



Published in final edited form as:

*Topics Early Child Spec Educ.* 2023 August ; 43(2): 156–166. doi:10.1177/02711214211031307.

## Family ASL: An Early Start to Equitable Education for Deaf Children

Diane C. Lillo-Martin, Ph.D.<sup>1</sup>, Elaine Gale, Ph.D.<sup>2</sup>, Deborah Chen Pichler, Ph.D.<sup>3</sup>

<sup>1</sup>Department of Linguistics, University of Connecticut, 365 Fairfield Way, Unit 1145; Storrs CT 06269-1145

<sup>2</sup>Department of Special Education, Hunter College, CUNY, 695 Park Ave., Room 918 W; New York, NY 10065

<sup>3</sup>Department of Linguistics, School of Languages, Education and Cultures, Gallaudet University, 800 Florida Avenue NE; Washington, DC 20002-2226

### Abstract

Deaf and hard of hearing (DHH) children experience systematic barriers to equitable education due to intentional or unintentional ableist views that can lead to a general lack of awareness about the value of natural sign languages, and insufficient resources supporting sign language development. Furthermore, an imbalance of information in favor of spoken languages often stems from a phonocentric perspective that views signing as an inferior form of communication that also hinders development of spoken language. To the contrary, research demonstrates that early adoption of a natural sign language confers critical protection from the risks of language deprivation without endangering spoken language development. In this position paper, we draw attention to deep societal biases about language in information presented to parents of DHH children, against early exposure to a natural sign language. We outline actions that parents and professionals can adopt to maximize DHH children's chances for on-time language development.

---

All young deaf and hard of hearing (DHH) children have a right to full and frequent access to language learning opportunities, enabling them to participate as valued members of their families, early childhood programs, and communities. All DHH children have the right to an equitable education, one in which they start off at age-appropriate language levels and have unrestricted access to the information around them. These rights are affirmed in the World Federation of the Deaf Charter on Sign Language Rights for All (World Federation of the Deaf, 2019), the Bill of Rights for Deaf and Hard of Hearing Children (National Association of the Deaf, 2016), and many other documents. However, substantial inequities remain between the educational and life experiences of DHH children compared to hearing children, many of which can be traced to inadequate information about sign languages presented to parents when their child is identified as DHH.<sup>1</sup>

---

Correspondence concerning this article should be addressed to: Diane Lillo-Martin, University of Connecticut, Department of Linguistics, 365 Fairfield Way, Unit 1145, Storrs, CT 06269-1145. diane.lillo-martin@uconn.edu.

We have no known conflicts of interest to disclose.

<sup>1</sup>Throughout, we use the term DHH to refer to deaf and hard-of-hearing children. We avoid use of the term 'hearing loss', which reflects the medical perspective. Another option is to refer to a child's 'hearing level', consistent with the cultural view of deafness.

Parents of DHH children encounter two opposing perspectives on deafness. Under the medical perspective, speech signals normalcy, so deafness is a deficit to be corrected through the use of hearing technology such as hearing aids and cochlear implants (CIs). This perspective has its roots in ableism, the notion that disabled people are inferior to abled people, therefore the best course of action is to lessen or eliminate the disability. In the context of deafness, the ableist perspective manifests most obviously as audism, a term coined by Tom Humphries to describe the notion that one is superior based on one's ability to hear or behave in the manner of one who hears (Humphries, 1977). It is also manifested by phonocentrism, the perspective that the spoken language modality is superior (Bauman, 2004). Similarly, another term, linguisticism, "describes the false belief that ASL contributes to difficulties in learning English among deaf children and therefore should not be used by parents and educators" (Holcomb, 2013, p. 245). These perspectives, intentionally or unintentionally displayed by many medical professionals, can have a major influence on family language planning (Kite, 2020). In contrast, the socio-cultural perspective of deafness focuses on the life experiences that bring deaf people into a community where positive connections are made and Deaf culture and identity are valued. These values include the use of a natural sign language such as American Sign Language (ASL)<sup>2</sup> as a primary language (Crace et al., 2020; Holcomb, 2013; Padden & Humphries, 1988).

Roughly 95% of DHH children in the U.S. are born to hearing parents (Mitchell & Karchmer, 2004) who have no previous knowledge of deafness. Without guidance, these parents are unlikely to be familiar with sign languages or the socio-cultural perspective on deafness. They must rely on advice from Early Intervention specialists, doctors, educators, and other professionals as they decide how to proceed. The process of navigating language options can be fraught with anxiety, especially when presented as an either-or choice between spoken language or sign language. Conscious that they must act quickly, parents are too often pressured to make decisions before they are fully informed about all the options available to them. It is critically important to offer comprehensive and balanced information to parents so that they can make informed choices without gatekeeping, to provide their children with opportunities for full access to language, equitable education, and a fulfilling life (Kite, 2020). To counteract the biases that exist in an audio-centric society, we provide in Table 1 recommendations for actions that help to advance justice in early intervention practices, including deaf adult involvement, balanced and informed choices, social-cultural training for professionals, and additional research focusing on language development.

We support the proposal that early sign language is beneficial for all DHH children, regardless of whether they will eventually pursue hearing technology and spoken language. We begin this position paper with background on the linguistic status of natural sign languages and the parallels between spoken and sign language acquisition in optimal contexts of fully accessible input. Next, we describe how delays in access to linguistic input for DHH children can lead to the condition of *language deprivation* (Hall et al., 2017).

---

<sup>2</sup>There are different sign languages used in different parts of the world; they are not representations of spoken languages, and do not develop in tandem with spoken languages. For example, in the U.S. and Canada and other places, ASL is used, but in other English-speaking countries, different sign languages are used (such as British Sign Language). This paper focuses on ASL, but the statements and conclusions drawn here can apply in many other contexts.

We argue for natural sign languages as a key component in the prevention of language deprivation, even for children with hearing parents, and in so doing we debunk powerful myths that discourage parents from choosing to sign. Finally, we describe our own ongoing research efforts in this domain.

## What is Human Language?

Language is an integral part of our lives, something we use every day, not only to interact with those around us, communicating our needs, opinions, and feelings, but also to organize and give voice to thoughts in our own minds. We use language so intimately and constantly that we take it for granted, assuming that everyone experiences language as we ourselves do.

In many ways, our naïve intuition is correct. Despite the stunning variety across the 7,100 or so human languages in use today (Eberhard et al., 2020), language scientists have shown that they are actually more alike than they are different. For instance, all human languages build sentences hierarchically, with smaller units embedded inside larger units. This hierarchical structure allows language to encode complex messages about any topic, from the simple to the sublime, in the past, present, or future. Rhythmically, language is packaged into a series of prosodic units that make it easier to interpret. Such systematic organization of human languages allows them to be acquired naturally and surprisingly quickly by children without explicit instruction, provided those children have adequate access to input.

The fundamental similarities that linguists have identified across languages appear largely independent of the modality in which language is produced. On the surface, spoken languages appear strikingly different from sign languages, yet their underlying structures exhibit many of the same patterns of organization, with distinct registers for the same range of functions (e.g., poetry, narrative, academic discourse, intimate family conversation, etc.). Rhythmically, both signed and spoken languages display prosodic patterns that infants recognize as human language, even if they have never been exposed to those particular languages before (Stone et al., 2018). Such remarkable parallels in organization and use have led linguists to conclude that the natural sign languages used by communities of deaf people around the world are “full-fledged languages with all the structural characteristics and range of expression of spoken languages” (Linguistic Society of America, 2001). Natural sign languages have equal status to spoken languages by all measures that linguists use.

Yet equal status for sign languages in broader social, cultural, and educational domains is blocked by a deeply-ingrained belief that humans are designed to speak and can only fully experience language if it is through speech (Bauman, 2004). This phonocentrist view was prominent and explicit in earlier decades, as illustrated by Hockett’s (1960) ‘design features’ for human language, the first of which is the use of the vocal-auditory channel. Nowadays, bias against sign languages is less explicit but more insidious, cloaked in statements that acknowledge the importance of sign languages while still relegating them to secondary status. This bias remains strong even as the public grows increasingly enthusiastic about learning to sign as a hobby; sign language courses are popular among college students, and parents embrace the temporary use of “baby signs” with their hearing children (Chen

Pichler 2014). In fact, the number of hearing signers now far outstrips that of deaf signers (De Meulder, 2018). Sign languages enjoy widespread public acceptance, but only as an auxiliary to spoken language, not as a primary language. For deaf children, a strong ableist preference for speaking animates the contentious debate over language choice for families of DHH children (Hecht, 2020; Kite, 2020; Luckner & Velaski, 2004).

## How are Human Languages Typically Acquired?

To fully grasp the risk of developmental delays that DHH children face as their parents deliberate over language choice, it is important to first understand what “typical language development” looks like, and how even modest delays in language exposure can derail those developmental processes. Children typically acquire their first language(s) during interactions with caregivers who use language with and around them, at home and in other informal environments (extended family, neighborhood, early educational facilities, etc.).

Young children exposed to an accessible language pick it up by subconsciously discovering patterns in their linguistic input and deducing the rules of their language from those patterns (Kuhl, 2000). About 4–5 months after birth, infants begin to babble, playing with simple, repeated syllables that gradually become increasingly complex, providing babies practice that is critical for normal language development (Vihman, 1996). At roughly one year, babies produce consistent form-meaning pairs that can be considered words proper, and they understand many more words than they produce. By four or five years, children have acquired most of the grammatical rules of their native language(s): they can produce complex sentences and their pronunciation is close to that of adults. Certainly, children continue to refine their grammatical systems well into school age; they learn new vocabulary words, become more accurate and consistent in their language use, and add some new rules to their grammar. By kindergarten, most children have already acquired a sophisticated linguistic system, learned within the context of nurturing and responsive caregiving and without explicit instruction (Gleitman et al., 2019).

This impressive feat of language acquisition is not limited to monolingual contexts; bilingualism and multilingualism result when children are exposed to regular, accessible input in two or more languages, a state of affairs that is considered normal across the globe. In the U.S., however, early bilingualism is often regarded as an undesirable obstacle that slows vocabulary development and leads to language confusion. It is true that young bilingual children typically have smaller vocabularies in either of their languages alone than their monolingual peers. However, only counting vocabulary in one of a bilingual child’s languages disregards a significant part of their linguistic repertoire; when both languages are considered together, bilingual children are actually comparable to their monolingual peers in total vocabulary size (Hoff, 2015). Fears of language confusion are similarly unfounded. Bilingual children can readily distinguish between their languages at a young age, both in perception (Byers-Heinlein et al., 2010), and production (Fabiano-Smith & Goldstein, 2010). They can maintain a high degree of proficiency in both languages, provided they have consistent opportunities to use them in an environment that supports their multilingualism.

The course of typical language acquisition we have just described applies to sign languages as much as it does to spoken languages, with the same crucial prerequisite of early and accessible language input. DHH children raised in households where the caregivers are already fluent users of a natural sign language enter a rich linguistic environment that supports typical language development (Chen Pichler et al., 2018). Within a few months, sign-exposed children begin producing referent-free manual babbling, using simple forms that gradually become more complex (Petitto & Marentette, 1991). By a year, these children produce recognizable signs, and by 4–5 years of age, they have acquired much of the grammar of their target sign language.

Most children acquiring a natural sign language as their first language also acquire a spoken language, as over 90% of children born to Deaf parents are hearing (Singleton & Tittle, 2000); they are often referred to as *codas*, or *kodas*, after the organization known as CODA (Children of Deaf Adults). Bilingualism across two different modalities, visual and auditory, is known as *bimodal bilingualism* and has become the object of considerable research activity. In many respects, kodas look similar to unimodal bilinguals; as bilinguals, they typically become dominant in the majority community language, which for kodas is a spoken language (Chen Pichler et al., 2014; Quadros et al., 2016; van den Bogaerde & Baker, 2009). At the same time, kodas with ample opportunities to use their sign language with deaf family members and peers also develop fluency in the sign language. Overall, koda research reaffirms that early and accessible exposure to fluent input in a sign language and a spoken language generally leads to successful bimodal bilingual development. Of course, kodas have the benefit of being able to access spoken language naturally, which begs the question of whether deaf children achieve similar bimodal bilingual success through use of a CI or hearing aid.

A small proportion of deaf children with deaf, signing parents can access spoken language through a CI or hearing aid received early in life (Mitchiner, 2015) and also receive input from birth in a natural sign language. The few existing studies of these children's bimodal bilingual development indicate that their spoken language development is not hindered by their early sign language exposure (Davidson et al., 2014; Goodwin & Lillo-Martin, 2019; Hassanzadeh, 2012). Davidson and colleagues found that both deaf native signing children with CIs (implanted between 16 and 35 months of age) and hearing native signing kodas performed within age-appropriate levels on measures of spoken English vocabulary, morpho-syntax, speech articulation, phonological awareness, and overall language proficiency. Goodwin and Lillo-Martin analyzed the English morphological production accuracy of the same participants and again found very similar overall performance for both groups, except in the case of plural -s, which might be a consequence of its low perceptual salience.

These studies stand as evidence that in principle, DHH children with early access to fluent input in a natural sign language can become bimodal bilinguals using both a sign language and a spoken language. Early exposure to a natural sign language is fully adequate for supporting typical language acquisition, and in cases where the child also has early access to adequate spoken language input, does not interfere with typical acquisition of that spoken language.

## When Linguistic Input is Inadequate

In contrast to the situation for DHH children with signing parents, advice given to hearing parents of DHH infants frequently omits or denigrates the option of using a sign language (Kite, 2020; Mauldin, 2019; Snoddon, 2008), consistent with an ableist, medical perspective on deafness that views Cis or hearing aids as a way to “fix” deafness (Mauldin, 2019), and (spoken) English as essential for success in the ‘hearing’ world. DHH infants are often fitted with hearing aids during their first year, and become candidates for Cis if those hearing aids fail to provide sufficient access to spoken language. Cochlear implantation is currently approved by the U.S. FDA for as early as 12 months. Activation takes place 3–6 weeks later, then additional time and extensive training is required before a child knows how to make sense of the new sounds reaching their brain. By this time, even if the child was identified as DHH by 3 months and received intervention services by 6 months, as recommended by The Joint Committee on Infant Hearing (2019), valuable time during which language development should have begun has already been lost (Levine et al., 2016).

Spoken language outcomes after cochlear implantation are highly variable. In general, children fare better with spoken language when they receive their CI before 18 months and receive EI services by 6 months (Yoshinaga-Itano et al., 1998, 2017). Even so, there is no guarantee that a child will reach their full linguistic potential using Cis, as we are still learning what factors consistently lead to better outcomes. One critical factor is access to adequate linguistic input, or language exposure that is early, grammatical and accessible to the child.

There are various scenarios in which a child’s linguistic input may fail to qualify as adequate. While many are rare, much more common is the case of DHH children who cannot fully access the spoken language of their family environment, but also have no access to a natural sign language. These DHH children run the risk of early language deprivation (Hall, 2017; Hall et al., 2017), in which the brain does not encounter linguistic input within the expected time frames (so-called “critical” or “sensitive periods”). The severity of resulting delays varies according to the duration and degree of language deprivation, and impacts not only children’s linguistic development, but also their cognitive and social-emotional development (Morgan et al., 2016; Schick et al., 2007), which in turn hampers access to equitable education. Crucially, language deprivation is not an inherent or inevitable consequence of being born deaf or hard of hearing, but a preventable consequence of restricted and/or delayed access to adequate linguistic input. Introducing a natural sign language to a DHH infant provides an early channel for patterned linguistic input and communicative interactions in the child’s critical first year, all essential for early language acquisition (Levine et al., 2016).

Some researchers misleadingly claim that sign language use leads to poor spoken language outcomes (e.g., Geers et al., 2017). However, this research suffers from numerous methodological flaws concerning data analysis and interpretation of competing hypotheses (Caselli et al., 2017; Martin et al., 2017; Hall et al., 2019). For instance, participants in the study by Geers and colleagues were not necessarily exposed to a natural sign language such as ASL, but to manual codes invented to represent a spoken language and

used in conjunction with speech, collectively known as Sign Supported Speech (SSS). Examination of SSS reveals the message to be relatively intact in the speech component, but incomplete in the signed component (Johnson et al., 1989; Scott & Henner, 2020), impeding comprehension in that modality. Schick and Gale (1995) found that DHH preschool students interacted more with stories told in ASL or mixed ASL and SSS than in SSS alone (Schick & Gale, 1995); signing in SSS lacks the linguistic organization common to human languages and is thus not naturally acquired in the way that human languages are (Supalla, 1990). It should not be surprising that exposure to such a system would fail to benefit DHH children's development.

Unfortunately, inadequate linguistic input for DHH children is a common consequence for those without recourse to a sign language. This practice puts DHH children at high risk of delays in their linguistic, cognitive, and socio-emotional development, the consequences of which persist even into adulthood (Mayberry & Kluender, 2018). Because of this risk, we join others who call for all DHH children to receive early input in a natural sign language, even if they intend to use hearing technology or spoken language (Murray et al., 2020; Napoli et al., 2015; Wilkinson & Morford, 2020).

## What Options do Hearing Parents Have?

Hearing parents who are unfamiliar with sign languages face many questions as they consider whether to sign with their DHH child. How will their child learn a language without typical hearing? Should they pursue medical interventions (e.g., hearing aids or CIs) to increase their child's access to sound? If they use a sign language with their child, will it interfere with the child's development of a spoken language? Will parents be able to sign well enough to support their child's sign language development? The answers to these questions are influenced by parents' perspectives on language, which are in turn influenced by the advice they receive.

Despite the demonstrated efficacy of early sign language acquisition, relatively few hearing parents opt to sign with their DHH child (Mitchell & Karchmer, 2005). Studies probing this widespread reluctance reveal a clear imbalance favoring listening and speaking approaches in the information parents receive from audiologists and medical professionals (Kite, 2020). The option of signing with one's child is often either omitted altogether or presented as incompatible with listening and speaking, rather than as a possible course for successful bimodal bilingualism. Presenting parents with a black or white choice between only spoken language or only sign language effectively eliminates early sign language as an option for thousands<sup>3</sup> of DHH children, as many hearing parents lack the confidence and support to learn an unfamiliar language on their own and conclude that the oral route is their only viable option.

The omission of bimodal bilingualism from the information-giving process naturally focuses parents' consideration on listening and spoken language (Hyde et al., 2010) in conjunction

---

<sup>3</sup>According to recent figures, 1.7 per 1000 infants screened are deaf or hard of hearing (<https://www.cdc.gov/ncbddd/hearingloss/data.html>).

with cochlear implantation. Kite (2020) conducted a qualitative interview-based study with 8 hearing caregivers using ASL with young DHH children. The caregivers reported pressure from medical professionals toward the use of spoken language only. Kite found that 6 out of 8 parents experienced misconceptions, misinformation, and bias against ASL from their medical professionals during the initial process of discussing communication options. Snoddon and Paul (2020) reported that while infant hearing screening and early intervention services in Ontario, Canada are publicly funded, parents are often limited to services in only one language, either spoken or signed, and it is explicitly stated in guidelines that services provided are not designed to support bilingualism. In short, parents are not being adequately or accurately informed about the dangers of language deprivation and the potential protective effects of early bimodal bilingualism before they decide what course of action to pursue for their DHH children.

Opponents to bimodal bilingualism rely on several arguments to discourage parents from choosing to use a natural sign language with their DHH children. These are presented as fact and must be challenged with solid empirical evidence. Hall and colleagues (2019) summarize and rebut the most common arguments. In Table 2, we illustrate some of these claims through quotes from prominent opponents to early signing for DHH children and summarize the evidence that supports their rejection. Additionally, Family Centered Early Intervention (FCEI), a global partnership between deaf and hearing parents and professionals, offers helpful recommendations for supporting families in providing their DHH child with language-rich stimulation during natural interactions. Among the FCEI principles are implementation of techniques known to facilitate language development (Principle 5, Family Infant Interaction), providing families with access to competent and fluent sign language models (Principle 7, Qualified Providers), and use of collaborative teams to offer families meaningful interactions with deaf adults (Principle 8: Collaborative Teamwork) (Moeller et al., 2013).

Of course, hearing parents want strong evidence that opting for a natural sign language will work in their particular situation. Researchers are just beginning to study hearing parents as a unique type of second language signers, asking how parents go about learning a new sign language, and how their signing affects their DHH children's development. In the following section we review the limited extant research in this area.

## **How Successful Can Sign Language Development Be with Parents who are Second-Language Learners of ASL?**

For a variety of reasons already discussed, the majority of hearing families do not choose to raise their DHH children using a natural sign language, at least not initially. A survey by the Gallaudet Research Institute (2011) found that between 2009 and 2010 only 5.8% of hearing parents used ASL with their DHH children. Yet the number of DHH signers is higher than this (2011) figure would suggest, as DHH often encounter some sort of signing at school, perhaps in specialized programs for deaf children. If these environments are sufficiently sign-rich, they can provide the child full access for the first time to the language input needed to support linguistic development. However, there is considerable variation in the age



at which DHH first enter signing school environments, with many children entering quite late.

Henner and colleagues (2016) conducted a study with 688 students from schools for the Deaf. They found that while children who are native signers performed better overall than children who are not native signers, age of entry into a signing-rich school environment was significantly related to ASL proficiency and performance on a test of analogical reasoning given in ASL. These results suggest that children from hearing families may still “be able to take advantage of the fully accessible exposure to ASL when presented consistently by peers and adults” and achieve good academic outcomes (Henner et al., 2016, p. 12), albeit with wide variability. Other studies point to ASL proficiency itself as the factor that predicts success rather than age of entry to a signing environment. Hrastinski and Wilbur (2016) reported that students in a signing-rich school environment had higher academic outcomes (in English and mathematics) if their assessed ASL proficiency was high. The overall message for hearing parents is that successful bimodal bilingualism is within reach for their DHH children, especially when school provides the children with early sign language input that is sufficiently rich to support development high proficiency in that sign language.

Parents who recognize the value of signing enough to place their children in schools for the Deaf are likely to embrace at least some level of signing at home, so it possible that the academic success of the early-entry DHH group reported by Henner and colleagues (2016) benefitted not only from a sign-rich school environment before age 6, but also some level of sign language access in their families. Neither Henner and colleagues nor Hrastinski and Wilbur provide information about the home language environment of the schoolchildren they studied. Indeed, there has been no research that systematically documents signing practices of hearing families with their DHH children before they enter school and their eventual academic outcomes. However, interviews with hearing parents who choose to use ASL with their DHH children provide important insights on the motivations, attitudes and practices of hearing parents with respect to signing. This anecdotal but valuable information lays the foundation for empirical study on the effects of parental second-language signing on DHH children’s language development. The next section summarizes parental interviews carried out by our research team.

## How Successfully Can Hearing Parents Learn a Sign Language?

Chen Pichler (2021) conducted surveys and interviews with 23 hearing parents already learning ASL, inquiring about their motivations and experiences as sign language learners. Parents overwhelmingly reported a desire for both themselves and their DHH children to become ASL-English bilinguals over the long term. All indicated a desire to keep using ASL; none planned to discontinue signing after their DHH child received augmentative technology. They were adamant about pursuing both ASL and spoken English development for their children, rejecting the dominant narrative of sign language as incompatible with hearing aids or cochlear implants. Their motivations for learning ASL were influenced by both pragmatism (e.g., cochlear implants may not always work) and considerations of their DHH child’s future identity as a deaf person (see also McKee & Vale, 2014).

But how successful are parents as second language learners of ASL or other sign languages? The new and expanding field of second-modality second language (M2L2) acquisition has uncovered patterns that apply broadly to hearing adults learning a sign language for the first time. Generally speaking, M2L2 learners exhibit many typical L2 error patterns; they have a tendency to overlook phonological detail of their signed L2 (Bochner et al., 2011) and make errors due to transfer from their L1 (Chen Pichler & Koulidobrova, 2015). Additionally, M2L2 learners struggle with grammatical elements specific to languages in the signed modality, so-called modality effects (Boers-Visker & Bogaerde, 2019; Marshall & Morgan, 2015). Not all modality effects are disadvantages, however: hearing adults are sensitive to iconic properties that are common to both hearing gesture and sign languages (Ortega & Özyürek, 2020), suggesting that existing gestural experience can be recruited as a starting point for more efficient sign language learning.

Hearing parents of DHH children are M2L2 learners, but they are in many ways distinct from the learners usually represented in the research literature, who learn sign language out of personal interest, typically in a classroom environment with adult interlocutors, following a prescribed curriculum. Parents, in contrast, learn to sign in an urgent bid to communicate primarily with their young DHH child, often while working full time and/or parenting older siblings. The majority of parents learn to sign through a combination of self-instruction, community programs, home visits with Deaf mentors, and interaction with Deaf adults and other families with DHH children rather than through formal classes with a set curriculum (McKee & Vale, 2014). Assessment of parental sign development is very rare, so currently very little is known about how closely parental sign development parallels that of “typical” M2L2 learners, or what type of instruction parents need most to optimize their learning (Chen Pichler, 2021).

In the absence of assessment figures, a rough initial picture about parental sign language development from Chen Pichler’s (2021) interview data can be constructed. About 80% of the parents polled had DHH children ages 5;0 or younger, and had thus been learning ASL for fewer than 5 years. Most rated their ASL proficiency as beginner/intermediate and still felt very unsure about the grammar of ASL, particularly about how to combine signs with appropriate word order. These sentiments echo reports by Decker and Vallotton (2016) about hearing parents’ desire to learn “the complete structure of sign language rather than individual signs” (p. 162). This is clearly an area of parental ASL development where more explicit instruction is needed.

Chen Pichler’s (2021) interviews with parents make clear that some are interested in using ASL as early as possible and are willing to take steps to integrate it into their family. However, it is unknown how successful they become at signing, and how their use of ASL has influenced the linguistic, cognitive, and social development of their children. There are numerous anecdotal reports of advantages of early adoption of a sign language in families for DHH children’s language development, but no existing research studies have documented this potential relationship. This gap has motivated our own ongoing study, which will track both development of ASL by hearing parents, and development of ASL and English by their DHH children. This longitudinal study will provide the first systematic description of parental sign language development, a prerequisite to understanding how

parents' ASL proficiency correlates with their child's bimodal bilingual development. By incorporating both deaf and hearing project members and regular access to competent signers for families, our approach also reflects best practices advocated by Family Centered Early Intervention (FCEI), mentioned earlier.

## Conclusions

Substantial inequities emerge in the educational and life experiences of DHH children, which can be traced to ableist biases about language and inaccurate information that is presented to parents when their child is identified as deaf. To reduce biases, it is important to understand how human language is organized and acquired. Equally important is understanding the dangerous consequences of inadequate input and the benefits of bimodal bilingualism for DHH children's early development. Studies investigating outcomes of parents and their children learning ASL together can contribute to reducing biases, advancing justice in early intervention, and ensuring that all DHH children have access to an equitable education.

## Acknowledgments

Research reported in this publication was supported by the National Institute on Deafness and Other Communication Disorders of the National Institutes of Health under Award Number R01DC016901. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

## References

- Bauman H-DL (2004). Audism: Exploring the metaphysics of oppression. *Journal of Deaf Studies and Deaf Education*, 9(2), 239–246. 10.1093/deafed/enh025 [PubMed: 15304445]
- Bochner JH, Christie K., Hauser PC, & Searls JM (2011). When is a difference really different? Learners' discrimination of linguistic contrasts in American Sign Language. *Language Learning*, 61(4), 1302–1327. 10.1111/j.1467-9922.2011.00671.x
- Boers-Visker E., & Bogaerde BVD (2019). Learning to use space in the L2 acquisition of a signed language: Two case studies. *Sign Language Studies*, 19(3), 410–452. 10.1353/sls.2019.0003
- Byers-Heinlein K., Burns TC, & Werker JF (2010). The roots of bilingualism in newborns. *Psychological Science*. 10.1177/0956797609360758
- Caselli NK, Hall WC, & Lillo-Martin D. (2017). Operationalization and measurement of sign language. *Pediatrics*, 140(5), e20172655A. 10.1542/peds.2017-2655B
- Chen Pichler D. (2014) Baby signs. In Gertz G., & Boudreault P.(Eds.), *The SAGE Deaf Studies Encyclopedia* (pp. 71–73). Sage Publications.
- Chen Pichler D., & Koulidobrova E. (2015). Acquisition of sign language as a second language. In Marschark M.& Spencer PE(Eds.), *The Oxford Handbook of Deaf Studies in Language* (pp. 218–230). Oxford University Press. 10.1093/oxfordhb/9780190241414.013.14
- Chen Pichler D., Kuntze M., Lillo-Martin D., de Quadros RM, & Stumpf MR (2018). *Sign Language Acquisition by Deaf and Hearing Children: A Bilingual Introduction*. Gallaudet University Press.
- Chen Pichler D., Lee J., & Lillo-Martin DC (2014). Language development in ASL-English bimodal bilinguals. In Quinto-Pozos D.(Ed.), *Multilingual Aspects of Signed Language Communication and Disorder* (pp. 235–260). *Multilingual Matters*.
- Crace J., Rems-Smario J., & Nathanson G. (2020). Deaf professionals & community involvement with early education. In Schmeltz LR(Ed.), *The NCHAM eBook: A Resource Guide for Early Hearing Detection & Intervention (EHDI)* (pp. 19–1-19–14). National Center for Hearing Assessment and Management.

- Davidson K., Lillo-Martin D., & Chen Pichler D. (2014). Spoken English language development among native signing children with cochlear implants. *Journal of Deaf Studies and Deaf Education*, 19(2), 238–250. 10.1093/deafed/ent045 [PubMed: 24150489]
- De Meulder M. (2018). “So, why do you sign?” Deaf and hearing new signers, their motivation, and revitalisation policies for sign languages. *Applied Linguistics Review*, 10(4), 705–724. 10.1515/applirev-2017-0100
- Decker KB, & Vallotton CD (2016). Early intervention for children with hearing loss: Information parents receive about supporting children’s language. *Journal of Early Intervention*, 38(3), 151–169.
- Decker KB, Vallotton CD, & Johnson HD (2012). Parents’ communication decision for children with hearing loss: Sources of information and influence. *American Annals of the Deaf*, 157(4), 326–339. [PubMed: 23259352]
- Eberhard DM, Simons GF, & Fennig CD (Eds.). (2020). *Ethnologue: Languages of the World*. Twenty-third edition. SIL International. <http://www.ethnologue.com>
- Fabiano-Smith L., & Goldstein BA (2010). Phonological acquisition in bilingual Spanish–English speaking children. *Journal of Speech, Language, and Hearing Research*, 53(1), 160–178. 10.1044/1092-4388(2009/07-0064)
- Gale E. (2020). Collaborating with deaf adults in early intervention. *Young Exceptional Children*, XX(X), 1–12. 10.1177/1096250620939510
- Gale E., Berke M., Benedict B., Olson S., Putz K., & Yoshinaga-Itano C. (2019). Deaf adults in early intervention programs. *Deafness & Education International*, 1–22. 10.1080/14643154.2019.1664795
- Gallaudet Research Institute. (2011). *Regional and National Summary Report of Data from the 2009–2010 Annual Survey of Deaf and Hard of Hearing Children and Youth*. Gallaudet University.
- Geers AE, Mitchell CM, Warner-Czyz A., Wang N-Y, & Eisenberg LS (2017). Early sign language exposure and cochlear implantation benefits. *Pediatrics*, 140(1). 10.1542/peds.2016-3489
- Gleitman LR, Liberman MY, McLemore CA, & Partee BH (2019). The impossibility of language acquisition (and how they do it). *Annual Review of Linguistics*, 5(1), 1–24. 10.1146/annurev-linguistics-011718-011640
- Goodwin C., & Lillo-Martin D. (2019). Morphological accuracy in the speech of bimodal bilingual children with CIs. *The Journal of Deaf Studies and Deaf Education*, 24(4), 435–447. 10.1093/deafed/enz019 [PubMed: 31063195]
- Hall ML, Hall WC, & Caselli NK (2019). Deaf children need language, not (just) speech. *First Language*, 39(4), 367–395. 10.1177/0142723719834102
- Hall WC (2017). What you don’t know can hurt you: The risk of language deprivation by impairing sign language development in deaf children. *Maternal and Child Health Journal*, 21(5), 961–965. 10.1007/s10995-017-2287-y [PubMed: 28185206]
- Hall WC, Levin LL, & Anderson ML (2017). Language deprivation syndrome: A possible neurodevelopmental disorder with sociocultural origins. *Social Psychiatry and Psychiatric Epidemiology*, 52(6), 761–776. 10.1007/s00127-017-1351-7 [PubMed: 28204923]
- Hassanzadeh S. (2012). Outcomes of cochlear implantation in deaf children of deaf parents: Comparative study. *The Journal of Laryngology & Otology*, 126(10), 989–994. 10.1017/S0022215112001909 [PubMed: 22906641]
- Hecht JL (2020). Responsibility in the current epidemic of language deprivation. *Maternal and Child Health Journal*. 10.1007/s10995-020-02989-1
- Henner J., Caldwell-Harris CL, Novogrodsky R., & Hoffmeister R. (2016). American Sign Language syntax and analogical reasoning skills are influenced by early acquisition and age of entry to signing schools for the deaf. *Frontiers in Psychology*, 07. 10.3389/fpsyg.2016.01982
- Hintermair M. (2000). Hearing impairment, social networks, and coping: The need for families with hearing-impaired children to relate to other parents and to hearing-impaired adults. *American Annals of the Deaf*, 145(1), 41–53. 10.1353/aad.2012.0244 [PubMed: 10812689]
- Hockett CF (1960). The origin of speech. *Science*, 203(3), 88–97.

- Hoff E. (2015). Language development in bilingual children. In Bavin EL & Naigles LR (Eds.), *The Cambridge Handbook of Child Language* (2nd ed., pp. 483–503). Cambridge University Press. 10.1017/CBO9781316095829.022
- Holcomb TK (2013). *Introduction to American Deaf Culture*. Oxford University Press.
- Hrastinski I., & Wilbur RB (2016). Academic achievement of deaf and hard-of-hearing students in an ASL/English bilingual program. *Journal of Deaf Studies and Deaf Education*, 21(2), 156–170. 10.1093/deafed/env072 [PubMed: 26864688]
- Humphries T. (1977). *Communicating across cultures (deaf -hearing) and language learning* [Ph.D., Union Institute and University].
- Humphries T., Kushalnagar P., Mathur G., Napoli DJ, Padden C., Pollard R., Rathmann C., & Smith S. (2014). What medical education can do to ensure robust language development in deaf children. *Medical Science Educator*, 24(4), 409–419. 10.1007/s40670-014-0073-7
- Hyde M., Punch R., & Komesaroff L. (2010). Coming to a decision about cochlear implantation: Parents making choices for their deaf children. *The Journal of Deaf Studies and Deaf Education*, 15(2), 162–178. 10.1093/deafed/enq004 [PubMed: 20139157]
- Johnson RE, Liddell SK, & Erting CJ (1989). Unlocking the curriculum: Principles for achieving access in deaf education. *Gallaudet Research Institute Working Paper*, 89(3), 1–29.
- Kite BJ (2020). How the medical professionals impact ASL and English families' language planning policy. *Psychology in the Schools*, 57(3), 402–417. 10.1002/pits.22324
- Kuhl PK (2000). A new view of language acquisition. *Proceedings of the National Academy of Sciences*, 97(22), 11850–11857.
- Levine D., Strother-Garcia K., Golinkoff RM, & Hirsh-Pasek K. (2016). Language development in the first year of life: What deaf children might be missing before cochlear implantation. *Otology & Neurotology*, 37, e56–e62. [PubMed: 26756156]
- Linguistic Society of America. (2001, July 1). Resolution: Sign Languages. <https://www.linguisticsociety.org/resource/resolution-sign-languages>
- Luckner JL, & Velaski A. (2004). Healthy families of children who are deaf. *American Annals of the Deaf*, 149(4), 324–335. 10.1353/aad.2005.0003 [PubMed: 15646937]
- Madell J. (2013, November 21). Alan Chartock in conversation with audiologist, educator, mentor and advocate Jane Madell [WAMC]. <https://www.wamc.org/post/alan-chartock-conversation-audiologist-educator-mentor-and-advocate-jane-madell>
- Madell J. (2017, June 27). Sign language vs. spoken language: The debate that never ends. *Hearing and Kids*. <https://hearinghealthmatters.org/hearingandkids/2017/debate-never-ends/>
- Marshall CR, & Morgan G. (2015). From gesture to sign language: Conventionalization of classifier constructions by adult hearing learners of British Sign Language. *Topics in Cognitive Science*, 7(1), 61–80. 10.1111/tops.12118 [PubMed: 25329326]
- Martin AJ, Napoli DJ, & Smith SR (2017). Methodological concerns suspend interpretations. *Pediatrics*, 140(5), e20172655A. 10.1542/peds.2017-2655A
- Mauldin L. (2019). Don't look at it as a miracle cure: Contested notions of success and failure in family narratives of pediatric cochlear implantation. *Social Science & Medicine*, 228, 117–125. 10.1016/j.socscimed.2019.03.021 [PubMed: 30909155]
- Mayberry RI, & Kluender R. (2018). Rethinking the critical period for language: New insights into an old question from American Sign Language. *Bilingualism: Language and Cognition*, 21(5), 886–905. 10.1017/S1366728917000724 [PubMed: 30643489]
- McKee R., & Vale M. (2014). *Parents of deaf and hearing impaired children: Survey report*. Victoria University of Wellington, Deaf Studies Research Unit.
- Mitchell RE, & Karchmer MA (2004). Chasing the mythical ten percent: Parental hearing status of deaf and hard of hearing students in the United States. *Sign Language Studies*, 4(2), 138–163.
- Mitchell RE, & Karchmer MA (2005). Parental hearing status and signing among deaf and hard of hearing students. *Sign Language Studies*, 5(2), 231–244. 10.1353/sls.2005.0004
- Mitchiner JC (2015). Deaf parents of cochlear-implanted children: Beliefs on bimodal bilingualism. *Journal of Deaf Studies and Deaf Education*, 20(1), 51–66. 10.1093/deafed/enu028 [PubMed: 25237151]

- Moeller MP, Carr G., Seaver L., Stredler-Brown A., & Holzinger D. (2013). Best practices in Family-Centered Early Intervention for children who are deaf or hard of hearing: An international consensus statement. *Journal of Deaf Studies and Deaf Education*, 18(4), 429–445. 10.1093/deafed/ent034 [PubMed: 24030911]
- Morgan G., Meristo M., & Hjelmquist E. (2016). Environment and language experience in deaf children's theory of mind development. In Slaughter V. & de Rosnay M. (Eds.), *Theory of mind development in context* (pp. 121–134). Routledge.
- Murray JJ, Hall WC, & Snoddon K. (2019). Education and health of children with hearing loss: The necessity of signed languages. *World Health Organization. Bulletin of the World Health Organization*; Geneva, 97(10), 711–716. 10.2471/BLT.19.229427
- Murray JJ, Hall WC, & Snoddon K. (2020). The importance of signed languages for deaf children and their families. *The Hearing Journal*, 73(3), 30. 10.1097/01.HJ.0000657988.24659.f3
- Napoli DJ, Mellon NK, Niparko JK, Rathmann C., Mathur G., Humphries T., Handley T., Scambler S., & Lantos JD (2015). Should all deaf children learn sign language? *Pediatrics*, 136(1), 170–176. 10.1542/peds.2014-1632 [PubMed: 26077481]
- National Association of the Deaf. (2016). 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/>
- Ortega G., & Özyürek A. (2020). Types of iconicity and combinatorial strategies distinguish semantic categories in silent gesture across cultures. *Language and Cognition*, 12(1), 84–113. 10.1017/langcog.2019.28
- Padden CA, & Humphries T. (1988). *Deaf in America: Voices from a Culture*. Harvard University Press.
- Petersen A., Kinoglu S., Gozali-Lee E., & MartinRogers N. (2018). Lifetrack's Deaf Mentor Family Program: An Evaluation of the Experiences and Outcomes for Participating Families. <https://www.wilder.org/wilder-research/research-library/lifetracks-deaf-mentor-family-program-evaluation-experiences-and>
- Petitto LA, & Marentette P. (1991). Babbling in the manual mode: Evidence for the ontogeny of language. *Science*, 251(5000), 1493–1496. [PubMed: 2006424]
- de Quadros RM, Lillo-Martin D., & Chen Pichler D. (2016). Bimodal bilingualism: Sign language and spoken language. In Marschark M. & Spencer PE (Eds.), *The Oxford Handbook of Deaf Studies in Language: Research, Policy, and Practice* (pp. 181–196). Oxford University Press.
- Sass-Lehrer MA, Porter A., & Wu CL (2016). Families: Partnerships in practice. In Sass-Lehrer MA(Ed.), *Early Intervention for Deaf and Hard-of-Hearing Infants, Toddlers, and Their Families*. Oxford University Press.
- Schick B., de Villiers P, de Villiers J., & Hoffmeister R. (2007). Language and theory of mind: A study of deaf children. *Child Development*, 78(2), 376–396. 10.1111/j.1467-8624.2007.01004.x [PubMed: 17381779]
- Schick B., & Gale E. (1995). Preschool deaf and hard of hearing students' interactions during ASL and English storytelling. *American Annals of the Deaf*, 140(4), 363–370. 10.1353/aad.2012.0365 [PubMed: 9012270]
- Scott JA, & Henner J. (2020). Second verse, same as the first: On the use of signing systems in modern interventions for deaf and hard of hearing children in the USA. *Deafness & Education International*, 1–19. 10.1080/14643154.2020.1792071
- Singleton JL, & Tittle MD (2000). Deaf parents and their hearing children. *Journal of Deaf Studies and Deaf Education*, 5(3), 221–236. 10.1093/deafed/5.3.221 [PubMed: 15454502]
- Snoddon. (2008). American Sign Language and early intervention. *The Canadian Modern Language Review/La Revue Canadienne Des Langues Vivantes*, 64(4), 581–604. 10.1353/cml.0.0005
- Snoddon K., & Paul JJ (2020). Framing sign language as a health need in Canadian and international policy. *Maternal and Child Health Journal*. 10.1007/s10995-020-02974-8
- Spellun A., & Kushalnagar P. (2018). Sign language for deaf infants: A key intervention for a developmental emergency. *Clinical Pediatrics*, 57(14), 1613–1615. 10.1177/0009922818778041 [PubMed: 29783862]

- Stone A., Petitto L-A, & Bosworth R. (2018). Visual sonority modulates infants' attraction to sign language. *Language Learning and Development*, 14(2), 130–148. 10.1080/15475441.2017.1404468 [PubMed: 32952461]
- Sugar M. (2015, June 17). Re: Should Deaf Children with Hearing Parents Learn a Sign Language? <https://physiciansnews.com/2015/06/15/should-deaf-children-with-hearing-parents-learn-a-sign-language/#comment-477087>
- Supalla SJ (1990). Segmentation of Manually Coded English: Problems in the Mapping of English in the Visual/Gestural Mode [PhD Diss.]. University of Illinois.
- The Joint Committee on Infant Hearing. (2019). Year 2019 position statement: Principles and guidelines for early hearing detection and intervention programs. *The Journal of Early Hearing Detection and Intervention*, 4(2), 1–44.
- The Joint Committee on Infant Hearing, Muse, Harrison J., Yoshinaga-Itano C., Grimes A., Brookhouser PE, Epstein S., Buchman C., Mehl A., Vohr B., Moeller MP, Martin P., Benedict BS, Scoggins B., Crace J., King M., Sette A., & Martin B. (2013). Supplement to the JCIH 2007 position statement: Principles and guidelines for early intervention after confirmation that a child is deaf or hard of hearing. *Pediatrics*, 131(4), e1324–e1349. 10.1542/peds.2013-0008 [PubMed: 23530178]
- van den Bogaerde B., & Baker AE (2009). Bimodal language acquisition in Kodas (kids of deaf adults). In Bishop M. & Hicks SL (Eds.), *Hearing, Mother Father Deaf: Hearing People in Deaf Families* (pp. 99–131). Gallaudet University Press.
- Vihman MM (1996). *Phonological Development: The Origins of Language in the Child*. Wiley-Blackwell.
- Watkins S., Pittman P., & Walden B. (1998). The deaf mentor experimental project for young children who are deaf and their families. *American Annals of the Deaf*, 143(1), 29–34. 10.1353/aad.2012.0098 [PubMed: 9557330]
- Werfel KL, & Hendricks AE (2016). The relation between child versus parent report of chronic fatigue and language/literacy skills in school-age children with cochlear implants: *Ear and Hearing*, 37(2), 216–224. 10.1097/AUD.0000000000000242 [PubMed: 26517450]
- White BE (2019). *The Role of Auditory Experience in the Neurocognitive Systems for Everyday and Effortful Listening* [Ph.D., Gallaudet University]. <http://search.proquest.com/pqdtglobal/docview/2325378548/abstract/38AC2B07F9FC4DD3PQ/1>
- Wilkinson E., & Morford JP (2020). How bilingualism contributes to healthy development in deaf children: A public health perspective. *Maternal and Child Health Journal*. 10.1007/s10995-020-02976-6
- World Federation of the Deaf. (2019, July 27). WFD Charter. <https://wfdeaf.org/charter/>
- Yoshinaga-Itano C., Sedey AL, Coulter DK, & Mehl AL (1998). Language of early- and later-identified children with hearing loss. *Pediatrics*, 102(5), 1161–1171. 10.1542/peds.102.5.1161 [PubMed: 9794949]
- Yoshinaga-Itano C., Sedey AL, Wiggin M., & Chung W. (2017). Early hearing detection and vocabulary of children with hearing loss. *Pediatrics*, 140(2), e20162964. 10.1542/peds.2016-2964

**Table 1.****Recommendations for Actions that will Help to Advance Justice in Early Intervention Practices.**

**Recommendation:** At all steps along the way, deaf adults should contribute to the information that hearing parents receive.

**Justification:**

- The lived experiences of deaf adults play a vital role in improving the quality of early interventions provided to hearing families with DHH children (Gale, 2020; Gale et al., 2019).
- Families who received bilingual-bicultural programming services from deaf mentors show greater language gains compared with families who did not participate (Watkins et al., 1998).
- Hearing parents report that encounters with deaf adults helped them feel more confident in raising deaf children (Hintermair, 2000), and improved their DHH child's quality of life (Petersen et al., 2018).
- Principle 8 for Collaborative Teamwork from the FCEI International organization recommends including deaf adults as members of early intervention teams (Moeller et al., 2013): "D/HH adults can serve as role models, consultants, and/or mentors to families, offering information and resources and demonstrate enriching language experiences."

**Recommendation:** Providers should offer deaf children and their families accurate and balanced information about communication opportunities including the early bimodal bilingual approach.

**Justification:**

- Informed choice is about offering parents unbiased and balanced information regarding choices for their deaf children.
- Parents internalize opinions from their professionals (Decker et al., 2012).
- The Joint Committee on Infant Hearing (JCIH) recommends, "Develop a mechanism that ensures family access to all available resources and information that is accurate, well-balanced, comprehensive, and conveyed in an unbiased manner," and "Establish and implement professional development programs that include training in dissemination of information without bias" (The Joint Committee on Infant Hearing et al., 2013).
- FCEI Principle 3, Informed Choice and Decision Making, recommends "adopt[ing] open and flexible policies that effectively endorse a range of communication possibilities," and "shar[ing] information and experiences from a variety of sources that are comprehensive, meaningful, relevant, and unbiased to enable informed decision making" (Moeller et al., 2013).
- When bilingualism is presented as a healthy default option (Murray et al., 2019; Wilkinson & Morford, 2020), DHH children can have access to linguistic input as early as possible so that they need not rely exclusively on the eventual development of spoken language.

**Recommendation:** Medical and early intervention professionals must be trained on the social-cultural perspectives of the deaf community, and the factors that affect language development in DHH children.

**Justification:**

- Medical professionals need to receive language development training so they can properly advise parents about language and education opportunities, explain why using assistive devices and sign language are not an either/or decision, and discuss consequences of waiting to use sign language as a back-up if the child does not perform well with their assistive device (Hecht, 2020; Humphries et al., 2014; Spellun & Kushalnagar, 2018).
- This training should include content concerning language acquisition, Deaf culture and the benefits of visual languages, as well as regular opportunities to interact with deaf signers. These topics should be included when focusing on the goal to train health professionals and service providers in key aspects of the Early Hearing Detection and Intervention (EHDI) Program from Health Resources and Services Administration (HRSA), which is part of the U.S. Department of Health and Human Services Maternal and Child Health Bureau Division of Services for Children with Special Needs.

**Recommendation:** Additional research focusing on language development in DHH children should be conducted

**Justification:**

- Studies that examine development of both sign and speech in children whose parents are also learning a natural sign language would increase our understanding of ways to improve early access to language.



Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

- 
- Studying the parents as M2L2 learners may also help to improve instruction for such learners. Such research is an important strategy to spotlight the benefits of visual languages leading to equitable education for deaf children.

**Table 2.**

Misconceptions about the Early Adoption of a Natural Sign Language by Hearing Parents and Rebuttals to these Claims.

<p><b>Misconception 1:</b> “[T]he window for a deaf child to acquire listening and spoken language is much shorter than the window in which ASL can be acquired.” (Sugar, 2015)</p>
<p><b>Rebuttal 1</b></p> <ul style="list-style-type: none"> <li>• The strongest evidence for the existence of critical periods for language development comes from deaf people learning a sign language (Mayberry &amp; Kluender, 2018).</li> <li>• If accessible language input is delayed, subsequent development of both sign languages and spoken languages is negatively affected, demonstrating that the same critical period effects observed for spoken languages also exist for sign languages.</li> </ul>
<p><b>Misconception 2:</b> “If you start teaching little kids sign language, it’s a visual system, and visual systems will be easier for a child to get than an auditory system...and so they’re going to get the visual and they’re not going to respond to the listening.” (Madell, 2013)</p>
<p><b>Rebuttal 2</b></p> <ul style="list-style-type: none"> <li>• This perspective places the burden of accommodating others on the DHH child, who must ‘work hard’ to develop speech so that others will understand them, and it accuses the DHH child of being ‘too lazy’ to do this extra work if an ‘easier’ (more accessible) language is at hand.</li> <li>• Signing adult cochlear implant users describe “exhaustion” after prolonged use of their CI and the relief of taking it off at the end of the day. Their experiences are substantiated by neurocognitive research (White, 2019). Providing DHH children with readily accessible language input facilitates development while reducing the risk of listening and cognitive fatigue experienced by many DHH children and adults who use CIs (Spellun &amp; Kushalnagar, 2018; Werfel &amp; Hendricks, 2016).</li> </ul>
<p><b>Misconception 3:</b> “Learning sign language later is always an option but learning it early destroys possibilities...it only works if children have early exposure to spoken language.” (Madell, 2017)</p>
<p><b>Rebuttal 3</b></p> <ul style="list-style-type: none"> <li>• There is no evidence that early signing blocks concurrent or subsequent development of spoken language.</li> <li>• The claim that signing should only be used in conjunction with and subsequent to a spoken language reflects audist assumptions that sign languages are fundamentally inferior to spoken languages. In fact, sign languages are linguistically complex human languages, fully adequate for serving as a first and primary language.</li> </ul>
<p><b>Misconception 4:</b> “[T]he majority of hearing parents typically lack proficiency in American Sign Language (ASL), and, therefore, cannot provide a language-rich environment in both ASL and spoken English.” (Geers et al., 2017)</p>
<p><b>Rebuttal 4</b></p> <ul style="list-style-type: none"> <li>• Many hearing parents do learn enough sign for effective communication, and the benefits for their DHH children are worth the effort.</li> <li>• Parents need not be the sole sign models for their child if they seek out support from a signing community, no matter how small. Deaf adults can provide fluent sign language input to support linguistic development for the whole family, and serve as important social and cultural links to the Deaf community (Crace et al., 2020; Gale et al., 2019).</li> </ul>