . . . complexities of determining whether speech, language, and social delays are fully attributed to hearing loss or whether these delays might be indicative of the comorbid ASD diagnosis” (p. 117).

Differential diagnosis is difficult but possible. Teasing out what is ASD and what are characteristics of deafness relies on individuals or a team of individuals with professional training in each area. This team must work together to identify normal and disordered patterns of development in each of the related fields. Even though there is a lack of diagnostic tools to aid in the diagnosis of a child with DWD in the area of ASD, Mood and Shield (2014) suggest using ASD assessment tools with task and scoring modifications, not merely adapting the tool using sign language. Differential diagnosis across all individuals with DWD, regardless of the comorbidity, is challenging and must begin with an understanding of patterns of development associated with deafness as well as those of the additional disability.

Service Provision

Regardless of diagnosis, children between the ages of 3 and 21 are eligible for special education services if they meet eligibility requirements as a “student with a disability” according to the Individuals with Disabilities Education Act (2004). Services available to students are vast and vary by need. Interestingly, Borders,

Meinzen-Derr, Wiley, Bauer, & Embury (2015) found that services differed across students according to their primary educational label. Educational labels were also found to change over time. With shifting labels, subsequent changes in educational supports and related services also changed. While the needs of the students remained the same, services appeared to be related to the educational label and therefore placement.

Consider the extension of our case study (see *Case Study Example #2*). We, as authors, often refer to the placement changes that Evan underwent as “the zipper trajectory”—one that goes back and forth often thus limiting the amount of academic, language, and behavioral growth over time. The zipper still results in an upward increase, but the path is slow and altered as opposed to a steady, positive growth trajectory. It is similar to the familiar adage of “two steps forward and one step back.” Students learn a little in each environment. But it likely does not “stick,” and they potentially lose ground. This trajectory impacts the rate at which students’ academic, language, and behavioral goals are met. In Evan’s case, the focus of instruction and interventions (language focus versus behavioral focus) changed with each

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 a disability.”**

Case Study Example #2

Evan, the oldest student in Kelli’s classroom, has a comorbid diagnosis of deafness and ASD. He is coming to her classroom after several changes in educational placement. When he was 4 years old, he was placed in a D/HH classroom with a TOD. The teacher in that classroom became increasingly concerned about his negative behaviors of biting, hitting, and throwing objects (including his hearing devices) in spite of the heavy language focus and sign instruction she was providing. After consultation with a behavioral specialist, Evan was transitioned to a communication and behavioral disorder (CBD) classroom. He was the only child with hearing loss in the new classroom environment. After a few weeks, the special education teacher began to recognize characteristics associated with ASD, and a subsequent educational diagnosis was made. She also began to implement evidence-based interventions from the field of ASD. In turn, Evan began to successfully communicate his wants and needs, and his negative behaviors decreased. At the conclusion of that school year, Evan’s negative behaviors were almost completely gone. The educational team decided he could return to the original placement within the deaf education classroom. Upon return to the deaf education classroom, the teacher did not implement the previously successful behavioral interventions. After two weeks in the classroom, all negative behaviors reappeared, and Evan’s communication patterns decreased. The educational team heard about the new program starting (Kelli’s classroom), and Evan’s team decided to transition him again with the hope that Kelli’s classroom would blend interventions from the two different fields to result in Evan’s success.

placement. The classrooms act as silos, implementing their own field's strategies and seeming unaware of interventions from other areas. For more information on professional collaboration, see the *Developing a Disposition for Reflective Practice That Sustains Continuous Professional Learning* chapter.

Proposed Framework for DWD

Educational decision-making for DWD can be complex and difficult, because placement is often changed based upon labels and behavior. Parents/guardians, teachers, and related professionals must consider student strengths and needs across all developmental domains rather than merely focus on hearing and language—the framework often addressed by TOD. We propose a more comprehensive framework for development of educational programming for DWD. This framework is borrowed from the adjacent field of special education, specifically severe and multiple disabilities.

Figure 3 illustrates the framework we would propose for approaching educational decision-making for DWD students. This framework provides a broad, comprehensive way to view education for students who are DWD.

We have often heard the following comment related to DWD in the classroom . . .

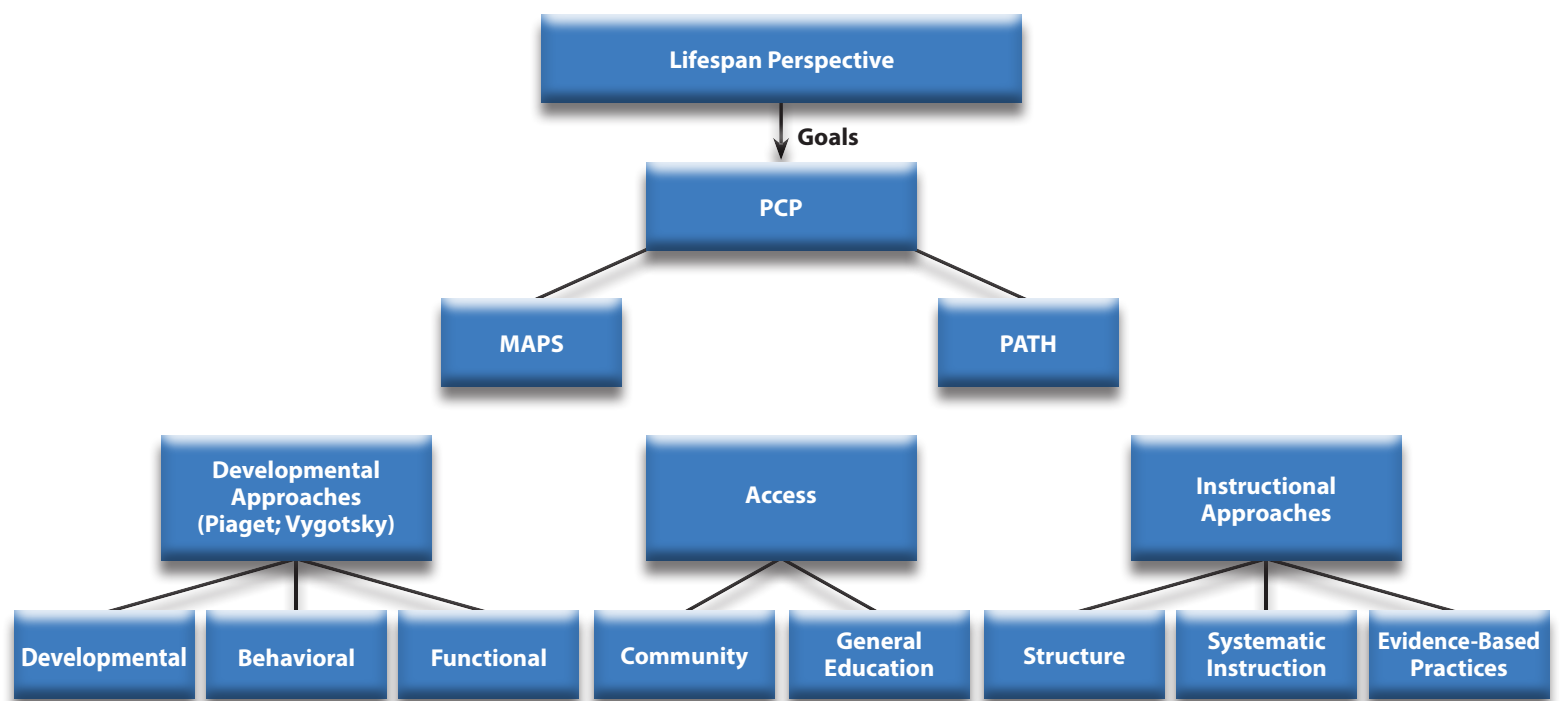
“If we could just give him more language, his behavior would improve.”

We, as authors, have offered this response . . .

“If we could improve his behavior, he can gain access to language.”

These statements may not seem that different at first glance, but illustrate the differing frameworks that underlie decision-making. Our thinking is that if TOD and educational teams were to use this framework, educational placement changes might decrease as teachers approach student needs differently.

Figure 3
Proposed Educational Decision-Making Framework for DWD



Lifespan Perspective

The overarching approach to this framework is the concept of lifespan perspective. Thinking about the future can be difficult for parents/guardians and professionals when so much seems unknown. Many students with disabilities (e.g., intellectual disabilities, ASD) learn through routines. For those learners, it is particularly important to consider that how we teach from the beginning impacts the future. One example we have referenced many times is teaching a young student to communicate wants and needs. While it seems appropriate for a young child (say, a 3-year old) to grab your wrist and pull you to the cabinet to get a snack, one must consider if this is learned as a routine. That same behavior (pulling someone by the wrist) is viewed very differently (perhaps as abuse or physical aggression) if this student engages in this behavior at 17 or 25 years of age. Teachers of DWD must consider how the behaviors they are teaching to young children will be viewed later in the lifespan, since shaping behaviors that are engrained as routines becomes more difficult over time than teaching it in the appropriate (for adult life) manner from the beginning.

Person-Centered Planning

While parents/guardians, teachers, and related professionals consider lifespan perspective in their intervention planning, they must also keep in mind the desires and strengths of the students for whom they are planning.

One method for starting this thought process is person-centered planning (PCP). PCP is often discussed as a method of transition planning—required when students reach the age of 14 (Luft, 2015). PCP can occur earlier in the educational process and guide the team's overall approach to planning. As interests, strengths, and needs change over time, this process is fluid and will change with the student. During PCP meetings, teams create a long-term vision and action plan for the student that centers around the student's interests, strengths, and needs. Throughout the transition process, the PCP meeting links families with community support systems that students will require when they eventually

transition to adulthood. For more information on transition, see the *Career Development & Adult Life* chapter.

A PCP meeting—typically done separate from an annual Individualized Education Program or reevaluation—includes participants that are part or will be part of the student's life (e.g. student, parent/guardian(s), speech and language pathologist, hearing specialists, counselors, organization team members, and community agency personnel). A facilitator and/or recorder helps guide the meeting by asking questions and recording information and participant responses. Questions relate to the student's history (e.g. medical, educational), strengths/weaknesses, visions for the student, and barriers that prevent the student from reaching those visions (e.g. transportation, finances). The meeting concludes with development of action plans/steps that the school system and parents need to take in order to fulfill those goals that are set. These meetings are conducted approximately every 3 years in order to provide information to parents and schools to ensure the appropriate direction for the student.

There are several different resources available to teams wanting to use PCP. Two particular resources we would recommend include Planning Alternative Tomorrows with Hope (PATH; Forest & O'Brien, 1993) and Making Action Plans (MAPS; Forest & Pearpoint, 1992; Vandercook, York, & Forest, 1989). Both PATH and MAPS

offer a structured format for the team to use when developing a PCP.

Approaches

As a field, deaf education has a long history that is rich in a strong focus on language, literacy, speech, and listening. However, the field of deaf education does little to train TOD in academic, social, or behavioral interventions to use with DWD. There are adjacent fields to deaf education that warrant investigation, as they have expertise that may be appropriate to use with DWD. We highly recommend TOD learn some basic

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special education practices and approaches often used with students with disabilities, particularly severe to profound intellectual or multiple disabilities.

Developmental approach. While TOD are provided general information on child development within training programs (likely in general educational psychology courses), the focus of most training programs is on development of the specific skills of language, literacy, speech, and listening. While the learning of typical development across other domains is critical, it is often quickly reviewed and only discussed in relation to a “typical rate” of development within general courses. Students who are DWD will have disordered development of skills and progress at a much slower rate. They may be in a stage of development for an extended period of time and require parents/guardians, teachers, and related professionals to redefine success into achievement of smaller steps. Understanding each of the small steps required is critical to viewing and planning programming for DWD. We have talked and worked with many TOD who are missing this approach.

Consider the extension of our case study (see *Case Study Example #3*). What Evan’s TOD did not understand was the fact that moving her instructional materials and focus to pictures was not moving back far enough. The picture on the card did not convey meaning to Evan. Evan was still at the stage of cognition where he could not match a picture to an object. Expecting him to process the vocabulary at a higher cognitive level was never going to work, unless she broke down the task even more.

TOD working with DWD are charged with the task of learning early development and understanding it on a skill-to-skill basis. Teachers have to conduct a task analysis of each skill and ask themselves, “What does this skill require?” on a regular basis when developing this particular approach to learning. Evan’s teacher

would have had to recognize that he was unable to match a picture to a picture and an object to a picture and move her instructional input back to object-to-object matching. Once that skill was acquired (where he was developmentally), she could move back up that developmental chain to work with Evan.

In addition to understanding the developmental steps required in skill development, those working with DWD must also take their idiographic development into account. Idiographic development refers to individual characteristics. Knowing the student’s strengths and interests (see *PCP* section) and their particular personal characteristics is critical to success. Parents/guardians are the main source of this information for the educational team. The input they can provide on “what makes him tick” is imperative to success in the classroom. The collaboration of the educational team and parents/guardians cannot be overemphasized with any child, particularly DWD.

Behavioral approach. As illustrated in Paul’s (2015) editorial, Borders, Bock, et al. (2015), and Guardino (2015), TOD lack training in behavioral modification. However, they understand how important language is for all children. They recognize that without language, students will engage in challenging or negative behavior. The typical approach is to increase language input. We consider this dilemma from a different angle—a behavioral approach. Both approaches (language focus versus behavioral focus) recognize the relationship of language and behavior but consider the core functions from different sides of the same coin. A language focus results in instruction highlighting increased amounts of language input (illustrated by Evan’s TOD).

Knowing the student’s strengths and interests and their particular personal characteristics is critical to success.

Case Study Example #3

In Evan’s initial deaf education placement, the TOD was confused about why Evan just couldn’t learn the vocabulary in their garden unit. The other students in the class picked up on this vocabulary quickly. The TOD provided direct instruction on each of these words, labeled every item in their dramatic play area, and provided many opportunities to engage with the vocabulary in meaningful ways (they grew their own garden, cooked with each one, and visited the grocery store on a field trip). Evan’s TOD decided to increase his one-on-one instructional time and add in even more time to go over vocabulary. She pulled out her picture vocabulary cards, which Evan consistently threw across the room. Evan was not learning the vocabulary after several weeks.

While taking the developmental approach would change instructional focus, there is also the need to consider behavior. Remember that Evan's behavior was challenging. He was noted to kick, hit, and throw objects frequently within the classroom. A behavioral approach to instruction would focus on remediation of behavior in order to allow access to language instruction.

Functional approach. Fundamental to a behavioral approach is understanding functions of behavior. While this chapter will not discuss this in detail, there are several resources available on the subject (see *Table 2*). The most important shift in thinking is related to teachers learning to watch a behavior and immediately ask, "What is the function of this behavior?" Teachers will learn through a functional behavioral assessment (FBA) what is reinforcing the behavior or causing it to continue and can then decide how to intervene through the development of a behavioral intervention plan (BIP). Identifying what is acting as reinforcement in the environment is important and often outside of the lens of many individuals.

Consider one of Evan's behaviors (see *Case Study Example #4*).

Case Study Example #4

Evan kept running away from circle time, table work, and snack time. He would run to the bathroom every time. Evan's TOD knew that he didn't need to go to the restroom but was unsure why he kept running into the bathroom.

Through the process of an FBA, Evan's teacher could have learned that he was engaging in this behavior for multiple reasons. One reason he was running away was to escape tasks that were difficult for him. Another reason he was running to the bathroom was to gain sensory input. Evan was particularly interested in drains and loved to watch water go down the drain in the sink. An FBA and subsequent BIP would allow him access to his preferred reinforcer (i.e., watching water go down the drain) after he completed a modified task.

Selection of reinforcers is critical for a behavioral approach. Parents/guardians, teachers, and related professionals must identify what a student is willing to work for in order to increase skills. Since behavioral theory teaches us that a behavior will only continue if it is reinforced, we must plan for and offer reinforcement for each task we would like them to complete (e.g., sitting in circle time or stating a vocabulary word). While you must start with reinforcing immediately and often for brand-new skills, teachers will eventually be able to reduce and vary the amount of reinforcement required. *Table 3* includes a listing of tools teams can use to assist in identification of reinforcers.

**The most
 important shift
 in thinking
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 teachers learning
 to watch a
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 immediately ask,
 "What is
 the function
 of this
 behavior?"**

Table 2
Functional Behavioral Resources

Resource	Website
Educate Autism	http://www.educateautism.com/behavioural-principles/functions-of-behaviour.html
May Institute	https://www.mayinstitute.org/news/topic_center.html?id=1564
The IRIS Center	https://iris.peabody.vanderbilt.edu/module/fba/
Center for Effective Collaboration & Practice	http://www.air.org/project/center-effective-collaboration-and-practice-cecp

NOTE: These are a few resources available on functions of behavior and functional behavioral assessment.

Table 3
Resources for Reinforcer Selection

Resource	Website
New York State Institute for Basic Research in Developmental Disabilities	https://opwdd.ny.gov/opwdd_community_connections/autism_platform
Intervention Central	http://www.interventioncentral.org/behavioral-interventions/special-needs/forced-choice-reinforcer-assessment-guidelines
Vanderbilt University	http://vkc.mc.vanderbilt.edu/ebip/preference-assessments/
Virginia Commonwealth University	http://www.worksupport.com/research/viewContent.cfm/952

NOTE: These are a few resources available on different methods for selecting student reinforcers.

Instructional Practices

Another component of our framework is the use of strong instructional practices. While the field of deaf education has limited evidence base (Ferrell, Bruce, & Luckner, 2014), there are many evidence-based practices in the field of special education that may be appropriate for DWD.

Structure. One of the first recommendations we would make for TOD working with DWD is the use of structure within their classrooms and instructional approaches. The use of structure capitalizes on student need for routine and allows for increased independence in the classroom via decreased cognitive load. In other words, the student is not required to hold multiple directions in their working memory and access receptive language to move throughout the classroom routines. The TEACCH model developed by researchers at the University of North Carolina, Chapel Hill (<https://www.teacch.com>) provides structure in several areas (physical environment, scheduling, independent work systems, routines, and visual schedules). For example, TOD can incorporate clear physical boundaries in the environment that allow DWD students to know what is expected in each area of the classroom without a need for language. Adding visuals to schedules and academic work can increase comprehension without adding additional language requirements.

Systematic instruction. We also recommend a specific type of instruction called systematic instruction. One of the most important components of systematic instruction is the planned and organized use of

prompting and reinforcement. Specific practices used and recommended within systematic instruction include most-to-least prompting, simultaneous prompting, constant time delay, and chaining. This terminology is likened to a foreign language to many TOD. However, these practices support skill acquisition and use strong behavioral principles of reinforcement to increase learning while decreasing negative behaviors.

Systematic instruction has been used with students with multiple disabilities to increase their independence and learn academic content (Browder & Xin, 1998; Head, Collins, Schuster, & Ault, 2011; Swain, Lane, & Gast, 2015). Systematic instruction is a teaching practice that allows students to learn academic and functional tasks without error (i.e., errorless learning). It provides a structure to teach discrete and chained skills. Pointing to objects, identifying numbers and letters, and naming pictures are examples of discrete skills. Washing hands, making food, and grooming are examples of chained skills. Both types of skills can be developed and are necessary for a DWD to be successful across home, school, and community environments.

The basis of all systematic instruction is prompting and reinforcement. As strong behavioral strategies are implemented, teachers provide supporting prompts to allow students to be successful and

One of the first recommendations we would make for TOD working with DWD is the use of structure within their classrooms and instructional approaches.

subsequently receive reinforcement. As discussed above, behavioral theory instructs us that behaviors must be reinforced to continue. Therefore, when providing instruction, the teachers plan for the prompts required in order to allow for student reinforcement. Prompts fall along a hierarchy based on the level of support (see Figure 4). While most typically developing students with normal hearing can be successful in classrooms with classwide, verbal directions and prompts, students with even mild hearing loss require higher levels of prompting in order to be successful (Borders, Barnett, & Bauer, 2010). DWD will likely require high levels of prompting when initially learning a skill.

Most-to-least prompting. The systematic instructional procedure of most-to-least prompting is implemented when students with multiple disabilities are learning a new skill. Most-to-least prompting is not a natural delivery of prompts teachers use in the classroom. Teachers typically deliver the least-intrusive prompt (giving a verbal direction), and then increase prompting until the student can be successful. This system is called a least-to-most system of prompting. When using least-to-most prompting for a student with DWD, the student would likely need to wait through a series of prompts before the teacher reached the level required for success and reinforcement. There is also a higher level of error involved in least-to-most prompting. The increase of errors in the learning process creates student confusion regarding what led to reinforcement. Without a clear distinction between the behavior and the reinforcement, learning may be obstructed.

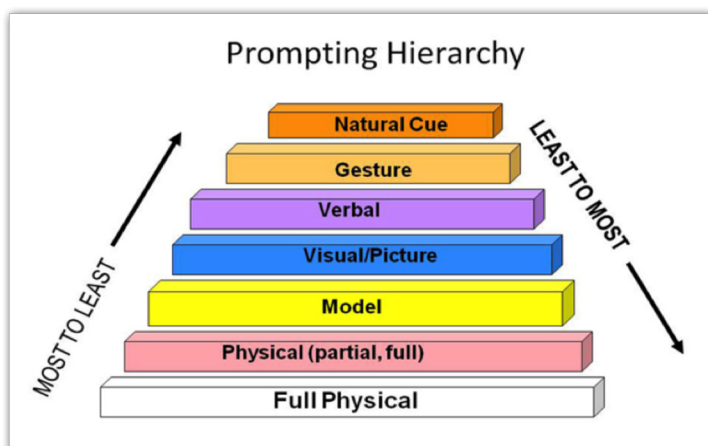
Ease of fading a prompt is an essential first consideration when determining the order or type of prompt delivery. For example, a teacher can easily take away hand-over-hand prompts and move to touching a hand, whereas fading of a verbal prompt is very difficult. We recommend using most-to-least prompting with students who are DWD based on efficiency with which the student can gain reinforcement and planned fading of prompts.

Ease of fading a prompt is an essential first consideration when determining the order or type of prompt delivery.

Implementation of most-to-least prompting relies on the teacher's knowledge of the prompting hierarchy and understanding of schedules of reinforcement. The teacher presents a task and gives the student the opportunity to complete the task independently. For example, the teacher would like the student to greet a peer by waving. If the student cannot complete the task independently, the teacher provides a hand-over-hand prompt for the action of the wave and then delivers reinforcement. After the student demonstrates emerging ability to initiate the first step of the wave, the level of prompting is faded to partial physical, visual sign, and then proximity. It is critical that reinforcement be delivered after student success.

Simultaneous prompting. Teachers can also use a simultaneous system of prompting to teach discrete and chained tasks. Simultaneous prompting involves the use of one prompt—the controlling prompt—to set the learned behavior in action. Simultaneous prompting involves the use of two different types of sessions—probe and instructional. A probe session involves a student completing a discrete or chained task independently without reinforcement or support from the teacher. The teacher collects data on the steps the student can achieve independently. After the data is collected, the teacher implements the instructional sessions by using a prompt and simultaneously completing the task with the student. During each session, the student is reinforced for steps completed correctly. This allows the student to understand the expectations of the task through errorless learning, because the task is performed at the exact same time as the teacher (Brown, McDonnell, & Snell, 2016). For additional information on steps of implementation, see http://csesa.fpg.unc.edu/sites/csesa.fpg.unc.edu/files/ebpbriefs/Prompting_Steps-Simultaneous.pdf.

Figure 4
Prompting Hierarchy



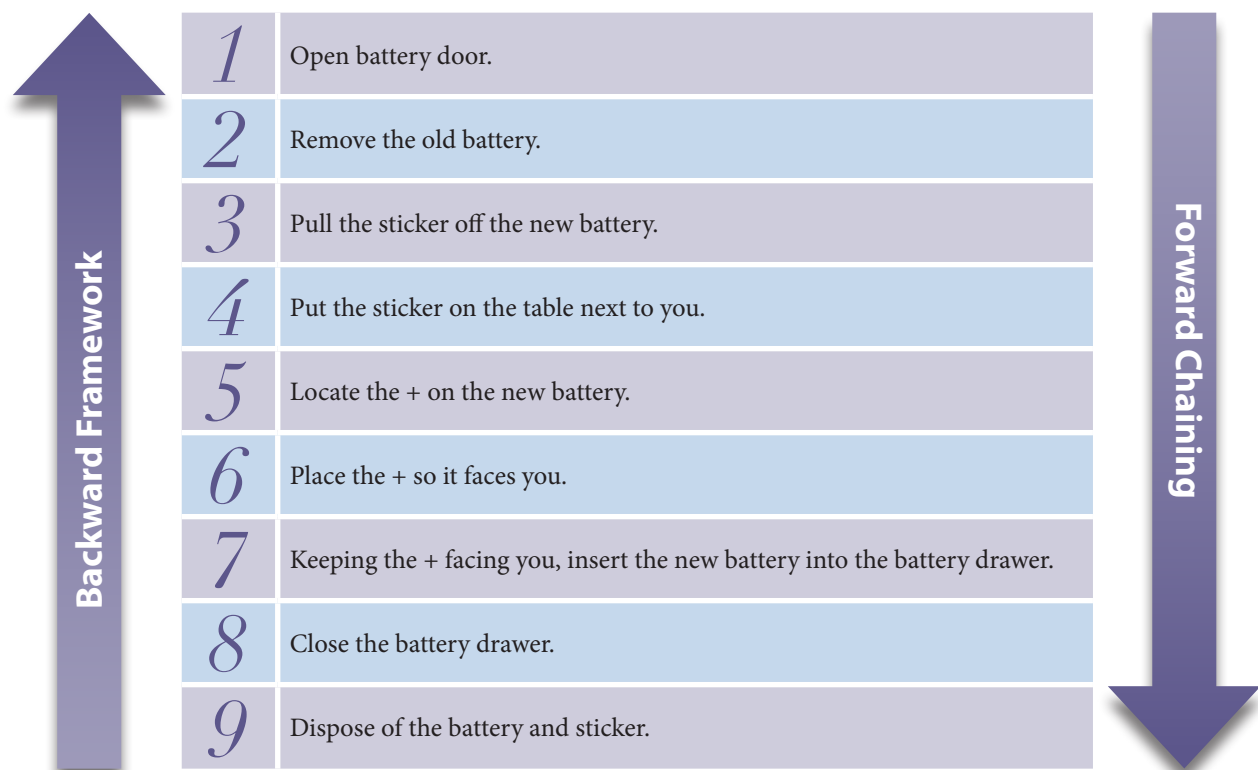
Constant time delay. Constant time delay is a systematic instructional practice that allows students to understand each component of a task—starting with immediate instruction using errorless learning (Alberto, Fredrick, Hughes, McIntosh, Cihak, 2007; Browder, Ahlgrim-Delzell, Spooner, Mims, & Baker, 2009; Kurt & Tekin-Ifter, 2008). Like simultaneous prompting, the instruction and reinforcement is immediate after the controlling prompt is given during the initial phase. As instructional sessions progress, the teacher will gradually increase the length of time between the task presentation and the prompt (e.g., waiting 3 seconds before prompting, then increasing the time to 5 seconds, etc; Downing, 2010; Snell & Brown, 2011). The result of successful implementation of constant time delay is a student completing and maintaining the specified task independently and with greater fluency. A free online module on time delay can be found at <http://afirm.fpg.unc.edu/time-delay>.

Forward/backward chaining. When a student learns a task that involves multiple steps (e.g., changing batteries in a hearing aid), teaching through chaining is

beneficial. Chaining procedures have historically been useful when teaching students with multiple disabilities (Cihak, Moore, Wright, McMahon, Gibbons, & Smith, 2016). Chaining allows student success by approaching more complex tasks in small steps. First, a completed task is broken down into numbered steps/task analysis.

Figure 5 illustrates the backward and forward chain for the task of changing batteries in a hearing aid. Using a backwards-chaining design, the teacher helps the student with each step of the task analysis except for the final step. For example, the teacher helps prompt all steps, and at the last step—disposal of the battery and sticker—the teacher withholds prompting until the student successfully disposes the sticker and battery. After the student successfully initiates this step and disposes the sticker and battery, the student is verbally or physically praised (e.g., “Good job” or given a high-five) and provided any other selected reinforcer. During subsequent instruction, the teacher waits for the last two steps in a sequence—close the battery door and dispose

Figure 5
Task Analysis for Changing Batteries in a Hearing Aid



Adapted from Insert the Battery in Behind-the-Ear Hearing Aids, by Oticon (n.d.).

of the battery and sticker. The process continues in a stepwise fashion until the student can independently complete each step in the behavioral chain.

When using forward chaining, the task is initially broken into small parts/task analysis. The teacher waits for the student to complete the first step of the chain and then provides reinforcement. The process continues, adding one step at a time, until each step in the task analysis is independently performed by the student.

These chaining and systematic instruction techniques are just a few examples of evidence-based strategies that have been shown to be successful with students with multiple disabilities/severe disabilities (Godsey, Schuster, Lingo, Collins, & Kleinert, 2008; Ulke-Kurkcuoglu, 2015). The main purpose of these instructional techniques is for students to gain independence and success with academic and functional skills. We recommend that TOD teaching students that are DWD receive training in implementing systematic instruction.

Evidence-Based Practices

In addition to the instructional approaches noted in this section, TOD should be aware of additional evidence-based practices that may be used with DWD. *Table 4* includes a list of available resources related to evidence-based practices and professional development for special educators.

The main purpose of these instructional techniques is for students to gain independence and success with academic and functional skills.

Conclusion

In this chapter, we have discussed prevalence of DWD students, difficulties with differential diagnosis, provided resources, and proposed a framework for approaching educational planning. It is imperative that teacher training programs (including professional development) include teaching methods, assessment, and accommodations appropriate for DWD learners.

Topics Addressed in Teacher Training

It may seem difficult to make the jump to training teachers to work with the DWD population when so much is left to be established (sociodemographic information, diagnostic procedures), but there is a clear mismatch between pedagogical approaches currently employed and the population of students in classrooms (Paul, 2015). Traditional teacher training programs in deaf education often focus content on teaching students who are deaf without comorbid conditions. Borders and Bock (2012) presented data indicating that when reviewing program course titles, only 16% of deaf education training programs included coursework that covered the topics of behavior management, additional disabilities, and academic or behavioral interventions outside of deafness. Further, 39% had one course

Table 4
Evidence-Based Practices & Professional Development Opportunities for Special Educators

Resource	Website
National Professional Development Center on Autism Spectrum Disorder	http://autismpdc.fpg.unc.edu/
OCALI	http://www.ocali.org/
The IRIS Center	https://iris.peabody.vanderbilt.edu/
Understanding DAD	http://understandingdad.net/
National Association of Special Education Teachers	http://www.naset.org/2701.0.html#c13080

NOTE: Free or membership-based opportunities for teachers are listed above for additional information on EBPs or instructional strategies for DWD students.

(predominately academic and behavioral interventions), 19% had two courses, and 26% did not include any courses with these topics. One limitation of that work was that it was only a review of course titles, and further investigation could reveal embedded content.

Guardino (2015) concurred that teachers' training was lacking in the topics of additional disabilities through her survey of 264 TOD. Teachers indicated that they did not receive disability-specific training for:

Attention-deficit hyperactivity disorder/attention deficit disorder (ADHD/ADD)	35%
ASD	73%
Emotional behavior disorder	58%
Intellectual disability	51%
Learning disability (LD)	37%
Visual impairment	61%

Less than 50% of TOD reported using academic, social, or behavioral interventions for DWD, with the exception of the high-incidence, mild disabilities of ADHD/ADD and LD.

We recommend the inclusion of strategies and interventions from adjacent fields discussed above into training programs for TOD. Training TOD on the

use of lifespan perspective, person-centered planning, instructional approaches, and practices mentioned in this chapter increases teacher self-efficacy when working with the DWD population. For teachers currently in the field teaching DWD every day, we recommend gathering information on each of these topics (see *Table 4*).

Finally, it is important that future research be conducted that focuses on DWD students, as there is a lack of research in this area. Collaborating with experts from adjacent fields can help scholars from the field of deafness discover effective practices that may be modified to meet the needs of DWD students. Moreover, using previously collected data sets can be utilized to identify and describe the population of individuals who are DWD. By obtaining a clearer picture of this population of learners, researchers can address the needs of teachers and focus research accordingly.

As the population of DWD students continues to grow and change, a response from the field is necessary. Providing high-quality educational experiences to all children is possible through increased research, practice, and modifying teacher training programs. In recent years, there has been a cry from practicing teachers for help in teaching this population of students. Answering this plea through changing teacher preparation programs and collaborative research is imperative.

Providing high-quality educational experiences to all children is possible through increased research, practice, and modifying teacher training programs.

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Chapter 15

Developing a Disposition for Reflective Practice That Sustains Continuous Professional Learning

Sarah Ammerman & Mary Ellen Nevins

Exploring attitudes and personal values or “dispositions” expected in the teaching profession is a crucial component of any comprehensive teacher preparation program. Much has been written on the dispositions of teachers and teacher candidates. The National Council on the Accreditation of Teacher Education (currently part of the Council for the Accreditation of Educator Preparation) defined professional dispositions as, “[The] attitudes, values, and beliefs demonstrated through both verbal and nonverbal behaviors as educators interact with students,



Photo courtesy of Sound Beginnings/Utah State University

families, colleagues, and communities” (2001).

This organization further suggests that “. . . these positive behaviors support student learning and development” and as such are embraced by general education and specialty preparation alike. That said, it is often challenging to gauge teacher candidates’ development in this arena. One must look

at the behaviors of aspiring professionals to determine if they possess the attitudinal “it” factor that supports a successful teaching career. It has been suggested that among the dispositions that are foundational to teachers

are integrity, respect, commitment, self-awareness, and perhaps most importantly a positive outlook. Three essential adverbial modifiers have been offered to qualify the how and how often teacher behaviors representative of deeper dispositions are demonstrated “frequently,” “willingly,” and “consciously.”

Associated with the exploration of teacher dispositions is the ongoing development of teacher identity, an acknowledged factor in motivation, satisfaction, and a commitment to the work of teaching (Day, Kington, Stobart, & Sammons, 2006). Teacher identity delineates who we are as teachers and our readiness to assume the teacher role. This complex concept has been defined in many different ways, but the essence of teacher identity suggests a developing understanding of the self in relationship to the professional educational community in which one interacts. While identity forms over time, it is especially supported at the preservice level when teacher candidates have interactions with mentors/cooperating teachers that instill “confidence, power and agency” (Izadinia, 2014).

Not surprisingly, long-term retention in the workplace is correlated to positive teacher education experiences (see discussion related to retention in Izadinia, 2014); that this same observation holds true for teachers preparing to work with children who are deaf and hard of hearing (D/HH) and their families is not a far stretch. It might be suggested then that teacher identity is the flip side of the coin of teacher dispositions. If this is true, how do aspiring teachers manifest the professional identity that embodies the frequent, willing, and conscious practice of foundational beliefs of education?

One surefire way to support and induct aspiring professionals with the dispositions that will sustain them in their teaching careers is to locate a community of professionals (who possess the very dispositions under discussion) with whom candidates can interact.

Reflective Practice

As a teacher candidate preparing to work with children who are D/HH, it is essential to develop

the teaching skills as well as the dispositions that lead to the best possible child outcomes. Reflection is one of these essential skills. In 1933, John Dewey described reflection as the “active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusions to which it tends” (p. 9). Since then, educators have commonly used the term “reflective practice” defined more comprehensively by Schon (1983) who described a reflective practitioner as someone who ruminates on a teaching experience to gain knowledge about how their actions impact students. Valli (1997) delved deeper, describing a

reflective teacher as someone who “can look back on events; make judgments about them; and alter their teaching behaviors in light of craft, research, and ethical knowledge” (p. 70).

John Dewey described reflection as the “active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusions to which it tends.”

Once practicing independently, new teachers report struggling to apply what was learned in preparation programs if they have not had ample experience applying pedagogy to practice in their preservice experiences (Boe, Cook, & Sunderland, 2006; Whitaker, 2000). Deliberately analyzing specific aspects of a lesson through reflective practice is one of the most effective ways to address this dilemma (Britton & Anderson, 2010). The ability to view teaching practices through an analytical lens is the hallmark of a skilled educator. Imperative to developing this skill is being guided to identify teaching strategies that effectively promote optimal learning, strategies that do not, and how to make strategy modifications when necessary. If reflection is not a formal component (i.e., required) of teacher preparation,

it is unlikely to happen. If, however, a teacher candidate habitually reflects on every teaching/learning exchange from early to late field experiences, then as a teacher, she is more likely to engage in reflection as a lifelong practice. Teacher preparation programs that use guided reflection at the beginning of a teacher preparation program and continue the process through graduation and beyond provide varied, multiple opportunities for development of highly qualified teachers (Anderson & Radencich, 2001).

While a crucial component, being a reflective practitioner requires more than thought.

Action is requisite.

So does that mean that thinking about teaching makes a reflective practitioner? No. While a crucial component, being a reflective practitioner requires more than thought. Action is requisite. Procedures must be modeled, practiced, and formalized by an expert practitioner/mentor, particularly during the preparation phase (Mann, Gordon, & MacLeod, 2009). Although novice practitioners, including teachers in training, have some theoretical knowledge of their desired craft, they have little-to-no experience using that pedagogical knowledge to make practice-based decisions. In short, they don't know what they don't know. Critical for the success of reflective skill development are mentor partners (university faculty, cooperating teacher, or both) who initially demonstrate teaching strategies to teacher candidates while working with a child in a practicum setting—later guiding teacher candidates to identify their own strengths and areas of growth in teaching. These early partnerships help to build trust and collegiality as the mentor evaluates his/her teaching performance and encourages the teacher candidate to do likewise. In turn, they learn the importance of reflective practice as a mechanism for setting continued professional growth goals (Onchwari & Keengwe, 2008).

Partnerships can be dyadic or triadic. A dyadic partnership includes an expert and novice, while the triadic partnership can take one of two forms:

- 1 An expert (e.g., either university supervisor or cooperating teacher) and two novices.
- 2 Two experts (e.g., university supervisor and cooperating teacher) and one novice.

Regardless of the partnership composition, it is incumbent upon the expert to instill a value for reflective practice.

Through the thoughtful review of teaching/learning exchanges, teacher candidates discover how instructional activities influence children's outcomes. This presupposes an acknowledged and inseparable link between child progress and the teacher actions that led to them. Notice the primacy of focus on child

outcomes—for the reflective practitioner, all review and evaluation of engagement and learning is child oriented. Thus a healthy disposition to planning and executing lessons begins with child- (or family) focused objectives and the instructional experiences that will lead to their attainment. With this orientation to teaching and learning, analysis and review of post-instructional activities is elevated, as is the language that describes it.

Instead of simplistic statements, such as . . .

I did .

They did .

It was (good/bad).

One would more likely hear . . .

When I did , the children did .

The children did , because I did .

Next time I will , so that the children will .

Notice too the complexity of linguistic structure that accompanies deep reflection in post-lesson/session analysis. And consider that the first group of statements closes with an evaluation, whereas the second group of statements is analytical.

In a similar manner, the cooperating teacher can use post-lesson language that either discourages or encourages reflective practice. Consider a teacher candidate's possible responses to the following question posed by the cooperating teacher:

"How do you think that went?"

What response first comes to mind when trying to conceptualize an answer to this inquiry? Is a single word sufficient? Or perhaps only a stream of consciousness recall of the highlights (and lowlights) of the lesson necessary?

Now consider a cooperating teacher who asks the following series of questions:

"What goals were reached by the children in today's lesson, and what was your role?"

"If you had to do this lesson over again, what would it look like and why?"

"How will you plan for your next lesson based on today's outcomes?"

Again, the syntactic complexity in this second set of questions reveals the link between language and reaching the depth of thinking that reflective practice requires. These questions prompt consideration of the children (or family), the activity, *and* the role of the teacher. They require substantive responses as guided by the probing questions of the cooperating teacher. Reprising a quote from our introduction, analysis of success (or lack thereof) is accomplished by “looking back on events, making judgments about them, and [planning for] altering them . . .” (Valli, 1997).

In addition to a face-to-face, oral debriefing, reflective practice can readily be supported through journaling. Because writing is not just putting down on paper (or on screen) what one already knows, the very act of writing calls for “puzzling through what is happening in our work” (Boud, 2001). When this work is the development of teaching skills for educating children who are D/HH, journaling early and often as a formal component of a teacher preparation program is highly valued.

Video-Enhanced Reflective Practice

Yet another vehicle for the development of reflective practice skills is the consistent use of video technology. In the same way that video viewing helps athletes improve their skills, so too can watching recorded teaching sessions improve one’s instructional techniques. Current discussion on the role of video in educational settings includes its merits for supervision, coaching, and mentoring. For the teacher candidate, video technology may be the best tool in the toolkit to assist in the development of reflective

Analysis of success (or lack thereof) is accomplished by “looking back on events, making judgments about them, and [planning for] altering them . . .”

practice as the cornerstone of the teaching craft. According to Knight (2014), the micro camera—as housed in tablets and smartphones—is a “disruptive” technology for professional learning (i.e., changing the status quo in standard practice) in education and is poised to revolutionize the ease with which aspiring educators can harness the power of video to enhance teaching. Simply stated, video recording and reviewing lessons captures an objective

rather than subjective view of a teaching/learning exchange. More specifically, Knight has identified three powerful reasons for using video to heighten the practitioner’s awareness of what is actually happening during an instructional interaction/lesson.

Overcoming the “Busyness” of the Classroom

Whether teaching a general education class of 26 students or a small instruction class of 5 children who are D/HH, there are numerous tasks and decisions for which the teacher is responsible. While managing content, engaging learners, and providing quality turns, it is virtually impossible for the teacher to see it all in real-time. Capturing an objective representation of the lesson ensures that attention can be focused on each of these elements in isolation—thereby identifying strengths and challenges of any particular instructional period and an individual child’s responses to instruction.

Habituation

As a concept, habituation refers to insensitivity to a behavior that occurs with regularity over time. That is, becoming so used to an event or pattern or responsiveness that it is essentially disregarded. This is especially a concern when a teacher overlooks signals that a child needs encouragement to participate or is essentially disengaged from the lesson. It is easy to give attention to the child/children who are fully engaged. Video evidence of failure to notice nonparticipation often creates the dissonance from which strategy revision is launched.

Confirmational Bias

Quoting Chip and Dan Heath (2013), Knight further explores the possibility that without an objective reality, one may only see what is expected to be seen. That is, as teachers, we place a “filter” through which we observe our real-time reality. In so doing, we may inadvertently overlook evidence that is contrary to our expectations. For example, we may expect that a particular child understands the newly introduced concept of “habitat.” Yet upon a review of the exact response, we may see that her comprehension of the term has not generalized beyond “farm” and “jungle” to include “forest, desert, and ocean.”

It might be suggested then that the adoption of video technology is essential to the preparation of strong teacher candidates who routinely engage in rigorous reflective practice. Objective evidence of a teacher candidate’s skill acquisition contributes

[A video artifact] has the potential to remove bias (both positive and negative) by either the cooperating teacher or the university liaison, as well as the teacher candidate.

to the process and adds to the observation/comment/debrief protocol practiced in many personnel preparation programs. Instead of relying only on the supervisor's eyes and commentary, an objective account of the lesson is available for viewing by each member of the triadic team—teacher candidate, cooperating teacher, and university supervisor/liaison. With a video artifact as the “truth” of the teacher candidate's developing craft, the coaching conversation can begin with the identification of the strengths and challenges in any teaching-learning exchange as evidenced by the video capture.

This has the potential to remove bias (both positive and negative) by either the cooperating teacher or the university liaison, as well as the teacher candidate.

One Model of Reflective Practice Development

To illustrate the scope and sequence of a systematic protocol for the development of reflective practice, the timeline in *Table 1* is offered, which is used in a graduate

deaf education program affiliated with a listening and spoken language (LSL) center of excellence. While it can be adjusted to fit the structure of any preservice program, it is vital that certain tenets of the process be maintained. In other words, to effectively develop strong reflective skills, they must be modeled, deconstructed, and evaluated throughout all practical experiences.

Observation

As indicated in *Table 1*, in the first semester of preparation, teacher candidates observe individual and group lessons taught by a teacher or university instructor. Prior to a one-on-one session, language targets are identified, and anticipated LSL strategies are noted. During the session, the instructor narrates an inner monologue related to diagnostic teaching decisions. Sample narration might include:

“I didn’t give Sam enough wait time just then. He might have been able to respond with five more seconds.”

“Because Sam omitted ‘a,’ I acoustically highlighted it when I recasted his utterance.”

Because a thorough reflection cannot be accomplished during the session, the lesson is further analyzed after the child returns to the classroom. At first the instructor explicates strategies used that successfully elicited intended language from the child and suggests what might be done differently in relation to targets not achieved. As the semester progresses, the teacher

Table 1
Teacher Candidate Reflection Development Timeline

Semester 1	Teacher candidates observe individual lessons taught by a university instructor and group lessons taught by classroom teachers. Reflection is modeled during and after sessions.
Semesters 2 & 3	Paired teacher candidates and a university instructor provide language therapy to a child who is D/HH. The instructor plans for and leads the first several sessions. Reflection is modeled during the session, immediately afterwards, and in an online journal. Teacher candidates slowly assume teaching responsibility. Real-time coaching, teacher candidate reflection, and peer coaching is facilitated by the university instructor.
Semester 4	Teacher candidates provide feedback to peers regarding lesson plans as part of an advanced curriculum course. Teacher candidates reflect on and modify plans—explicating rationale for change.
Semesters 5 & 6	Teacher candidates develop relationships with cooperating teachers and complete two student-teaching placements. Letters of introduction (see <i>Appendix B</i>) are sent prior to placements. Cooperating teachers model reflection. Teacher candidates are required to question cooperating teachers regarding strategy use. Once teaching, teacher candidates must show evidence of reflection through meetings with the cooperating teacher and university instructor, as well as written reflections.

candidates analyze the lesson and give data-based suggestions regarding practices that should be repeated and those that should be reconsidered. When teacher candidates observe group lessons, an additional instructor is present to identify the LSL strategies being implemented in the classroom. Following the lesson, the classroom teacher joins the discussion—reflecting on the practices that were successful and what might be changed.

Co-Teaching Individual Intervention

In the second and third semesters, teacher candidates participate in a weekly language therapy session in which two candidates are paired with a university instructor and a child who is D/HH. All sessions are video recorded. The instructor plans for and conducts the first several sessions with incrementally increasing teacher candidate input. For example, by the fourth session, the instructor would have all activities and materials ready but may ask the teacher candidates to help script sample language to be used to elicit child goals. Similarly the instructor models reflection *during* the session and thoroughly analyzes teaching practices afterwards. As the weeks progress, the instructor raises expectations for teacher candidate input through continued probing:

Why do you think I hid all the items at the beginning of the lesson?

I didn't hear Sam say any articles during the lesson. Did you? What could I do differently next time to increase his use of articles?

As teacher candidates assume full teaching responsibility in this field experience—alternating turns as the lead teacher—it is important to tie child success to teaching behavior. When evaluating a lesson, novices tend to focus on child success—or lack thereof—but forget to attribute child behavior to strategies used by the teacher. Each weekly language therapy session is followed by an online journal entry in which the lead teacher evaluates how well the child used each language target and what he did—or should have done—to elicit that language. The teacher candidate peer and university supervisor contribute as well. Video footage is essential during this process. Accurately recalling teaching behaviors is particularly difficult for graduate students who are new to lesson planning and implementation. Video capture allows the teacher candidates to review the lesson and objectively reflect on what strategies were used well and which need to be focused on in subsequent sessions.

When teacher candidates first assume the lead teacher role, the supervisor will likely need to ask many questions to elicit reflection:

Which targets that you planned to elicit did Sam use?

What did you do that successfully elicited targets?

What would you do differently next time and why?

In successive weeks, the teacher candidates assume increasingly greater responsibility for leading the post-session reflection conversation. This two-semester experience lays the foundation for teacher candidates to habituate reflection. In addition, they gain experience in observing and identifying strategies in others. This is essential for coaching strategy development, which will be readily transferable to working with families of children who are D/HH.

Student Teaching

The systematic development of reflective practice continues during student teaching rotations, except the triad shifts to include the teacher candidate, university supervisor, and cooperating teacher. Ideally the cooperating teacher is skilled at explaining rationale for teaching strategies. The teacher candidate is ultimately responsible for observing strategies implementation by the cooperating teacher and asking about their use, rationale, and timing. Once teaching, the teacher candidate reflects daily on each lesson and shares those notes with both the cooperating teacher and university instructor. While video recording is still valuable and should be used, it is not feasible to review an entire day's worth of footage. Writing brief notes during and after each lesson is vital. This stepwise protocol—beginning with observation in the first semester and culminating in full-time student teaching in the final semester—promotes the gradual release of responsibility that empowers teacher candidates, as adult learners, to become accountable for monitoring their own skill acquisition.

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Reflective Practice in the Workplace

In the same way that “healthy lifestyle” habits can be adopted for lifelong commitment to physical well-being, so too can reflective practice be promoted for sustaining commitment to this evidenced-based practice throughout the career journey. Keep in mind that the cocoon of the teacher education program expects and values the reflective practices that lead to effective and outcomes-based intervention/instruction. There are high expectations for exemplary performance and continued knowledge and skill growth. But what happens when the teacher candidate becomes a teacher, moves away from the university environment, and joins a workplace that has a culture that does not include reflective practice? It may be hypothesized that even the strongest proponent of reflective practice may be subject to a kind of “professional drift” that occurs without a teaching community that supports the importance of reflective practice as a mechanism for setting continued professional growth goals (Onchwari & Keengwe, 2008).

To circumvent this possibility, the novice teacher is encouraged to keep in touch with the university as a “professional home,” while at the same time engaging a colleague who might consider joining forces for job-embedded, professional learning regarding reflective practice. Embracing a commitment to “preach what you practice” in the workplace is in fact a first step in building a school community that not only supports teacher induction but also influences child outcomes. Sharing knowledge of and enthusiasm for reflective practice is one way for entry-level professionals to contribute positively to established culture. With the support of a learning community over time, new professionals gain sufficient experience and expertise, such that they may be tapped as cooperating teachers themselves. It is then an opportunity for the circle to be completed as one’s own positive experiences with mentoring and reflective practice are shared with the next “generation” of teacher candidates. Thus the question “what does it take to be a mentor teacher?” may be appropriate to explore.

Embracing a commitment to “preach what you practice” in the workplace is in fact a first step in building a school community that not only supports teacher induction but also influences child outcomes.

In addition to being a highly skilled and effective teacher, an ideal cooperating teacher/mentor teacher is one who can remember what it was like to NOT know what is currently known. Sometimes referred to as “the curse of knowledge” (Heath & Heath, 2006) anyone skilled at any task may find it difficult to enumerate the essential skills, procedures, and thought processes that lead to successful task execution. When something becomes automatic, it is challenging to describe step-by-step performance to someone who does not yet possess the knowledge and skill of the expert. Thus in order to be an excellent mentor or coach, one must possess conscious, unconscious competence (Pike, 2002)—that is the ability to perform with high skill and able to narrate the strategy selection in use and the thought processes that are necessary for deep reflection on child performance.

Additionally this requires finely honed communication skills that include thinking aloud and capturing the decision-making processes that drive teaching/learning exchanges. For any mentor teacher, this behind-the-scenes reveal is foundational for developing reflective practice and moving beyond a simplistic “do as I do” approach of modeling for the teacher candidate. When mentor teachers not only demonstrate reflective practice with the children in their classrooms but also employ reflection regarding the outcomes of the teacher candidates they mentor, there is a greater likelihood that

more children who are D/HH will receive high-quality instruction from the teachers who have been excellently prepared in their preservice programs. This is a lofty but attainable goal.

Summary

It is human nature to associate competence with confidence, and in an ever-expanding cycle of positive experiences, “the rich get richer.” With a disposition to and skill set for reflective practice, the teacher candidate begins a practicum experience that places child outcomes as the centerpiece of this final learning opportunity.

Teacher candidates who arrive with “presence” (Cuddy, 2015) and display confidence and passionate enthusiasm are poised for success. Having systematically

participated in increasingly challenging practicum assignments, the teacher candidate embraces a teacher identity and establishes a unique “voice” that articulates the underlying beliefs and premises for curricular and instructional choices made in the classroom. As teacher identity and teacher voice intersect and continue to be shaped by successive experiences in the career journey, outcomes for children who are D/HH and their families track an upward trajectory in systems that value the skill set of reflective practitioners as essential to the advancement of all learners.

**Teacher
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are poised for
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Photo courtesy of Sound Beginnings/Utah State University

Resources

- *Appendix A* is an evaluation protocol that can be used by preservice teachers to enhance reflection.
- *Appendix B* is a guide for preservice teachers to write an introductory letter to cooperating teachers.

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Appendix A **Evaluation Protocol That Can Be Used by Preservice Teachers to Enhance Reflection**

Student Teaching Practicum Reflective Practice Protocol Evaluation Form

Teacher Candidate Name:	Term:
Cooperating Teacher:	Apprenticeship Dates:
Educational Placement:	

Range: From 1 (lowest) to 5 (highest)

Reflective Practice Protocol Evaluation	1	2	3	4	5	N/A
Pre- & Post-Session Reflection (reflection on action)						
1. Teacher candidate provides thoughtful information concerning own teaching, including:						
(a) Recognizes teaching practices that produced desired child outcome.						
(b) Identifies teaching practices that were not effective in producing desired child outcomes.						
(c) Identifies teaching practices that should have been used to result in better child outcomes.						
(d) Recognizes changes made in instruction that resulted in improved child outcomes.						
(e) Assumes increased responsibility for leading reflective conversations (relies less and less on supervisor to ask prompting questions).						
(f) Identifies teaching/reflection goals for self and provides rationale for goals.						
(g) Plans means for demonstrating progress towards teaching goals.						
Performance (reflection in action)						
2. Shows evidence of active reflection while teaching, including:						
(a) Narrating to supervisor(s) and/or peer child observations and rationale for changing procedure and/or using specific strategies.						
(b) Changes procedures and/or strategies based on child performance (i.e., does not continue with procedures or strategies that do not produce desired child outcome).						
(c) Implements real-time suggestions made by supervisors.						
(d) Means for demonstrating progress toward teaching goals is evident.						

Strengths		Areas of Improvement	
Date: <input type="text"/>			
Teacher Candidate:	<input type="text"/> <small>Name</small>	<input type="text"/> <small>Signature</small>	
Cooperating Teacher:	<input type="text"/> <small>Name</small>	<input type="text"/> <small>Signature</small>	
University Supervisor:	<input type="text"/> <small>Name</small>	<input type="text"/> <small>Signature</small>	

Appendix B

Tips on Writing a Letter of Introduction to Your Cooperating Teacher

Sending a professional letter of introduction to your cooperating teacher can show the cooperating teacher that you are enthusiastic and excited to learn from him/her. The letter will oftentimes be the cooperating teacher's first impression of you, so it is important to write a professionally formatted letter (MLA or APA) that uses proper grammar and is devoid of colloquial language and misspellings.

In the body of the letter, discuss your strengths, abilities, and goals—highlighting your desire to become a more reflective practitioner. Include at a minimum the following:

- A brief introduction, including your name, undergraduate major and minor, and why you want to be a teacher of the D/HH—focusing on listening and spoken language.
- Prior experiences working with children and/or families, including field experiences.
- Your strengths working with children. If you have experiences in a similar setting (classroom, itinerant), be sure to include those details.
- What are you most looking forward to during your student teaching experience with this cooperating teacher? Be as specific as possible and be sure to include your desire to further develop your reflective skills. Do you want to refine your use of wait time, differentiating instruction, and behavior management? What about planning for and simultaneously implementing academic, auditory, speech, and language goals? Let the teacher know you are eager to use reflection and feedback to improve subsequent teaching.
- List your contact information, including email address and phone number.
- Offer to meet with the cooperating teacher prior to the placement.
- Thank the cooperating teacher for his/her willingness to have you in his/her classroom.

Draft the letter as early as possible—ideally as soon as the placement is confirmed. Have a university instructor review the letter prior to sending. Send the letter to the cooperating teacher as an attachment to preserve the business letter format.

Chapter 16

Career Development & Adult Life

Megan Reister

This chapter focuses on the transition from school to career/adult life in individuals with hearing loss who communicate through listening and spoken language (LSL). According to the National Center for Health Statistics, 48 million (20%) Americans have some degree of hearing loss. It is the third most prevalent chronic health condition in older adults, after arthritis and heart disease—making it an issue of national concern (Hearing Loss Association of America, 2017). Living with a hearing loss has many far-reaching impacts that affect all areas of life for both the individual

and those with whom he or she comes into contact. One such area impacted by hearing loss is within the work sector and postsecondary settings after high school. In addition



Photo courtesy of Sound Beginnings/Utah State University

to communication and language, the presence of a hearing loss can interfere with work and school performance as an individual transitions to adulthood.

This chapter will take a look at the historical overview of employment as related to individuals with hearing loss followed by a glimpse at the Americans with Disabilities Act (ADA)—a law that heavily influences the postsecondary education and occupational outcomes of those with disabilities, including hearing loss. Next, we will discuss independent

living, self-advocacy, and social skills that pertain to this population. Finally, the chapter will conclude with personal stories from contributing individuals with

hearing loss who communicate using LSL or American Sign Language (ASL).

Historical Overview of Employment

Work is viewed as an essential component in many individuals' lives, including those with disabilities, yet research shows many individuals with disabilities struggle with employment as adults (Brault, 2012; Hardman, Egan, & Drew, 2017). In spite of approximately 56.7 million individuals with disabilities being available to diversify the workplace, fewer than 50% of these individuals hold jobs (Brault, 2012).

In addition to its effect on psychosocial status and interpersonal communication, a hearing loss may also influence a person's employment status (Ross, 2011). As Ross highlights, most jobs in our society require some degree of interactive verbal communication. One must be able to communicate effectively with coworkers and colleagues, the public, and most importantly one's supervisors. Any obstacle or hurdle to effectively communicating with others in the workplace or postsecondary setting may interfere with the efficiency and accuracy of these communication exchanges and in turn affect job performance.

The long-lasting effects may include amount of pay and job retention. Research within deafness has revealed that individuals with hearing loss historically have been underemployed and underpaid. While the people with the mildest hearing losses show little or no drop in income compared to their typically hearing peers, as the hearing loss increases, so does the reduction in compensation (Hearing Loss Association of America, 2017). However, thanks to advancements made within technology, a shift in social attitudes and perspectives, and public laws that have been instituted, the treatment and expectations of individuals with hearing loss within the workplace has changed for the better compared to how these individuals were treated in the past.

According to research conducted by Sergei Kochkin, nearly 60% of the people with hearing loss are currently gainfully employed or partaking in educational settings—dispelling the long-held notion that only the elderly experience hearing loss (Ross, 2011). Kochkin also discovered that the income level of individuals with moderate hearing loss was about \$14,000 less than that earned by individuals with mild hearing loss. Astonishingly, the income difference between individuals with mild hearing loss compared to those with severe or more profound hearing loss reached \$31,000.

Further, Kochkin's research revealed that use of amplification had a tremendous impact on job performance. Through using amplification (e.g., hearing aids), individuals are able to better compensate for their hearing loss and overcome any communication challenges that may arise. Individuals who used hearing aids within the workplace reported they felt less social isolation and more emotionally secure compared to those individuals who did not wear hearing aids (Ross, 2011).

Some studies have found that individuals with severe hearing loss have been unemployed at a higher rate than those with milder hearing loss (Ross, 2011)—indicating a general difficulty with obtaining employment. Individuals with hearing loss historically have experienced higher rates of unemployment and underemployment and lower levels of educational attainment than people without hearing loss (Danermark, 2005; Punch, Hyde, & Creed, 2004).

Data from the 2010 American Community Survey indicated that while the percentage of individuals who are D/HH with college degrees had quadrupled since the 1970s, employment and earnings rates were considerably

worse than for the general U.S. population and had actually declined over the same period (Walter & Dirmeyer, 2013). Punch (2016) discovered the largest gap was for people with no college degree, and the smallest gap was for graduates with a bachelor's or graduate degree. Nevertheless, the gap in earnings for those with degrees was still around 20%. This suggests an underemployment problem, or individuals who are D/HH working in jobs that required a lower level of education than they had attained.

Thanks to advancements made within technology, a shift in social attitudes and perspectives, and public laws that have been instituted, the treatment and expectations of individuals with hearing loss within the workplace has changed for the better compared to how these individuals were treated in the past.

One study revealed that although individuals with hearing loss had a high level of educational attainment (87% of participants held a 4-year college degree or higher), over half of these individuals worked in nonmanagerial positions, approximately one-third as lower- and middle-level managers, and 8% as upper-level managers (Dong & Guerette, 2013). Labor market trends in recent years—such as the growth of the service sector, Internet-related services, and the tendency for large organizations and the public sector to outsource many tasks to contractors and consultants—have contributed to growth in the number of small businesses and thus in the number of people who are self-employed (Savickas, 2012; Stokes & Wilson, 2010). This may mean that more individuals with hearing loss will be self-employed in the future (Punch, Creed, & Hyde, 2006).

Adjustments, accommodations, and use of technology can reduce workplace barriers. Due to technological advances made in recent years, an expanding range of devices and systems may have the effect of increasing occupational accessibility for individuals with hearing loss. While research has shown the benefits to using hearing aids or some other type of personal amplification within the job setting, a particular job or function may make communication demands that exceed the capabilities of conventional hearing aids. In these cases, other forms of hearing assistive technologies may be needed to address these challenges. Developments in information and communication technologies, such as text-based communication and

digital forms of face-to-face contact through video calls, have dramatically changed the communicative interchanges for individuals with hearing loss in both the workplace and social settings (Garberoglio, Dickson, Cawthon, & Bond, 2015; Okuyama, 2013; Power & Power, 2010; Tye-Murray et. al., 2009).

However, the extent to which individuals with hearing loss—particularly young people entering the workforce—are aware of available options or are able to obtain access to them is not certain (Punch, 2016). Contrary to this statement, Dong & Guerette (2013)

reported that individuals who had more severe levels of disability, higher levels of education, worked full-time rather than part-time, and were younger were more likely to request accommodations. Participants were more likely to request and receive accommodations when they had a high expectation that employers would comply with the request. These researchers also reported individuals who received accommodations revealed higher levels of coworker and employer support and higher levels of job satisfaction than individuals who had not requested accommodations, or who had requested but not received them. Nonrequesters had lower levels of knowledge of disability legislation and procedures for requesting accommodations.

Even without the presence of hearing loss, demands are present in various occupations or work environments that impact communication and may have differing effects on each person. Some common solutions to barriers to communicating effectively with others in the workplace or postsecondary setting that are very low-cost are to (Punch, 2016; Tye-Murray et. al, 2009):

- Rearrange furniture, so that the individual with hearing loss can see others better in the workspace.
- Make use of preferential seating.
- Move a desk away from a noisy hallway.
- Reverse one's desk to keep the sun out of one's eyes to assist in better viewing of the lips and mouths to aid in speech reading.
- Repeat and rephrase information.
- Use email or text messaging in place of telephone calls.
- Ask colleagues or coworkers to take on specific hearing-related tasks (such as telephone calls).
- Gain the individual's attention before presenting information orally to allow for maximum attention when speaking with the individual with hearing loss.

Haynes and Linden (2012) report that common accommodations made in the workplace for individuals with hearing loss include:

Telephone aids	Help from coworkers
Modification of job tasks or training	Electronic communication
Adjustments to the workspace	Sign language interpreting

Due to technological advances made in recent years, an expanding range of devices and systems may have the effect of increasing occupational accessibility for individuals with hearing loss.

These same researchers also discovered that individuals with mild hearing loss did not capitalize on the accommodations or supports that might be beneficial to them due to lack of awareness of accommodations and/or perhaps thinking the level of hearing loss was too low or mild to have an impact when in truth it does have an effect.

The telephone often has been a significant communication challenge or barrier in the workplace (Tye-Murray et. al., 2009). However, with advancements made to telephone technology that allows for clearer calls, the introduction of texting, and the prevalence of email communications, as well as other technology advancements made in recent years, telephones may not prove as difficult to navigate nowadays compared to the past.

Many states offer state vocational rehabilitation offices or other similar agencies or organizations to provide assistance with obtaining services, accommodations, and resources that may help an individual with hearing loss obtain and/or maintain a job after securing employment. When seeking assistance of this sort toward career or postsecondary outcomes, it is up to the individual to seek the services. Oftentimes the process is a long one that involves completion of paperwork and interviews to determine eligibility and type of services that will be awarded.

Individuals with hearing loss tend to work in a hearing environment and are likely to face daily barriers and challenges that involve communication difficulties, as well as a range of social, attitudinal, and structural barriers (Punch et al., 2004). Further, other challenges can emerge as a result of elevated levels of stress and fatigue. It is commonly reported that adults with hearing loss experience fatigue and stress resulting from the greater effort put forth to concentrate, listen, and speech read that they need to make in everyday situations compared to people without hearing loss. Generally, more effort is made on the part of individuals with hearing loss to (Bess & Hornsby, 2014; Granberg et al., 2014; Hornsby, 2013; Hua, Karlsson, Widen, Moller, & Lyxell, 2013; Kramer, Kapteyn, & Houtgast, 2006):

“Distinguish between and localize sounds.”

“Communicate in noise.”

Make “effort in hearing.”

Experience more perception of environmental noise when compared to hearing colleagues.

Commonly listed difficult workplace situations within the workforce are (Haynes & Linden, 2012; Punch et. al, 2007):

Meetings

Lack of assistive listening systems

Captioning

Interpreters

Professional development and training activities

Coworkers’ unwillingness to adjust to the needs of the individual with hearing loss

Lack of understanding of the implications of hearing loss

Work-related social functions

Some questions individuals with hearing loss might need to consider when entering the workforce:

When do you disclose your hearing loss to a potential employer?

How do you function on the job?

Do you use captioned telephone, computer-assisted real-time transcription (CART), and/or an assistive device?

Are your coworkers cooperative and help communicate clearly?

The answers to each of these questions are personal and highly individualized depending on the person.

Independent Living as Adults

Although an independent life is difficult to describe, Appelman et. al. (2012) noted that participants classified as being independent in a study that analyzed independent living skills in individuals with hearing loss had completed college, were married, worked, had a driver’s license or permit, were registered to vote, and no longer lived with their parents. However, the literature on life skills and Deaf adults is sparse. Of the few studies that have been conducted, studies have tended to concentrate on

Individuals with hearing loss tend to work in a hearing environment and are likely to face daily barriers and challenges that involve communication difficulties, as well as a range of social, attitudinal, and structural barriers.

barriers young people with disabilities face, and within that literature, young individuals with hearing loss are rarely discussed.

As recognized by the current body of research and literature, people between the ages of 18-35 may have unique issues with hearing loss compared to an older individual with later-acquired hearing loss, such as particular barriers to the transition to independent living. Issues for this population include (Mathews, 2015):

Lower expectations during elementary and high school.
Quality of communication at home.
Learned helplessness.
Poor literacy and numeracy skills.

Another hurdle to acquiring independence as an adult may lie in the qualifications of those who provide the instruction or training to individuals with hearing loss. These staff members may not have the appropriate background or training in working with individuals with hearing loss, such as adequate knowledge of communication modes or lack of understanding of social ramifications of living with hearing loss (e.g., sign language, feelings of isolation). Therefore, care will need to be taken to ensure the needs of individuals with hearing loss are met when aiming to provide them with instruction or training to foster independence in careers, postsecondary settings, and adult living.

It is essential that relevant professionals—including vocational rehabilitation counselors, audiologists, and educators working with individuals with hearing loss transitioning from secondary or postsecondary education—be as informed as possible about advances in assistive technology to better accommodate for hearing loss (Punch et. al., 2016).

Strengths in independent living demonstrated by individuals with hearing loss include:

Food management	Emergency and safety
Housekeeping	Transportation

However, gaps persist, particularly in relation to health, sexual health, knowledge of legal rights, and knowledge of housing issues, such as renting (Mathews, 2015). Successful models of teaching daily living skills, such as those listed above, to individuals with disabilities—

including hearing loss—incorporate a multifaceted program that provides structured classes taught by qualified teachers or social workers who have worked in the area of deafness and who facilitate social inclusion. Additionally, these classes or programs present supportive environments for individuals to put into practice the daily living skills they have learned as a result.

Overview of the ADA

The ADA is the primary law that ensures provisions for the workplace, including jobs within state and local government sectors (Title II), and also relates to public accommodations and commercial facilities (Title III). The ADA was last revised on September 15, 2010, and the revisions helped to clarify and refine issues that have arisen over the past 20 years and contain new and updated requirements, including the 2010 Standards for Accessible Design (ADA, 1990/2010).

Thanks to the ADA and other federal laws, employers are required to make reasonable accommodations to the known disability of a qualified applicant or employee unless such accommodations would impose an undue hardship on the employer. Reasonable accommodations include a wide variety of actions:

Making worksites accessible.
Modifying existing equipment in order to provide new devices.
Modifying work schedules.
Restructuring jobs.
Reassigning an employee to a vacant position.
Providing readers or interpreters.

In spite of these legal provisions that have been put in place to ensure equal access, Baldrige and Swift (2016) maintain that people with disabilities of all types are often reluctant to ask for workplace accommodations. Further, these researchers also suggest that some employers and managers—trying to avoid cost and

The ADA is the primary law that ensures provisions for the workplace ... and also relates to public accommodations and commercial facilities.

Regarding communication, under the ADA, the purpose of effective communication rules is to ensure a person with a vision, hearing, or speech disability can communicate with, receive information from, and convey information to the covered entity.

effectively is to consider the nature, length, complexity, and context of the communication and the person's method(s) of communication. Finally, the rules apply to communicating with the person who is receiving the covered entity's goods or services, as well as with that person's parent, spouse, or companion in appropriate circumstances (ADA, 1990/2010).

For people who are deaf, have hearing loss, or are deafblind, the ADA mandates that a qualified notetaker; qualified sign language interpreter, oral interpreter, cued-speech interpreter, or tactile interpreter; real-time captioning; written materials; or printed script of a stock speech (such as given on a museum or historic house tour) be provided. A "qualified" interpreter means someone who is able to interpret effectively, accurately, and impartially, both receptively (i.e., understanding what the person with the disability is saying) and expressively (i.e., having the skill needed to convey information back to that person) using any necessary specialized vocabulary.

The ADA requires that aids and services that may be beneficial to the individual with hearing loss be

inconvenience and fearing that refusing requests once they are made could involve legal risk—may subtly discourage such requests. Contrary to this, human resource professionals and managers need to foster workplace environments that encourage social support and coworker understanding (Punch & Hyde, 2005).

Regarding communication, under the ADA, the purpose of effective communication rules is to ensure a person with a vision, hearing, or speech disability can communicate with, receive information from, and convey information to the covered entity. Covered entities must provide auxiliary aids and services when needed to communicate effectively with people who have communication disabilities.

The key to communicating

provided. These may consist of a wide variety of technologies, including:

Assistive listening systems and devices.

Open captioning, closed captioning, real-time captioning, and closed caption decoders and devices.

Telephone handset amplifiers; hearing-aid compatible telephones; text telephones (TTYs); videophones; captioned telephones; and other voice, text, and video-based telecommunications products.

Videotext displays.

Screen reader software, magnification software, and optical readers.

Video description and secondary auditory programming (SAP) devices that pick up video-described audio feeds for television programs.

Accessibility features in electronic documents and other electronic and information technology that is accessible (either independently or through assistive technology), such as screen readers.

Another service provided through the ADA that has helped individuals with hearing loss is real-time captioning (also known as computer-assisted real-time transcription—or CART), which was highlighted in recent studies as being one of the most effective means of providing access to information within the workforce, particularly when used in large meetings (Haynes & Linden, 2012). This is a service similar to court reporting in which a transcriber types what is being said at a meeting or event into a computer that projects the words onto a screen. This service, which can be provided onsite or remotely, is particularly useful for people who are deaf or have hearing loss but do not use sign language.

Regarding communication over telephones, a free nationwide telecommunications relay service (TRS) can be reached by calling 7-1-1. TRS uses communications assistants (also called CAs or relay operators) who serve as intermediaries between people who have hearing or speech disabilities who use a TTY or text messaging and people who use standard voice telephones. The CA tells the telephone user what the other party is typing and types to tell the other party what the telephone user is saying. TRS also provides speech-to-speech transliteration for callers who have speech disabilities.

For individuals who communicate through sign language, video relay service (VRS) is a free, subscriber-based service for people who use sign language and communicate through videophones, smartphones, or computers with video communication capabilities. For outgoing calls, the subscriber contacts the VRS interpreter, who places the call and serves as an intermediary between the subscriber and a person who uses a standard voice telephone. The interpreter tells the telephone user what the subscriber is signing and signs to the subscriber what the telephone user is saying.

Also using video technology, video remote interpreting (VRI) is a fee-based service that accesses an offsite interpreter to provide real-time sign language or oral interpreting services for conversations between hearing people and people who are deaf or have hearing loss. The new regulations give covered entities the choice of using VRI or onsite interpreters in situations where either would be effective. VRI can be especially useful in rural areas where onsite interpreters may be difficult to obtain. Additionally, there may be some cost advantages in using VRI in certain circumstances. However, VRI will not be effective in all circumstances. For example, it will not be effective if the person who needs the interpreter has difficulty seeing the screen (either because of vision loss or because he or she cannot be properly positioned to see the screen because of an injury or other condition). In these circumstances, an onsite interpreter may be required.

If VRI is chosen, *all* of the following specific performance standards must be met to comply with ADA:

Real-time, full-motion video and audio over a dedicated high-speed, wide-bandwidth video connection or wireless connection that delivers high-quality video images that do not produce lags, choppy, blurry, or grainy images or irregular pauses in communication.

A sharply delineated image that is large enough to display the interpreter's face, arms, hands, and fingers, and the face, arms, hands, and fingers of the person using sign language, regardless of his or her body position.

A clear, audible transmission of voices.

Adequate staff training to ensure quick setup and proper operation.

The ADA places responsibility for providing effective communication, including the use of interpreters, directly on covered entities. They cannot require a person to bring someone to interpret for him or her.

When choosing an aid or service, state and local government sectors (Title II) are required to give primary consideration to the choice of aid or service requested by the person who has a communication disability. The state or local government must honor the person's choice, unless it can demonstrate that another equally effective means of communication is available, or that the use of the means chosen would result in a fundamental alteration or undue burden. If the choice expressed by the person with a disability would result in a fundamental alteration or undue burden, the public entity still has an obligation to provide an alternative aid or service that provides effective communication, if one is available.

When considering public accommodations and commercial facilities (Title III), these entities are encouraged to consult with the person with a disability to discuss what aid or service is appropriate. The goal is to provide an aid or service that will be effective—given the nature of what is being communicated—and the person's method of communication. Individuals with hearing loss have expressed a desire for employers to demonstrate more awareness of the ADA in providing services and equal access to meetings and instruction to allow for more opportunities for advancement on the part of individuals with hearing loss (Perkins-Dock, Battle, Edgerton, & McNeil, 2016).

Covered entities may require reasonable advance notice from people requesting aids or services—based on the length of time needed to acquire the aid or service—but may not impose excessive advance notice requirements. “Walk-in” requests for aids and services must also be honored to the extent possible, unless doing so would result in an “undue burden,” which is defined as causing significant difficulty or expense. If a particular aid or

The ADA places responsibility for providing effective communication, including the use of interpreters, directly on covered entities. They cannot require a person to bring someone to interpret for him or her.

service would result in an undue burden, the entity must provide another effective aid or service, if possible, that would not result in an undue burden. Determining what constitutes an undue burden will vary from entity to entity and sometimes from one year to the next. The impact of changing economic conditions on the resources available to an entity may also be taken into consideration in making this determination.

Self-Advocacy in Adult Life

Successful individuals with hearing loss within the general education setting tend to be high in self-advocacy through:

- Educating others about hearing loss.
- Being prepared.
- Perhaps working harder than others (to compensate for the hearing loss).
- Making use of anticipatory strategies before meetings and conferences.
- Persisting in obtaining accommodations that would be of benefit to the student and his or her family.

Within group settings, it may be difficult for the individual with hearing loss to interact with colleagues, and he or she may experience communication difficulties. Overall, Tye-Murray et al. (2009) concluded that most professionals who have hearing loss are tenacious individuals with strong interpersonal skills who were determined that hearing loss would not hold them back from performing their jobs or advancing their careers. Likewise, Jacobs, Brown, and Paatsch (2012) indicated successful individuals with hearing loss used the same psychosocial skills as successful hearing people, as well as additional skills specific to identifying and managing hearing-related difficulties. Some of these skills included:

- Refusing to accept other people's lowered expectations.
- Making lifestyle choices to suit their strengths.
- Being assertive when necessary.
- Informing others about their hearing loss-related needs.

Self-determination skills—including communication, assertiveness, confidence in self, negotiation, and problem solving—are important and need to be promoted and fostered in individuals with hearing loss in the school setting and also at home within families (Kemmerly & Compton, 2014). Additionally, vocational rehabilitation

counselors working with individuals with hearing loss must assist in the development of self-advocacy skills where necessary, as well as educate employers about deafness (Schoffstall, Cawthon, Tarantolo-Leppo, & Wendel, 2015).

Social and emotional support can have an impact on the amount of self-advocacy displayed by an individual with hearing loss (Kemmerly & Compton, 2014). Social and emotional support involves social and emotional integration and trust among coworkers and supervisors and social cohesion in the overall work group that can impact levels of feeling accepted and supported within the workplace or postsecondary setting. Instrumental social support involves extra resources or assistance with work tasks provided by coworkers or supervisors (Karasek & Theorell, 1990). Further, individuals with hearing loss, particularly young people, need to (Kemmerly & Compton, 2014; Punch et. al., 2016):

- Develop strong self-advocacy skills and knowledge.
- Grow in their persistence and resiliency.
- Increase in their understanding of their legal rights and skills in explaining the implications of their hearing loss.
- Learn to negotiate for necessary accommodations to be successful in the workforce and postsecondary settings.

Social Life

Other social aspects of living as an adult with hearing loss to consider are dating and relationships, parenting, and stigma. Within dating and relationships, communication issues may arise that may impact feelings of acceptance and belonging, and the individual with hearing loss may contemplate *when* to reveal there is a hearing loss to the prospective partner. Social situations, such as parties, can be difficult for spoken communication to occur if the music or background noise is too loud. Likewise, those who sign may struggle to see the signs due to poor lighting in such social situations. Once individuals with hearing loss become parents, a new set of worries may crop up regarding the child or children in that parents may worry they might not hear a crying child during the night or hear the child from another room. As the children grow and begin to talk,

Other social aspects of living as an adult with hearing loss to consider are dating and relationships, parenting, and stigma.

parents may struggle with understanding what the child is saying. Once the children enter school, parents may face anxiety or stress over parent/teacher conferences, interactions with other parents and/or children, and being able to hear all that is exchanged at a school meeting or gathering.

Some individuals with hearing loss have expressed being embarrassed about their hearing loss or facing some sort of stigma about hearing loss when it comes to interacting with others who might not be familiar with hearing loss (Hearing Loss Association of America, 2017). At times, they may attempt to cover their hearing aids with their hair, while other individuals have expressed they feel comfortable with their hearing loss and do not mind if their hearing aids are readily observed by others. Research has

also shown that individuals with hearing loss who received the diagnosis of hearing loss at an early age tend to be more accustomed to interacting with others and compensating for their hearing losses compared to those who were diagnosed or encountered hearing loss at an older age.

Profiles from Contributors

This section is devoted to three stories of successful adults who are D/HH, including individuals who primarily use ASL to communicate and individuals who primarily use LSL to communicate. Our purpose in sharing these narratives is to provide examples of the lived experience of individuals who are D/HH and their experiences of growing up with deafness, identity, family, and transitioning to college and careers.

Joseph Hill's Profile

As a black, deaf associate professor and published author, my ongoing professional journey is the result of parental involvement, teachers' expectations, and the respect for my agency as a human being. I was born profoundly deaf to a family of siblings who are of D/HH, a mother who is D/HH, and a hearing father. I was raised as a child who is D/HH with hearing aids who spoke English, but undergoing a personal transformation with my own realistic assessment of my needs, I have accepted myself as a Deaf adult who uses ASL as a primary language and communicates orally when necessary.

Parental involvement made a difference for me as a successful student. For 15 years, my mother had familiarized herself with the educational resources for my Deaf brothers and sister before my birth in 1979. Even with the preparation, it was not an easy journey for my parents with teacher and medical professionals who were often at odds with my parents on every

decision for their children. Born at least 11 years apart from my brothers and sister, we shared some of the same teachers of the deaf, and our education was primarily in a self-contained classroom setting in public schools. The main difference between my siblings and me was that I began using sign language in middle school and working with sign language interpreters through secondary and postsecondary education. I felt like sign language expanded the horizon in a way that I had barely gotten through speaking and listening with my residual hearing. My social skills had improved through sign language, because I had access to incidental learning within communication discourses with the help of my interpreters, whether it was intentional or not.

My teachers' expectations were based on their recognition of my talent. I was very fortunate to escape the fate that befell most of my peers who are D/HH whose teachers reserved low expectations for their

educational achievement. Because I was in a self-contained classroom, I was assigned similar assignments as my peers during the early part of my education, and they were not as challenging. I saw my Deaf brothers and sister going to college, and naturally I wanted the same for myself. I began to take on more challenging assignments in middle school, and that resulted in the decision to be fully mainstreamed in secondary education and involved in early career exploration activities and trainings in business, technology, and leadership.

One thing I was grateful for was the respect for my agency as a human being. I could have my agency taken away from me due to my disability, but my mother fought for my right to make an informed choice and make my teachers honor my choice. I didn't understand the importance of it when I was young, but looking back, I appreciate the lasting impact it had on my life as a Deaf individual who knows his own needs better than most.

David Smith's Profile

According to my mother, I had a very difficult delivery during the mid-70s and had acute asphyxia when I was born. I was in neonatal care in the hospital for several weeks. During that time, I had a collapsed lung and had seizures. Due to these problems, the doctors said I would have some learning disabilities and slow development.

When I wasn't speaking normally, it was assumed it was because of all my problems. It wasn't until I started kindergarten that the teachers said that I wasn't hearing. I went to the audiologist and found out that I had progressive moderate-to-profound loss in both ears. My profound loss is in the high-pitch range, and the moderate is in the lower range. I was fitted with hearing aids and put in the hearing-impaired classes in school. I also had a speech impairment. I was 6 years old at that time. If I was tested at an early age, I would have had hearing and speech therapy

sooner. Instead, I was 6 years behind.

During my school years, I was evaluated with the results placing me in the mildly mental retarded category and also showed that I would have a difficult time obtaining employment without special training. My first job was cleaning offices after school with a friend of mine. When I graduated, I got a job as a mail clerk with a bank with the help from the Office of Vocational Rehabilitation (OVR). OVR also obtained a work coach for me to help learn the job.

After a year, the bank closed, and I got a job with the Social Security Administration—first as a data transcriber, then transferred to the mail room as a mail clerk. Again, I obtained this job through OVR. I had difficulties learning their procedures, but I had one-on-one training and finally caught on. I have been employed there now for

15 years and am hoping to retire from there.

Socially, I get along with everyone from work. Being a mail clerk, I get to see and talk to many coworkers during the day. I have a few good friends and socialize often. I collect movies and have over a thousand of them in my movie collection. I'm an avid bowler and am currently on two leagues. I help my dad around the house and yard. I enjoy spending time with my nieces and nephew.

My advice to teachers would be to have patience and repetition. The only way I learned was by doing something over and over again. I would also encourage teachers to find something the student likes and build on that interest. For example, my interest was driving, so my teachers helped me with understanding the driving manual until I read and understood everything. If students are interested in something, they will learn!

Megan Reister's Profile

I have moderate-to-severe hearing loss in both ears. I was diagnosed with this sensorineural hearing loss at the age of 2 and received behind-the-ear hearing aids for both ears when I turned 4. Before my diagnosis, my parents did not suspect I had a hearing loss, because I compensated by following my brothers' lead in communicative interactions. As an infant, I often cried and was inconsolable for hours on end for no apparent reason that led to many frustrating hours for my parents. It was not

until I started talking that my parents noticed that I would leave certain sounds out or not respond when called to from another room.

I have a twin brother who does not have hearing loss, and initially we received the same school experiences by attending the same preschool. However, after receiving my hearing aids, my family and I received early intervention services in our home. My parents were taught how to care for my hearing aids and were shown different

types of early literacy and language curriculums and resources to use with me.

My mother—a special education teacher by trade who had taken time away from teaching to be a stay-at-home mother to my older brother, twin brother, and me—was at that point already spending much of each day working one on one with me to teach me vocabulary and the correct pronunciation of words when we would play “school” together. Then when my

Megan Reister's Profile (continued)

father would come home from work in the evenings, he and I would review what Mom and I had worked on during the day. I recall enjoying the time spent with my parents and thinking it was all for fun and just “playing.” Our family grew with the addition of my little brother, and I remember commenting how loud he was when he would cry or babble, as the timing of my little brother reaching these developmental milestones coincided with when I received my hearing aids.

During my preschool year, when enrolled in the same class as my twin brother, the preschool classroom teacher was not willing to make accommodations for my hearing loss and hearing aids. My parents—at the recommendation of the ear doctor—enrolled me in a school for children with special needs. Even as young as 4 years old, I can recall wondering why I was in this classroom when I saw how different I was from the other children. Some needed help with walking through use of walkers—or they did not walk at all, and they used a wheelchair. Some communicated with their hands (e.g., sign language); yet other students seemed to not communicate at all and did not actively participate in the class.

I remember being captivated by the adapted toys and playground and wondering why the students were so different than me in terms of communication and what I could do compared to what they could do. I was a student in this

particular classroom for about 3 months before the classroom teachers informed my parents that I was beginning to regress in my language and had begun to imitate grunts and speech produced by my classmates. It was determined I would attend my neighborhood school and once again be in a general education setting with my twin brother for kindergarten.

My parents and I continued receiving early intervention services in our home throughout these transitions until we moved to a different state due to my father’s job (as a Master Sergeant in the Air Force). We spent one year in that new school before moving again. It was during this last move when I was in second grade that I continued with my general education placement and also received speech therapy services once a week for one year before being dismissed from these services.

When we first moved to the area, we had difficulty finding an ear doctor. A traumatic experience with an ear doctor who caused me much pain when removing wax left me wary of ear doctors when I was 7. Thankfully we were referred to a local ear doctor in a nearby town who was gentler in his approach and who wound up being my ear doctor throughout my childhood and even up to today. I also see the same audiologist whom I have seen since second grade now as an adult nearly three decades later! I did not receive any specialized education services for the remainder of my

schooling from 3rd through 12th grade.

During my senior year, upon the suggestion of my high school guidance counselor, I spoke with an OVR officer from my state. This officer provided me with resources and information about scholarships and assistance in buying new hearing aids for college. Through maintaining this relationship with OVR throughout college and into young adulthood, I was able to receive assistance with purchasing new hearing aids and other assistive technology to help me maintain my independence and continue working, whether as a college student or as a teacher.

Having grown up in a family of teachers, I knew from a young age I wanted to be a teacher. I wanted to enter a unique educational field compared to the teaching fields of my grandmother, aunts, and mother, so when it came time to declare a major, I thought why not work with children like me?! I wanted to work with children who also had hearing loss and wore hearing aids, yet were educated in the general education setting, so I pursued a teaching career in deaf education.

My parents were always supportive of any decision I made, including educational and vocational choices, and taught me that any goal was attainable with hard work and determination. My hearing loss was never viewed as a reason I could not at least try to do something new, and I am grateful my family has viewed me in that way and taught

Megan Reister's Profile (continued)

me to view myself that way. This was evidenced by their acceptance of my request to transfer from my small private elementary school to a large public junior high school, since I felt the academic coursework at that high school would better prepare me for my postsecondary plans of attending a 4-year college.

Upon finishing college, I pursued my master's degree while teaching and working full time. My family embraces a strong work ethic, and education was very much valued and a priority in our household, as evidenced by my father completing his college degree after retiring from the Air Force when my brothers and I were in elementary school. Witnessing my mother's passion of teaching children at the elementary school level instilled a love for learning *and* teaching in me.

While enrolled in my undergraduate career, I worked part-time to pay for school expenses and focused heavily on my training in the teacher preparation program to ensure I would be as prepared as possible for my future students. One summer in college, I worked as a camp counselor at a YMCA camp where we mainstreamed children with special needs into the camp setting. Throughout college and into young adulthood, I babysat and nannied, which was something I had enjoyed doing since middle school. I knew vocation-wise that I would always be involved with children, whether it was through working at a daycare and running a day camp one summer, nannying in Montana

another summer, volunteering in local classrooms, or taking extra classes in the summer to broaden my horizons. I also took seriously the opportunities to explain my hearing loss to those who had never seen hearing aids before or did not know anything about hearing loss, even if others initiated that communicative interaction.

Acting within the informant role gave me joy as I got older, as I was able to see misconceptions or previously held beliefs about living with hearing loss be changed through my testimony. One example of this occurred in high school at cheerleading camp the summer of my freshman year. After learning a routine and preparing for a competition that evening, both of my hearing aid batteries died at the same time. There was no time to return to the cabin to replace the batteries, as competition time was near. I had to cheer, standing in the front line, without being able to hear a word and without being able to see my fellow cheerleaders. I managed to get through the routine, but one of the judges did ask one of my peers if I was deaf. Katie said, "Her? Yes." This was the first instance I can recall of being categorized as an identity type with which I did not label myself, and I later explained to Katie what I perceived at the time the differences between Deaf individuals and individuals with hearing loss.

Another defining moment that stands out for me regarding challenges or obstacles related to perceptions of identity and

hearing loss during my schooling occurred at the undergraduate level. In conversing with the professor of our small class, my professor interrupted me in mid-sentence and bluntly said, "Are you deaf? Or hard of hearing? Which do you go by?" And the first thoughts that popped into my mind were, "Neither! How do I answer this?" This exchange was eye-opening for me, as I felt as if I did not fit in either category and did not know how to convey that to others. I had viewed myself as hearing, but I just happen to wear hearing aids. This question posed by this professor nearly 15 years ago later served as the title of my dissertation study, as I sought to examine and explore this notion of more than one identity type existing for students with hearing loss who communicate using LSL to communicate with others.

Looking back on my schooling from early intervention to PhD, I can only think of two times I may have used my hearing loss to my advantage, so to speak. In high school, I was uncomfortable participating in the swimming requirements of the physical education curriculum due in part to having to remove my hearing aids when in the water and not being able to hear in the swimming pool, but more so due to not wanting to be in a swimsuit in front of my peers as an awkward young teenager. In college, as a struggling student in my math class, I received accommodations for taking tests, not due to my hearing loss, but because I had test anxiety and was

Megan Reister's Profile (continued)

a weak math student. Yet in both of these cases, I was able to be excused from the typical class activities and able to participate alternatively, in part because of my hearing loss.

I have worked in many different jobs over the course of my life. I babysat, ran errands and performed chores for the elderly, delivered newspapers, and took on a part-time job when I was 16 years old. I worked at a Subway restaurant for 7 years, and once I started teaching full time, I also worked part-time in retail. I worked in a clothing department store, toy store, teacher supply store, was a

companion through the Visiting Nurses Association, and also worked for a babysitting agency. Throughout all of these jobs, I did not require many accommodations, but I do recall avoiding answering the telephone when I could in case it would be difficult to hear the speaker on the other line. As a summer camp counselor, I traded lifeguarding duties with patrolling the beach, so that my hearing aids would not get wet.

Advice I would share with professionals who will be providing educational services for students who are D/HH is to not judge a

book by its cover, because chances are that after we get to know the characters, the setting, and the plot that what we thought that book was about was different from what was on those pages. We all do it. We all make assumptions based on first impressions. We do it to others, and they do it to us. The readers of this textbook can probably think of a time where the way they perceived themselves differed from how others viewed them. If you are unsure of accommodations or supports that may be needed for the individual to be successful, if even needed, or how the individual defines him or herself, then simply ask.

We *all* have different backgrounds in terms of identity, strengths, and weaknesses, but we must be respectful of differences and similarities—remember to keep in mind people are people first and to not judge a book by its cover.

Conclusion

After considering the history of employment, the laws that are in place to encourage access, and independent living of adults with hearing loss, in conjunction with the self-advocacy of these individuals and the impact of technology and social skills on living with hearing loss when thinking about schooling and careers, the hope is that you have a greater understanding of the unique experiences individuals with hearing loss encounter in their daily lives. This chapter focused specifically on the transition from school to career/adult life in individuals with hearing loss who communicate through LSL, but also included contributor profiles from those who primarily communicate through ASL.

As is evidenced by the stories and examples shared within this chapter, living with a hearing loss has many far-reaching impacts that affect all areas of life for both the individual and those with whom he or she comes into contact. However, as can be seen from the contributor profiles, I believe it is better to engage in conversation with others than to make assumptions, because the way others view individuals with hearing loss may differ from how the individuals see themselves and to make assumptions would not be respectful of the lived experiences. This same thought of respecting others and engaging in dialogue with them about their needs could also be applied to students in other populations, students with learning disabilities, students with autism, students from other cultural backgrounds, even different religions, because as you name it, we *all* have different backgrounds in terms of identity, strengths, and weaknesses, but we must be respectful of differences and similarities—remember to keep in mind people are people first and to not judge a book by its cover.

Resources

National Deaf Center (NDC), www.nationaldeafcenter.org

Formerly known as Pepnet 2 (pn2), this organization is a technical assistance and dissemination center funded by the Office of Special Education Programs (OSEP). The NDC's mission is to support postsecondary outcomes for individuals who are deaf, deaf., deafdisabled, hard of hearing, or late deafened. NDC activities draw on evidence-based strategies to educate and engage with stakeholders across the nation. They seek to create conditions for optimal success in a way that recognizes and honors the experiences, perspectives, and strengths of deaf individuals.

The NDC recognizes the full range of postsecondary education, training, and employment options available for individuals who are deaf or hard of hearing (D/HH) and strives to enhance the capacity of those institutions to appropriately serve this diverse population. The NDC makes use of a national collaboration of professionals with expertise in a broad array of content areas and a variety of environments, including research, technology, personnel development, media production, and technical assistance.

Resources include:

- Live, one-on-one assistance in a variety of communication modes,
- Inperson and online training.
- Materials that are downloadable, printable, or available as hardcopies.

Hearing Loss Association of America (HLAA), <http://hearingloss.org>

The HLAA is the nation's leading organization representing people with hearing loss. HLAA provides assistance and resources for people with hearing loss and their families to learn how to adjust to living with hearing loss. HLAA is working to eradicate the stigma associated with hearing loss and raise public awareness about the need for prevention, treatment, and regular hearing screenings throughout life.

The HLAA has an impact on communication access, public policy, research, public awareness, and service delivery related to hearing loss. Its national support network includes an office in the Washington, DC, area, state organizations, and HLAA chapters and state organizations across the country.

HLAA brings consumers and policymakers together to learn about communication access at the national, state, and local levels. HLAA staff works at the national level to affect legislation that impacts people with hearing loss—whether it's funding for hearing aids and cochlear implants, communication access in public places, or other important issues.

National Center on Secondary Education and Transition (NCSET): Creating Opportunities for Youth with Disabilities to Achieve Successful Futures, <http://ncset.org/>

NCSET coordinates national resources, offers technical assistance, and disseminates information related to secondary education and transition for youth with disabilities in order to create opportunities for youth to achieve successful futures. NCSET is headquartered at the Institute on Community Integration in the University of Minnesota's College of Education and Human Development.

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Meet the Authors

Chapter 1 • Pediatric Audiology

Dr. Stacey R. Lim is an Assistant Professor of Audiology at Central Michigan University. Her primary area of research interest is in the language and literacy outcomes of children who are deaf and hard of hearing. She has also additional interests in the stigma of hearing loss and perception of hearing devices.

She is co-curator of the museum exhibition, *(dis)ABLED BEAUTY: The Evolution of Beauty, Disability, and Ability*. Dr. Lim earned her PhD from

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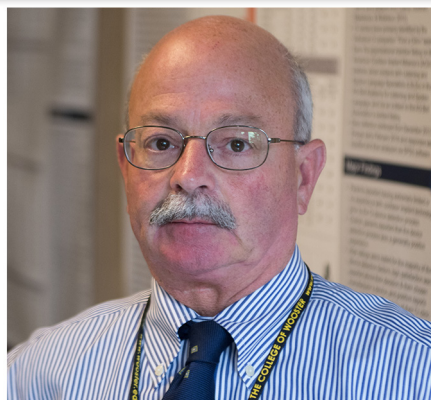
Kent State University in 2013, AuD from The University of Akron in 2006, and BA from The College of Wooster in 2001. After graduating from The College of Wooster, Dr. Lim received a Fulbright Scholarship to complete research in Munich, Germany, for a year. She was identified with profound, bilateral hearing loss at the age of 10

months and received her first pair of hearing aids at 11 months. She received a cochlear implant at the age of 18 years.

Dr. Donald M Goldberg is a Full Professor in the Department of Communication at the College of Wooster (Ohio) and a Consultant, Professional Staff, for the Hearing Implant Program (HIP) at the Cleveland Clinic's Head and Neck Institute. Dr. Goldberg earned his PhD at the University of Florida (UF) in 1985; Master's degree in Speech-Language Pathology from UF in 1979; and Bachelor's degree in Biology/Education from Lafayette College in Easton, PA (1977).

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in the U.S.; and is the former Executive Director of the Helen Beebe Speech and Hearing Center, Easton, Pennsylvania. The co-author of *Educational Audiology for the Limited-Hearing Infant and Preschooler: An Auditory-Verbal Program* (Pollack, Goldberg, & Caleffe-Schenck, 1997), Dr. Goldberg has written numerous book chapters, published a range of research-based and clinical publications, and has been a presenter throughout the U.S. and Canada, along with gracious invitations and opportunities to speak on

five continents. He would like to be remembered as a **teacher** of multigenerational learners.

Chapter 2 • Communication Options

Dr. Stephanie (Stef) Gardiner-Walsh is an Assistant Professor at Illinois State University—teaching in both the Deaf Education and Learning Behavior Specialist tracks. Her specialties include serving children with mild bilateral and unilateral hearing loss, working with families using multiple communication modalities, itinerant teaching, and literacy. Her service includes publications liaison for American College Educators of Deaf and Hard of Hearing (ACE-D/HH) and a member of the board of Hearing Charities

Stefanie Gardiner-Walsh, PhD



of America/Sertoma. Outside of the academic scope, she works with Camp Sertoma for Deaf and Hard of Hearing Children as camp coordinator—serving d/Deaf, hard of hearing, and CODA children across the eastern U.S. Prior to joining the ISU faculty, she worked as an itinerant teacher in North Carolina public schools—serving children from ages 3-21 in all academic settings. As a hard-of-hearing person herself, Dr. Gardiner-Walsh strives to emphasize the importance in recognizing that there are many ways to be deaf.

Dr. Susan Lenihan, Professor and Director of Deaf Education at Fontbonne University in St. Louis, prepares teachers, speech-language pathologists, and early interventionists for careers in deaf education. She has co-authored three chapters and written several articles. She frequently presents on early intervention in deaf education and professional preparation. Dr. Lenihan has experience teaching children who are deaf/hard of hearing in public and private programs, primarily at the

Susan Lenihan, PhD



PK-3rd grade level. She is the Director of an OSEP-funded project preparing teachers for serving children in inclusive settings. Dr. Lenihan is the recipient of the Joan Goosetree Stevens Excellence in Teaching Award, the Governor's Award for Excellence in Teaching, and the Emerson Electric Excellence in Teaching Award. She received the Antonia Brancia Maxon Award for EHDI Excellence in 2016. She serves on the Board of Directors of the Alexander Graham Bell Association.

Chapter 3 • Cognitive Development

Dr. Uma G. Soman is the Outreach Coordinator at Carle Auditory Oral School in Urbana, IL. She provides support to students who are deaf or hard of hearing (D/HH), their families, and their educational teams in mainstream school environments. She has been a teacher of the deaf, taught graduate and undergraduate students, and mentored professionals pursuing listening and spoken language specialist certification. She is a National Leadership Consortium in Sensory Disabilities

Uma G. Soman, PhD, LSLS Cert AVEd



Fellow and received her doctoral degree in Hearing and Speech Sciences from Vanderbilt University. Dr. Soman's research focuses on exploring the impact of hearing loss on development of neurocognitive processes that underlie language development in children who are D/HH. Additionally, she wants to examine the long-term academic and social outcomes of children who are D/HH. She is always interested in developing research collaborations and can be reached at uma.soman@carle.com.

Chapter 4 • Social Development

Dr. Joni Alberg is a consultant in North Carolina whose work focuses on issues related to children who are deaf or hard of hearing and their families. Since 2016, she has served as Project Director of the Youth Initiative for the AG Bell Association. This project is developing a program to address the development of self-advocacy and self-esteem of early adolescents.

Joni Alberg, PhD



Dr. Alberg also provides technical assistance related to policy and advocacy for AG Bell. She has more than 30 years experience in special education, family support, research, and advocacy. She served as Executive Director of BEGINNINGS for Parents of Children Who Are Deaf or Hard of Hearing for more than 15 years before beginning her consulting practice.

Chapter 5 • The Role of the Family: A Developmental & Literary Perspective

Dr. Janice Gatty has Master's degrees in Early Childhood Education and Education of the Deaf from Smith College, and a Doctorate in Human Development from the University of Massachusetts. She has been at the Clarke Schools for Hearing and Speech since 1974, where she is the Director of Child & Family Services and continues to do face-to-face and virtual early

Janice Gatty, EdM, MEd, EdD



intervention with families of children who are deaf or hard of hearing (D/HH). Dr. Gatty is on the faculty at Smith College, where she teaches undergraduate courses in child and adolescent growth and development, counseling theory and education, and graduate courses in early development of children who are D/HH and family-centered intervention.

Chapter 6 • Origins of Deaf Education: From Alphabets to America

Heather Zimmerman is local to Micronesia and currently a transplant in Washington, DC. As an Adjunct Instructor at Gallaudet University and an international development worker, she has the privilege of teaching, mentoring, and working around the world with youth and adults. Her research focuses on how deaf people navigate and negotiate resilience across cultures. Additionally, she is a freelance ASL/English Interpreter

Heather G. Zimmerman, EdS



and has a background in facilitating communication in a variety of settings, including but not limited to academic (preschool to graduate school), medical, religious, legal, platform (theatrical/ceremonial), and government/nongovernment organizational interpreting. Whether in the classroom or community, Heather strives to be a transformative change agent in creative and culturally responsive ways.

Chapter 6 (continued)

Dr. Thomas Horejes received his PhD in Justice Studies at Arizona State University and is currently Gallaudet University's Associate Provost of Student Success & Academic Quality. Prior to his position at Gallaudet, he was former Executive Director of DEAF, Inc.—based in St. Louis—that

Thomas Horejes, PhD



provides advocacy and interpreting services to the deaf/hard of hearing community. He has numerous publications, including a book entitled, *Social Constructions of Deafness: Examining Deaf Languacultures in Education*. He is also former professor of sociology at Gallaudet University.

Chapter 7 • Listening & Spoken Language Strategies

Sherri Fickenscher is an Education Support Specialist at Clarke Schools for Hearing and Speech/Pennsylvania. She is responsible for staff and parent coaching and training and provides services to families of children who are deaf or hard of hearing in both home and center-based programs. She mentors professionals seeking their Listening and Spoken

Sherri Fickenscher, LSLS Cert AVEd



Language (LSL) Certification and has presented at state, national, and international levels in an effort to improve LSL outcomes for children and families. Sherri is a contributing author to *101 Frequently Asked Questions About Auditory-Verbal Practice*, as well as co-author of *Auditory Verbal Strategies to Build Listening and Spoken Language Skills*.

Chapter 7 (continued)

Dan Salvucci has a Bachelor's degree in health science from the University of Massachusetts at Amherst, a Master's degree in deaf education from Smith College, and a Master's degree in early childhood education from Smith College.

Dan Salvucci, MEd, EdM



Dan teaches at Fontbonne University and supervises students in their practicum/field placements. He has served on the Board of the Alexander Graham Bell Association and is former President of OptionSchools, Inc.

Chapter 8 • Getting Off to a Good Start: Practices in Early Intervention

Dr. Jenna Voss is an Assistant Professor and Grant Mentor in the Communication Sciences and Disorders & Deaf Education Program at Fontbonne University. She received her undergraduate degree in Deaf Education and her Master's degree in Early Intervention in Deaf Education from Fontbonne University. As a National Leadership Consortium in Sensory Disabilities (NLCSD) fellow, she completed her PhD in Speech and Hearing Sciences in the Program in Audiology and Communication Sciences at Washington University in St. Louis. She holds teaching certification in the state of

**Jenna Voss, PhD,
CED, LSLs Cert AVEd**



Missouri in the areas of Deaf Education and Early Childhood Special Education. Dr. Voss's background as a teacher of the deaf and early intervention provider has sparked diverse interests in topics, including the health disparity among children and families living in poverty, primary prevention of abuse and neglect for children with disabilities, provider use of strategies and techniques implemented in family-centered practice, and the application of research in cognitive psychology to the field of deaf education to improve the efficiency of learning and instruction of preservice teachers. Dr. Voss is also the co-author of *Small Talk: Bringing Listening and Spoken Language to Your Young Child With Hearing Loss*.

Chapter 8 (continued)

Dr. Arlene Stredler-Brown has certifications as a speech/language pathologist and teacher of the deaf and hard of hearing (D/HH). She was the director of the Colorado Home Intervention Program (CHIP) for more than 20 years. Since leaving administration, she focuses on teaching and research. Always aiming to improve outcomes for children who are D/HH, her research investigates the delivery of early intervention and individualized therapy via

**Arlene Stredler-Brown, PhD,
CCC-SLP**



telehealth. Another research project focuses on services to benefit children with unilateral hearing loss (UHL) and single-sided deafness (SSD). An affiliation with the University of Northern Colorado involves a study of mentoring and coaching practices that support professional development for early interventionists nationwide. Dr. Stredler-Brown teaches at the University of British Columbia, publishes regularly, and consults with programs in the U.S. and internationally. She can be contacted at arlene.brown@colorado.edu.

Chapter 9 • Listening & Spoken Language Preschool Programs

Ellie White received her undergraduate degree in Speech -Language-Hearing from the University of Kansas and her first Master's degree in Speech and Hearing Science, along with the Antoinette Francis Dames Award for Outstanding Scholarship, from Washington University in St. Louis. She received a second Master's degree in Educational Leadership and Administration from Maryville University. She holds teaching certification in the state of Missouri in the areas of Deaf and Hearing Impaired and Early Childhood Education, as well as Missouri state principal certification. She holds professional certification from the Council on Education of the Deaf. Ellie has spent over 20 years in

Ellie White, MS, MAEd, CED



the field of Listening and Spoken Language teaching preschoolers, coordinating educational transitions for young children, coordinating curricula, serving as faculty on the Washington University Program in Audiology and Communication Sciences, coordinating field experiences for preservice teachers, and providing professional development services throughout the U.S. and internationally. Ellie co-authored a book for parents called *Small Talk: Bringing Listening and Spoken Language to Your Young Child with Hearing Loss*. In addition, she has published a number of articles and assessment tools related to auditory, vocabulary, language, and speech instruction for children who are deaf and hard of hearing.

Chapter 10 • Educational Settings

Dawn Gettemeier is a teacher of the deaf/hard of hearing and Assistive Technology Facilitator for the city of St. Charles School District, MO. She is also an Adjunct Professor for the Communication Disorders and Deaf Education Department at Fontbonne University. Prior, she spent 20 years as a teacher and administrator for St. Joseph Institute for the Deaf. She has

Dawn Gettemeier, MA



a BA in Deaf Education, an MA in Special Education, and is currently working towards her EdS certification in Educational Administration. Dawn is profoundly deaf and uses both her personal and professional experience to support her passion for helping her students to both understand and exercise their advocacy skills and rights. She can be reached at dgettemeier63@gmail.com.

Chapter 11 • Instructional Planning: Evidence-Based Assessment & Intervention

Dr. Lauri Nelson is an Associate Professor at Utah State University (USU). She is the Division Chair for the Deaf Education Graduate Training Program and a member of the management team for Sound Beginnings. She has dual training as both a pediatric clinical audiologist as well as deaf educator, with a PhD in Special Education.

Lauri Nelson, PhD



Prior to joining USU, she worked in a variety of medical and educational settings and has provided deaf education and audiology training in Vietnam, Kenya, and Saipan. Dr. Nelson has numerous publications, grants, and scholarly products related to listening and spoken language deaf education.

Chapter 11 (continued)

Dr. Blane Trautwein is an Associate Professor and Program Director of the Deaf Education and Hearing Science (DEHS) Program at the University of Texas Health Science Center-San Antonio (UTHSCSA). He received his doctoral degree in Educational Leadership from the University of Texas-San Antonio. He has worked with children who are deaf and hard of hearing

Blane Trautwein, EdD



for 30 years as a classroom teacher, school administrator, university professor, and program director. Dr. Trautwein has presented and published on listening and spoken language teacher preparation best practices in addition to successfully attaining numerous grants for student scholarships, continuing education workshops, and program support.

Chapter 12 • Itinerant Teaching

Dr. John L. Luckner is a Professor and Coordinator of the Deaf Education Teacher Preparation Program in the School of Special Education at the University of Northern Colorado (UNC) in Greeley, Colorado. He also serves as the Director of Research and Evaluation for the Bresnahan/Halstead Center at UNC. Dr. Luckner was a classroom teacher of students who are deaf or hard of hearing (D/HH)

John L. Luckner, EdD



for 9 years—5 years in Bucks County, Pennsylvania, and 4 years in the U.S. Virgin Islands. He also worked summers as an Outward Bound instructor for 18 years. His current research interests include teacher preparation, social-emotional development, literacy, and the provision of appropriate services for students who are D/HH and their families.

Chapter 13 • Literacy Growth & Development

Paula Gross is an Instructor of Deaf Education at Fontbonne University in St. Louis, MO. She also supervises practicum and clinical experiences as part of the university's educator preparation. Teaching credentials include a BA in Deaf Education and MA

Paula Gross, MA



in Special Education. Her teaching experience has been in a private school setting at K-8th grade levels. Paula is the director of a summer literacy camp for children who are deaf. Her other areas of interest include literacy, language, and autism.

Dr. Lyn Robertson is an emerita professor of Education, Denison University—a liberal arts college in Granville, OH. She began her career teaching English in grades 7, 10, 11, and 12. Upon discovering students achieving at low levels in reading and writing, she turned her attention to the linguistic, cognitive, social, and political frameworks of literacy and has taught reading and about reading to people from preschool to adulthood. Dr. Robertson became interested in the dilemma of low literacy levels in individuals with hearing loss when her daughter was diagnosed with a severe-to-profound hearing impairment, and she began to research the effects of an auditory-verbal approach for young children. She has written *Literacy Learning for*

Lyn Robertson, PhD



Children Who Are Deaf or Hard of Hearing (Alexander Graham Bell, 2000) and *Literacy and Deafness* (Plural, 2009; 2014, 2nd edition), as well as articles about listening and reading. She taught in the Alexander Graham Bell First Years program and teaches currently in the University of Southern Mississippi graduate program for listening and spoken language specialists. She is a past president of the Alexander Graham Bell Association Academy for Listening and Spoken Language. Dr. Robertson holds a BA in English from Denison University, an MA in Reading and Language from Northwestern University, and a PhD in Reading from The Ohio State University. She can be reached at robertson@denison.edu.

Chapter 14 • Deaf/Hard of Hearing Students with Disabilities

Dr. Christy M. Borders is a leader in addressing the needs of students who are deaf or hard of hearing (D/HH) with additional disabilities—particularly autism spectrum disorders (ASDs). She has spent considerable time identifying gaps in literature and potential interventions for use with this population of students. Dr. Borders's research stems from personal classroom and clinical experiences that involved this particular population. She has extensive academic and clinical experience and training in serving students who are D/HH and those with ASD. Her undergraduate and graduate degrees both focused

Christy M. Borders, PhD



on education of D/HH students. In addition, Dr. Borders has over 10 years of clinical, classroom, and administrative experience working with individuals with disabilities. She furthered her academic and research skills and experiences through doctoral studies in the area of Special Education in order to attain additional strategies for D/HH students who have comorbid disabilities. Dr. Borders's research has focused on the interventions that teachers of the deaf utilize with this population and differences in educational services with the presence of an additional disability.

Dr. Stacey Jones Bock has spent the past 20 years researching the area of autism spectrum disorders (ASDs) and supporting children and youth and their families. Her formal training in ASD came from the University of Kansas, where upon completion of her dissertation, she coauthored the Asperger Syndrome Diagnostic Scale (ASDS) in 2000. The ASDS was the first diagnostic instrument published to aide in the diagnosis of Asperger Disorder after its inclusion to the Diagnostic and Statistical Manual of Mental Disorders

Stacey Jones Bock, PhD



(DSM)-IV. Dr. Bock is currently under contract with Pro-Ed International for norming and renaming the diagnostic tool (Autism Spectrum Diagnostic Scale-HF) for proper fit with the DSM-5th Edition, and the expected publication timeline is within the next 12 months. In the past 5 years, she has spent a great deal of time expanding her research to children and youth with a comorbid diagnosis of ASD and hearing loss. Her passion for the area came from supporting children with a dual diagnosis, their teachers, and their families.

Chapter 14 (continued)

Kristi M. Probst is a Project Specialist and the Intervener and Qualified Personnel Initiative Lead for the National Center on Deaf-Blindness. Her doctoral studies at Illinois State University focused on educating learners with deafblindness. She is a National Leadership Consortium in Sensory Disabilities scholar and holds licensures in Special Education for Deaf and Hard of Hearing, Low Vision and Blindness, Learning Behavior Specialist, Elementary Education, and Early Childhood Education. She has worked as a teacher for the Deaf, an itinerant teacher for the visually impaired, Developmental Therapist for Project Reach (IL deafblind project) and the state of Indiana, Sign Language Interpreter,

Kristi M. Probst, MS



and teacher for students with learning disabilities. Kristi has served as both the student representative for the Association for the Education and Rehabilitation of the Blind & Visually Impaired (AER) Board of Directors and Chair of the student council, is the Chair-elect of AER Division 3 (Multiple Disabilities/Deafblind), and is a member of several state and international professional organizations (Deafblind International, Association of College Educators—Deaf and Hard of Hearing, Wisconsin AER, and Council for Exceptional Children). She regularly writes about and speaks on meeting the needs of children with sensory disabilities and additional disabilities at local, national, and international conferences.

Allison Kroesch is an Assistant Clinical Professor at Illinois State University Department of Special Education, as well as a doctoral student. Her research specialty area includes teaching students with severe disabilities using technology and systematic instruction. Allison is currently serving on the Council for Exceptional Children Division for Physical, Health, and Multiple Disabilities Board. Prior to

Allison M. Kroesch, MEd



academia, she obtained her Bachelor's in Elementary Education and her Master's in Special Education. She has over 15 years of classroom teaching experience from kindergarten through transition. Allison continues to have a strong passion for working with professionals in both general and special education classrooms for the advancement of academic and functional skills for students with disabilities.

Chapter 15 • Developing a Disposition for Reflective Practice That Sustains Continuous Professional Learning

Dr. Sarah Ammerman is an Associate Professor in the Deaf Education and Hearing Science (DEHS) Program at the University of Texas Health Science Center-San Antonio and has been there since 2009. She was formerly a teacher the Clarke Schools for Hearing and Speech in Bryn Mawr, PA. Dr. Ammerman has a dual-major undergraduate degree in Deaf Education (Comprehensive) and Elementary Education, a Master's degree in Deaf

Sarah Ammerman, PhD



Education (Listening and Spoken Language), and a Doctoral degree in Special Education with a minor in Audiology. She has co-presented and co-authored on the topic of reciprocal peer coaching/mentoring in the professional preparation and continuing education of deaf education faculty and is on the Public Advisory Council for the National Leadership Consortium in Sensory Disabilities (NLCS).

Dr. Mary Ellen Nevins is an experienced educator of children who are deaf or hard of hearing (D/HH). She is a professor at the University of Arkansas for Medical Sciences and is the Director of the Program in Auditory-Based Intervention. Her attention to and publications regarding professional learning for hearing and speech

Mary Ellen Nevins, EdD



professionals complement her longstanding work with children using listening technologies to learn to listen, talk, and read. Dr. Nevins is recognized as a national expert on educational issues associated with children who are D/HH learning to listen and talk and the needs of the professionals with whom they work.

Chapter 16 • Career Development & Adult Life

Dr. Megan Reister—a former hearing itinerant and special education teacher for 8 years in Delaware and Pennsylvania—was responsible for deaf education, transition services, and early intervention services prior to becoming a college professor in North Carolina. Dr. Reister—now an Ohio resident—enjoys conducting research, writing, and teaching as a Professor in the Education Department at Franciscan University of Steubenville, which is 45 minutes west of Pittsburgh. Her primary areas of research include

Megan Reister, PhD



self-advocacy and identity in students with hearing loss; itinerant teaching; and fostering collaboration among parents, general education, and special education teachers. She is passionate about working with preservice teachers to help them be the best advocates they can be for the children they will serve as they fulfill their vocations as teachers. Her other passion lies within her family of husband, Adam; young daughter, Charlotte; and their two pups. She may be reached via email at mreister@franciscan.edu.