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Spoken language vs Sign Language: Are We Stuck In This Binary?

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It is generally agreed upon in the literature that when children who are deaf or hard of hearing (with no additional “disabilities”) receive high quality language access early, preferably by six months of age, they can achieve language outcomes commensurate with their typically hearing peers before five years of age. This large body of work began with the seminal paper by Yoshinaga-Itano, Coulter, and Thomson (2001), which was the primary catalyst for establishing newborn hearing screening programs. The widespread implementation of infant hearing screenings in many areas of the world has resulted in a significant reduction in age of identification and intervention over the years, as well as significantly improved language outcomes in these children (Yoshinaga-Itano, Manchaiah, & Hunnicutt, 2021; Universal Newborn Hearing Screening Review Group, 2022).

However, what hasn’t changed as quickly over this same time is that parents receiving confirmation that their child is deaf or hard of hearing may continue to receive conflicting information about communication development (DesJorges, 2016; Giese, 2020). Things have improved over the years, but parents may still receive biased information from professionals working in the field (Shezi & Joseph, 2021).

Earlier identification has led to earlier cochlear implantation in children with severe to profound hearing levels. Many pediatric cochlear implant (CI) recipients have very positive spoken language outcomes. Despite this, there remains variability in results, and some children who are implanted early and receive high quality early intervention continue to struggle (Šimi? Šanti? & Bonetti, 2023). The possibility of children with CIs also learning a signed language may be presented to the parents, which is a positive move forward. Still, they may be told to focus on either spoken or sign language, they may be told that sign language is unnecessary or even harmful, or it might be proposed more as a secondary option if spoken language acquisition is unsuccessful.

Also, there are still anecdotal reports of parents meeting with professionals or people from the Deaf community who are told that they will “damage their child” if they decide their child should have a CI (Madell, 2023). However, there has been a definite positive shift in this regard. According to the Gallaudet University Website (2024), the “emphasis of the debate has changed” and there is now more focus on encouraging the use of visual language with children using CIs, and moving away from the fight against using them.

It has been 144 years since the Milan Conference was held in Italy in 1880. There were 164 almost exclusively typically hearing people in attendance, representing about 30 different countries. The eight resolutions passed emphasized the advantages of spoken language, and the detrimental

effects of sign language on thought and spoken language. The superiority of speech and lip reading over signs was reported to be “incontestable” (Moores, 2010), and use of sign language with children who are deaf was banned. The Milan Conference effectively guaranteed a long-standing war between oralists and manualists, denigrating people who are Deaf, Deaf communities, and all sign languages in the process.

In contrast, the 21st International Congress on Education of the Deaf held in Vancouver, Canada, in 2010 hosted over 700 participants, representing 60+ countries, and the organizing committee partnered with the local Deaf community. All resolutions of the Milan conference were rejected, and the harmful impact on children who are deaf or hard of hearing and on Deaf communities around the world was acknowledged. The “Accord for the Future” called for inclusion of sign languages as legitimate languages globally, recognized the importance of access to language in education, and emphasized that respecting human rights included people who are deaf/Deaf. To view the nine points in this Accord, refer to Moores (2010, p. 310).

With this historical context in mind, it is difficult to understand why some professionals continue to practice primarily along rigid, philosophical lines. This divisive binary not only impacts services provided by audiologists, speech-language pathologists, and communication specialists, but informs “how we prepare educators to work with D/deaf and hard of hearing children, how we ground and frame our research, how we support families, and how we include (or don’t include) the D/deaf community at large” (Basas, Voss, Giese, Williams, & Werner, 2023, p. 597).

It is appropriate for programs in the field to hold a specific perspective, and parents have the right to choose a program they believe might be best for their child and family. However, this should be done with the proviso that for the child to receive the best intervention possible, service providers need to be aware of the potential merits of other programs and services, even those with a different philosophical view. Having a child change or alter their intervention is not a sign of failure but rather an acknowledgment that children who are deaf or hard of hearing are an extremely diverse group comprised of children with a variety of unique needs.

Beyond service provision, the impact of the need to “prove” one’s philosophical perspective is particularly damaging when professionals working in the field look to research to determine outcomes-based service provision and best-practices, and instead get biased conclusions presented as fact. For example, the well-known article by esteemed researchers Geers, Mitchell, Warner-Czyz, et al. (2017) concluded:

> …no lasting advantage to using sign before and immediately after a CI and these children were more likely to experience delayed language and reading in late elementary grades than children with no sign exposure”
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> *(Geers et al., 2017, p. 7).*

However, there were significant issues with the “sign language” exposure that the children in this study received (Hall, Hall, & Caselli, 2019, Pontecorvo et al., 2017). A child was considered to have exposure to sign language if parents used ASL, Total/Simultaneous Communication, baby sign, Signing Exact English, Signed English, sign support, or Pidgin sign at least 10% of the time (Geers et al., 2017, p. 2). It should be obvious that single signs, lexical items without syntax, or ASL signs in English word order do not constitute exposure to a “sign language.” Sign languages

such as ASL are complete languages with their own rule-governed syntax, semantics, phonology, and pragmatics (Sandler & Lillo-Martin, 2006), and lumping them together with non-languages is nothing short of offensive.

This same study has also been criticized for other methodological issues (e.g., Corina & Schaefer, 2017), and the authors themselves acknowledged that the families who continued to use “signing” might have been doing so “because their child was slow to develop speech perception abilities” (Geers et al., p. 6). This clearly constitutes a study confound. Nevertheless, the study is out there and continues to have the potential to be used to deter parents and families of children who are deaf or hard of hearing from pursuing sign language as a language of choice on its own, or in conjunction with the parallel development of spoken language.

A spoken language bias may be implicit. Since the vast majority of people worldwide use typical hearing and spoken languages, the assumption over the years has been that this is the “right” way for humans to communicate. If speech is “normal,” then sign language must be “abnormal” and the unfortunate binary is precipitated, legitimizing the existence of work to “prove” that sign language should not be used with children who are deaf and hard of hearing. Should this argument being presented here be viewed as promoting a manualist bias, ask yourself how many published papers you have seen questioning whether use of spoken language interferes with sign language acquisition.

Whether purposeful or not, it is not surprising that this perspective is supported when research is designed to reinforce a philosophical perspective. Even brain studies, widely considered to be objective in nature, have frequently been designed around the speech vs. sign language binary. An in-depth analysis of this work is certainly beyond the scope of this paper, and perhaps its author. However, it is important to note that when conducting this research, the models used to examine the relationships between language and the brain when spoken languages are used, are most likely too simplistic to apply to brain research in sign language. For example, the articulators used to produce speech are very small, involving some movements that can be seen, such as with the mouth and lips, but are comprised predominantly of movements that occur inside the mouth and larynx that are not visible to the eye. This is very different from the articulators in sign language where movements of the hands and arms are comparatively large, and movements of the mouth and face though smaller, are still visible.

Sign languages also include fingerspelling, which requires small but visible movements of the fingers. According to Emmorey (2021), fingerspelling differs from signs because it occurs directly in front of the person communicating and does not involve the movement of other body parts. Additionally, sign language syntax is not linear, and sign languages take advantage of three-dimensional space. It is clear that the neural underpinnings for these languages would differ significantly.

Pontecorvo et al. (2023) emphasize that research documenting cross-modal activation in the brain when there is exposure to sign language should not be used to suggest that use of sign language is the cause of poorer speech perception because this relationship is correlational. Brain changes related to congenital deafness, independent of any language exposure, need to be explored to develop a more accurate understanding of this correlation.

McCullough & Emmorey, K. (2021) conducted a very informative study on adults where they examined the brains of 30 congenitally deaf signers, 30 typically hearing signers, and 30 typically

hearing adults who had no exposure to sign language. All of the typically hearing and deaf signers were exposed to ASL from birth, and over 75% of them had two deaf parents. Not surprisingly, the three groups had very different neuroanatomical structures. Some of the variations appeared to be related to the deafness itself, while other changes appeared to reflect the neural underpinnings of sign language. The typically hearing signers had very distinctive neuroanatomical changes, which the authors suggest may be related to the complexity of the visual and auditory experiences of being typically hearing people who are bimodal bilinguals. The study's actual brain differences and full results are too numerous to report in this paper. Still, a key take-home message is that despite significant brain differences among the participants, they had all acquired at least one fully fluent language. Different wasn't necessarily negative. As well, in the absence of sound, deaf participants were able to develop a fully functional, and well-developed language.

Brain research would be more productive in moving the field forward if the focus was on developing a more complete understanding of how the brain processes sign language and identifying how different types of stimulation effect brain development. Assumptions that brain variations from typically hearing people are necessarily detrimental should be avoided.

Given years of research, often biased against the use of signing, there has been no definitive or compelling evidence that the use of sign language hurts spoken language development in children who are deaf or hard of hearing. It is possible to find published research in refereed journals to both support and refute this claim, and of course, methodological issues can be identified in most of them. Inconsistent use of terminology across the literature, wide variations in outcomes being measured and how they are measured, insufficient information on language access and input of children being studied, lack of control participants, as well as many other important variables mean that the field has been unable to formulate any true, meaningful conclusions in this regard.

Ultimately, the question of whether or not use of sign language harms the development of spoken language in children who are deaf or hard of hearing is, quite simply, the wrong question to be asking. Rather, the real question should be "what kind of experience with linguistic input during infancy and toddlerhood is most likely to result in mastery of at least one language by school entry" (Hall and Dills, 2020)

When exploring what kind of input best facilitates language development in these children, we need to consider the child's cumulative history with linguistic input and access, the quality of that input, and the output they use (Hall & Dills, 2020). As these authors point out, the input a child actually receives beginning at birth can be complex and vary widely depending on their age, their caregivers, their use of different technologies, and any programming they were participating in during their life to date. Reducing a child's exposure and experience to one "communication mode" and forcing children into two groups for research purposes based on some unidimensional description of their language input is not effective.

Constructing a well-designed study without aligning oneself with a philosophical perspective and remaining open to possibilities that may not have previously been considered is possible. As stated by Basas et al. (2023), "we can continue down this path of division, or we can make a conscious and deliberate effort to look at the field from a wider vantage point and work toward a place of unity and growth (p. 598).

The causalities in the age-old war between proponents of exclusively spoken language and proponents of exclusively sign language for children who are deaf or hard of hearing are the

children and their families. This is not about professional egos and garnering support for a particular philosophical perspective. This is about ensuring that children who are deaf or hard of hearing have full access to and can acquire at least one fully developed language before they enter school. We live in a multilingual world, and children who are deaf and hard of hearing can be exposed to various languages. Beyond language, just like any other child, children who are deaf or hard of hearing need to develop all of the skills they require to play, socialize, and learn alongside their peers. Their inalienable right is to participate fully in society to their fullest capacity.

References

1. Basas, M., Voss, J., Giese, K., Williams, J., & Werner, D. (2023). It's time to rethink our future: "Radical" perspectives on deaf education in the United States and beyond. *American Annals of the Deaf, 167*(5), 597–604.
2. Caldwell, H. B. (2022). Sign and Spoken Language Processing Differences in the Brain: A Brief Review of Recent Research. *Annals of Neurosciences, 29*(1), 62-70.
3. Corina, D. P., & Schaefer, T. (2017). Re: Responsible publishing. Pediatrics, 140(5), Article e20172655D. https://doi.org/10.1542/peds.2017-2655D
4. DesGeorges J. (2016). Avoiding assumptions: Communication decisions made by hearing parents of deaf Children. *AMA Journal of Ethics, 8*(4):442-446.
5. Emmorey, K. (2021). New Perspectives on the Neurobiology of Sign Languages. HHS Public Access. DOI: 10.3389/fcomm.2021.748430
6. Gallaudet University (2024). Invention of the cochlear implant fans flames of debate on both sides. Gallaudet University website, https://gallaudet.edu/museum/exhibits/history-through-deaf-eyes/awareness-access-and-change/invention-of-the-cochlear-implant-fans-flames-of-debate-on-both-sides/
7. Geers, A.E., Mitchell, C.M., Warner-Czyz, A., Wang, YN., Eisenberg, L.S., & CDaCI Investigative Team (2017). Early sign language exposure and cochlear implantation benefits. *Pediatrics,140*(1), e20163489, 9 pages.
8. Giese, K. A. (2020). *Factors that influence parent communication decisions for their deaf or hard of hearing child in Illinois* (Theses and Dissertations No. 1321) [Doctoral dissertation, Illinois State University]. https://ir.library.illinoisstate.edu/ etd/1321.
9. Hall, M.L., Hall, W.C., & Caselli, N.K. (2019). Deaf children need language, not (just) speech. *First Language, 39*(4), 367–395.
10. Hall, M.L. & Dill, S. (2020). The limits of "Communication Mode" as a construct. Journal of Deaf Studies and Deaf Education, *Journal of Deaf Studies and Deaf Education, 25*(4), 383–397.
11. Kral, A. & Sharma, A. (2023). Crossmodal plasticity in hearing loss. *Trends in Neurosciences, 46*(5), 377–393.
12. Madell, J. (2023). When their child is born deaf, parents need accurate information. Hearing Health & Technology Matters website.

https://hearinghealthmatters.org/hearing-and-kids/2023/parents-need-accurate-information/

13. McCullough, S. & Emmorey, K. (2021). Effects of deafness and sign language experience on the human brain: voxel-based and surface-based morphometry. *Language, Cognition and Neuroscience, 36*(4).

14. Moores, D. F. (2010). Partners in Progress: The 21st International Congress on Education of the Deaf and the Repudiation of the 1880 Congress of Milan. *American Annals of the Deaf, 155* (3), 309-310. Project mews premium collection?

15. News. World Federation of the Deaf (2016). International Congress of the Deaf (ICED) July 18–22, Vancouver, Canada. World Federation of the Deaf Website. https://wfdeaf.org/news/international-congress-of-the-deaf-iced-july-18-22-2010-vancouver-canada

16. Pontecorvo, E., Higgins, M., Mora, J., Lieberman, A.M., Pyers, J., & Caselli, N. K. (2023). Learning a sign language does not hinder acquisition of a spoken language. *Journal of Speech, Language, and Hearing Research*, 66(4), 1291–1308.

17. Sandler, Wendy; & Lillo-Martin, Diane. (2006). Sign Language and Linguistic Universals. Cambridge: Cambridge University Press.

18. Shezi, Z.M. & Joseph, L.N. (2021). Parental views on informational counselling provide by audiologists for permanent childhood hearing loss. *South African Journal of Communication Disorders, 68*(1), e1–e8.

19. Šimi? Šanti?, I. & Bonetti, L. (2023). Language intervention instead of speech intervention for children with cochlear implants. *Journal of Audiology & Otology, 27*(2), 55–62.

20. Universal Newborn Hearing Screening Review Group. Edmond, K., Chadha, S., Hunnicutt, C., Strobel, N., Manchaiah, V., & Yoshinaga-Itano, C. (2022). Effectiveness of universal newborn hearing screening: A systematic review and meta-analysis. *Journal of Global Health, 12*, 12006, 10 pages.

21. Yoshinaga-Itano, C., Manchaiah, V., & Hunnicutt, C. (2021). Outcomes of universal hearing screening programs: Systematic Review. *Journal of Clinical Medicine, 10*(13):2784. https://doi.org/10.3390/jcm10132784.

22. Yoshinaga-Itano C, Coulter D, Thomson V. (2001). Developmental outcomes of children with hearing loss born in Colorado hospitals with and without universal newborn hearing screening programs. *Seminars in Neonatology, 6*(6):521-529.