

Chapter 1 : Project MUSE - Whole Language and Deaf Bilingual-Bicultural Education " Naturally!

What has become increasingly clear from studying the characteristics of natural languages, spoken or signed, and how the brain processes them, is the critical importance of providing even the youngest deaf children with access to a natural language.

Select Page How do babies acquire language? How do babies acquire language? What do babies know when they start to learn language? What are babies born with to help them discover the core structure of their native language? A prevailing view about the biological foundations of language has been that very early language acquisition is tied to speech. Irrespective of whether an infant is exposed to spoken or signed languages, both are acquired on an identical maturational time course. Further, hearing infants acquiring spoken languages and deaf infants acquiring signed languages exhibit the same linguistic, semantic, and conceptual complexity, stage for stage. Petitto reasoned that in order for signed and spoken languages to be acquired in the same manner, human infants at birth may not be sensitive to sound or speech, per se. Instead, infants may be sensitive to what is encoded within this modality. She proposed that humans are born with a sensitivity to particular rhythmic-temporal patterning of approximately 1. A sensitivity to these specific physical dimensions " that is, rhythmic-temporal units about 1. If the input language contains these specific patterns, infants will then attempt to produce them " regardless of whether they encounter these patterns on the hands or on the tongue. One novel implication here is that language modality, be it spoken or signed, is highly plastic and may be neurologically set after birth. Another benefit of this brain sensitivity is this: Since Petitto began her study of language acquisition and the mechanisms that support it in the brains of young children, it has become accepted that babies are born with a propensity to acquire language. Whether the language comes as speech or sign language, it does not appear to matter to the brain. As long as the language input has the above crucial properties, human babies will attempt to acquire it. Summary of Findings Deaf children exposed to signed languages from birth, acquire these languages on an identical maturational time course as hearing children acquire spoken languages. Deaf children acquiring signed languages do so without any modification, loss, or delay to the timing, content, and maturational course associated with reaching all linguistic milestones observed in spoken language. Beginning at birth, and continuing through age 3 and beyond, speaking and signing children exhibit the identical stages of language acquisition. Communicative gestures versus language. Signing and speaking children produce strikingly similar pre-linguistic months and post-linguistic communicative gestures months. Instead, deaf children consistently differentiate linguistic signs from communicative gestures throughout development, using each in the same ways observed in hearing children. Throughout development, signing and speaking children also exhibit remarkably similar complexity in their language utterances, as well as similar types of gestures. The discovery of manual babbling. Babbling " and thus early language acquisition in our species " was said to be determined by the development of the anatomy of the vocal tract and the neuroanatomical and neurophysiological mechanisms subserving the motor control of speech production. Her data showed that deaf infants appeared to be babbling with their hands. Additional studies were undertaken to understand the basis of this extraordinary behavior. The findings that were reported in Science revealed unambiguously a discrete class of hand activity in deaf infants that was structurally identical to vocal babbling observed in hearing infants. Like vocal babbling, manual babbling was found to possess: The discovery of babbling in another modality challenged our conception of the nature of language as being tied to speech. In this radical discovery, it pulled apart speech and language, suggesting that they were not one and the same thing. However, it disconfirmed existing hypotheses about why babbling occurs, i. But manual babbling is also produced with rhythmic, syllabic open-close, hold-movement hand alternations. Subsequent studies were conducted to examine the physical basis of this extraordinary phenomenon. Evidence for the ontogeny of language. The Physics of Manual Babbling: In the video clip below, you will first see a 10 month old SPEECH-exposed hearing boy producing one example of the high frequency hand movements mentioned in the above article. Second, and following the first, you will see a 10 month old SIGN-exposed hearing girl producing one example of the low frequency hand movements. The

work was published in Nature.

Chapter 2 : Loveless Family: Teaching a Deaf Child to Read and Write

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Language acquisition by deaf children Save Language acquisition by deaf children parallels the development of any children acquiring spoken language as long as there is full access to language from birth. Infants born to signing parents, or exposed immersively to fluent sign language models at a young age, generally acquire sign language natively. Role of input and the environment During the first year of life, all infants are primed to acquire information about the language in their environment. Research shows that deaf children who listen and speak to communicate, but do not use sign language have better communication outcomes[14][15] and social well-being[16] than Deaf children who use sign language. Early stages birth to 12 months The general stages of language acquisition are the same whether the language is spoken or signed. They also need to determine how to segment the continuous stream of language input into phrases and eventually words. Just as in child-directed speech CDS , child-directed signing is characterized by slower production, exaggerated prosody, and repetition. For parents with deaf children who do not use amplification hearing aids or cochlear implants , joint attention an important component to language development can be problematic. Hearing children can watch their environment and listen to an adult comment on it. However, children who do not hear have to switch their visual attention back and forth between stimuli. Speech and oral methods For deaf children who use listening and spoken language as their primary mode of communication, their families will often participate in Auditory-verbal therapy , a means of enhancing the innate language and listening skills of deaf children. Most children who receive appropriate amplification before the age of 18 months and receive appropriate auditory-verbal instruction will follow language-learning trajectories of their peers who have typical hearing. Some studies indicate that if a deaf child learns sign language, he or she will be less likely to learn spoken languages because they will lose motivation. However, Humphries insists that there is no evidence for this. Most types of MCE use signs borrowed or adapted from American Sign Language, but use English sentence order and grammatical construction. Numerous systems of manually encoded English have been proposed and used with greater or lesser success. Methods such as Signed English , Signing Exact English ,[31] Linguistics of Visual English , and others use signs borrowed from ASL along with various grammatical marker signs, to indicate whole words, or meaning-bearing morphemes like -ed or -ing. This is a technique that is used in order to teach deaf children the structure of the English language not only through the sound and lip-reading patterns of spoken English, but also through manual patterns of signed English. It is a technique that uses handshapes near the mouth "cues" to represent phonemes that can be challenging for some deaf or hard-of-hearing people to distinguish from one another through speechreading "lipreading" alone. It is designed to help receptive communicators to observe and fully understand the speaker. Cued speech is not a signed language, and it does not have any signs in common with ASL. It is a kind of augmented speechreading, making speechreading much more accurate and accessible to deaf people. Some research shows a link between lack of phonological awareness and reading disorders, and indicate that teaching cued speech may be an aid to phonological awareness and literacy. Fingerspelling is a system that encodes letters and not words or morphemes, so is not a manual encoding of English, but rather an encoding of the alphabet. As such, it is a method of spelling out words one letter at a time using 26 different handshapes. Since fingerspelling is connected to the alphabet and not to entire words, it can be used to spell out words in any language that uses the same alphabet; so it is not tied to any one language in particular, and to that extent, it is analogous to other letter-encodings, such as Morse code , or Semaphore. The Rochester Method relies heavily on fingerspelling, but it is slow and has mostly fallen out of favor. Literacy Reading According to Goldin-Meadow, reading requires two essential abilities: However, reading is possible if deaf children learn ASL. Once they have acquired ASL, deaf children learn how to map between sign language and print so that they can learn English. Several techniques are used to help bridge the gap between ASL and spoken language or the "translation process" such as sandwiching and chaining. Sandwiching consists of alternating between

saying the word and signing it. Chaining consists of finger spelling a word, pointing to the spoken language version of the word and using pictorial support. Although chaining is not widely used, it creates an understanding between the visual spelling of a word and the sign language spelling of the word. This helps the child become bilingual in both ASL and spoken language. Research shows that deaf children born to deaf parents are usually better readers than deaf children born to hearing parents. This is because deaf parents provide a strong social and emotional network and may immediately have access to the necessary resources for their child. Deaf parents already anticipate the needs of their child, having been through the same experience, as opposed to a hearing parent.

Cochlear implants A cochlear implant is placed surgically inside the cochlea, which is the part of the inner ear that converts sound to neural signals. There is much debate regarding the linguistic conditions under which deaf children acquire spoken language via cochlear implantation. Some studies have concluded that long-term use of sign language impedes the development of spoken language and reading ability in deaf and hard of hearing children, and that using sign language is not at all advantageous, and can be detrimental to language development. These children outperformed their deaf peers who were born to hearing parents following cochlear implantation. Members of the Deaf Community believe this is an important ethical problem. They strongly advocate that sign language is their first or native language just as any other spoken language is for a hearing person. They do not see deafness as a deficiency in any way, but rather a normal human trait amongst a variety of different ones. One issue on the ethical perspective of implantation is the possible side effects that may present themselves after surgery the body may physically reject the implant; for some reason, there may not be any benefit, or very little gained; the internal component may need to be replaced causing the need for another surgery, even in some cases lessening listening capabilities, losing residual hearing or hearing sounds differently. While the surgery presents one positive solution, these side effects are not often taken into account but are significant and need to be afforded more attention. However, complications from cochlear implant surgery is a rare event, with some centers showing less than a three percent failure rate.

Relationship between language acquisition and other domains of development Cognitive development Early exposure to language facilitates language acquisition, regardless of whether or not that exposure is native or non-native, as well as many other domains of development, such as cognitive development, including executive functioning skills. Executive functioning skills are extremely important, as these are the skills that guide learning and behavior[39]. These skills include self-regulation, inhibition, emotional control, working memory, and planning and organization, which contribute to overall social, emotional and academic development for children. Early access to a language, such as sign language, from birth supports the development of these cognitive skills and abilities in Deaf and hard of hearing children, and supports their development in this area[40]. However, late exposure to language and delayed language acquisition can inhibit or delay the cognitive development of deaf and hard of hearing children, and impact these skills. This late exposure to language, or lack thereof, can be defined as language deprivation see Language deprivation in deaf and hard of hearing children. This experience is the result of a lack of exposure to natural human language, whether that be spoken or signed language, during the critical language period[39]. It is not deafness that causes these deficits, but late language acquisition that influences the cognitive development and abilities of deaf people. Typically, if a person has had this full access to language and has been able to acquire it, then being able to enter into a realm of social and emotional becomes plausible. Being able to communicate using is critical for those still developing their social skills[42]. There is also evidence to suggest that language acquisition can play a critical role in developing Theory of Mind, or developing the understanding of false beliefs in language[43]. Parents who have a Deaf child typically do not know a signed language, the logistical problem can become how to give that child a full language. If deaf and hard of hearing children are not developing their social skills at home, by the time they enter school, they can be behind in this development. All of this can lead to struggles with proper emotional development. It can be hard on a child who was not given a language early to try and express their emotions appropriately. The problem is not with the deaf child, but instead, not giving a deaf or hard of hearing child the necessary language access from birth that other children receive[45]. There are theories to suggest that language acquisition is a predictor of how a child can develop Theory of Mind and without a full language, this skill becomes null. Theory of Mind can be

an indicator of social and cognitive development. Without language acquisition, Deaf children can become behind in Theory of Mind and the skills that coincide, which can lead to further social and emotional delays. More exposure in an accessible language leads to better performance in the second language upon entering school[47]. Providing deaf and hard of hearing children with the most language exposure possible from birth promotes both first and second language acquisition. There is extensive research regarding the correlation between proficiency in ASL and proficiency in English literacy skills[48]. Deaf students with higher ASL proficiency tend to have higher English reading and writing scores[48]. Deaf and hard of hearing children who have higher levels of American Sign Language proficiency and those who have higher proficiency in a second language e.

Chapter 3 : National Association of the Deaf - NAD

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Chirogram from Chirologia, In Britain, manual alphabets were also in use for a number of purposes, such as secret communication, [8] public speaking, or communication by deaf people. Arthrological systems had been in use by hearing people for some time; [12] some have speculated that they can be traced to early Ogham manual alphabets. The earliest known printed pictures of consonants of the modern two-handed alphabet appeared in with *Digiti Lingua Latin for Language [or Tongue] of the Finger*, a pamphlet by an anonymous author who was himself unable to speak. Nine of its letters can be traced to earlier alphabets, and 17 letters of the modern two-handed alphabet can be found among the two sets of 26 handshapes depicted. Charles de La Fin published a book in describing an alphabetic system where pointing to a body part represented the first letter of the part e. By , the British manual alphabet had found more or less its present form. Now called Gallaudet University , it is still the only liberal arts university for deaf people in the world. Sign languages generally do not have any linguistic relation to the spoken languages of the lands in which they arise. The correlation between sign and spoken languages is complex and varies depending on the country more than the spoken language. While recent studies claim that International Sign is a kind of a pidgin , they conclude that it is more complex than a typical pidgin and indeed is more like a full sign language. Linguistics[edit] In linguistic terms, sign languages are as rich and complex as any spoken language, despite the common misconception that they are not "real languages". Professional linguists have studied many sign languages and found that they exhibit the fundamental properties that exist in all languages. While iconicity is more systematic and widespread in sign languages than in spoken ones, the difference is not categorical. They have complex grammars of their own and can be used to discuss any topic, from the simple and concrete to the lofty and abstract. Sign languages, like spoken languages, organize elementary, meaningless units called phonemes into meaningful semantic units. These were once called cheremes from the Greek word for "hand" in the case of sign languages, by analogy to the phonemes from Greek for "voice" of spoken languages, but now also called phonemes, since the function is the same. This is often called duality of patterning. As in spoken languages, these meaningless units are represented as combinations of features, although often also crude distinctions are made in terms of handshape or handform , orientation , location or place of articulation , movement , and non-manual expression. Common linguistic features of many sign languages are the occurrence of classifiers , a high degree of inflection by means of changes of movement, and a topic-comment syntax. More than spoken languages, sign languages can convey meaning by simultaneous means, e. Though there is still much discussion on the topic of iconicity in sign languages, classifiers are generally considered to be highly iconic, as these complex constructions "function as predicates that may express any or all of the following: Across the field of sign language linguistics the same constructions are also referred with other terms. Today, linguists study sign languages as true languages, part of the field of linguistics. Relationships with spoken languages[edit] Sign language relief sculpture on a stone wall: Instead, sign languages, like all natural languages, are developed by the people who use them, in this case, deaf people, who may have little or no knowledge of any spoken language. As a sign language develops, it sometimes borrows elements from spoken languages, just as all languages borrow from other languages that they are in contact with. Sign languages vary in how and how much they borrow from spoken languages. In many sign languages, a manual alphabet fingerspelling may be used in signed communication to borrow a word from a spoken language, by spelling out the letters. This is most commonly used for proper names of people and places; it is also used in some languages for concepts for which no sign is available at that moment, particularly if the people involved are to some extent bilingual in the spoken language. Fingerspelling can sometimes be a source of new signs, such as initialized signs, in which the handshape represents the first letter of a spoken word with the same meaning. On the whole, though, sign languages are independent of spoken languages and follow their own

paths of development. The grammars of sign languages do not usually resemble those of spoken languages used in the same geographical area; in fact, in terms of syntax, ASL shares more with spoken Japanese than it does with English. South Africa , which has 11 official spoken languages and a similar number of other widely used spoken languages, is a good example of this. It has only one sign language with two variants due to its history of having two major educational institutions for the deaf which have served different geographic areas of the country. Spatial grammar and simultaneity[edit].

Chapter 4 : How do babies acquire language? | Petitto Brain and Language Lab for Neuroimaging

Deaf children in Argentina will be able to enjoy children stories in their natural language: Argentine Sign Language. Our aim is to promote literature from childhood within the deaf community. Most of these children are currently illiterate.

Giving birth to a deaf baby is like a French-speaking mother giving birth to a baby with a genetic evolution to speak Japanese. Deaf children are born to speak a different language in the medium of sign language. Brain-boosted bilingualism or language loss? Which would you rather choose: Or, even better multilingualism or worse language-less? The choice of cochlear implants and speech therapy at the same time forbidding sign language, are a common ideal desire. In reality, the result is a dreadful disaster that many deaf children have language delays and have struggles with language and literacy at later life. ASL speakers, who have been exposed to the signed language at birth or at the earliest time and received good quality bilingual education, are highly successful in education and literacy. But, some were given an opportunity with using sign language. A small number of deaf children also have succeeded speech merely with one hearing aid. Why cochlear implant when a hearing aid can do? Cochlear implants or not. Hearing aids or not. Language is the crucial key. This way the child is guaranteed with either of them: Brain has no preference This fact should bring you a big relief to know. Neuroscience studies Petitto show that ASL activates the same linguistic regions of the left brain as English or any languages. What does it mean? Language is not central to speech. People discriminate, but not our biological human brain. Wary of learning another language? Not everyone is eager to learn another language. On the other hand, those fortunate and blessed ASL-speaking three-year-olds busily argue with parents about where to go, what to eat, wanting to play with certain friends -- as fluently as any English-speaking three-year-olds. Even my hearing 2. So, you both can learn the language together from scratch and keep it up with your child who will acquire much naturally and more quickly than you. But, your child would be forever grateful to you, as I have commonly heard from ASL-speaking people whose hearing parents decide to learn the signed language. They said they are blessed, deeply grateful, and so lucky. Brain says the same thing again Studies show that children whether hearing or deaf exposed to sign language undergo the same language development milestones as children exposed to speech language -- from babbling to a one-word stage to a two-word stage. Then they can acquire English at least, written if not spoken as a second language in the same way hearing children acquire English as a second language. Published online, July Recommended further reading Harlane Lane, et al. Harlane Lane, et al. Look at Swedish model of deaf education in Sweden. It is one of the few best programs and most successes in Deaf education. Disabling the Deaf community. The importance of early language access for children who are deaf or hard of hearing.

Chapter 5 : Sign language - Wikipedia

In order to give knowledgeable advice in this regard, schools and continuing education programs for health professionals should include courses on language acquisition for deaf children as well as the status of sign language as a natural language and Deaf communities as rich in culture and history which a family can look forward to exploring.

Teaching a Deaf Child to Read and Write By Emily Loveless When teaching a hearing child and a deaf child to read, a person will have to take two very different approaches beginning the process. The best way to teach a deaf child to read is using the bilingual approach. Being able to read and write is very important to a deaf person. Many deaf adults communicate with people who are unable to sign by writing notes back and forth to each other. How are they supposed to communicate with people that can hear if they cannot read or write? One should not forget they need to read and write for all the same reasons that people that hearing people do. It is harder to get far and be successful in life if one is unable to read and write. How is teaching a deaf child and a child that can hear different? The approach with children that can hear is using phonetics. The communication of meaning through a sequence of speech sounds involves the following: First of all, a speaker encodes meaning into sounds, which he or she produces using the tongue, lips, and other articulatory organs. These sounds are transmitted through the air to reach the hearer. A hearing child will take the letters in the word and sound them out to make a word. They will figure out what the word is, once they sound the word out. A deaf child cannot do this. Since the deaf child cannot hear, parents and teachers need to take a whole different approach when teaching a deaf child to read. The very first thing that a deaf child needs in order to be successful is a language. They need to be fluent in a language. If a child does not understand what a person is talking about, then how is the child supposed to learn. It is easiest to teach a child something in the language that they are fluent in. If a child barely knows how to speak German and a person is trying to introduce a new complex concept to them, how will it turn out? That person will, most likely, be wasting their time. Deaf children, whose parents are fluent in ASL, acquire ASL as a first language through natural, ongoing communication at home with their family members. A deaf child needs to be exposed to American Sign Language as much as possible. There are a few deaf children that become deaf at an earlier age who are able to pick up on lip reading, but the majority of deaf children are not successful at lip reading or at speech. Knowing this, one would think that education would change, and schools would start teaching deaf children how to sign, but instead we prohibit sign language in the classrooms. I have seen kids start to sign when doing math or something, and the teachers stop them from signing. A lot of teachers, themselves, do not know sign language, let alone American Sign Language. A bilingual program is a program that focuses on American Sign Language as the natural language of the deaf. This is the language that they communicate in. But by no means do they ignore English. Bilingual programs focus on English in its written form. These schools believe that English is very important for deaf to learn, but American Sign Language is an equal to English. They teach English literacy through American Sign Language. English was never ignored in teaching deaf children in any of the grades. The teachers read the stories to the children; they signed the stories in American Sign Language, not in English word order. They got the meaning of what the story was talking about and then signed the sentence in ASL. Then children were asked to read stories to their peers. They did this by one sentence at a time. They read the sentence, got the meaning of the sentence and then signed it in ASL. This way the children understood what was actually happening in the story. The study showed that children who had Deaf parents who used ASL at home, did better with reading and writing. Deaf children whose parents could hear and did not use ASL on a regular basis struggled with reading and writing. They could not focus on English as much as they wanted to, until the child could master ASL. This is a very important concept. Deaf children need to see it in ASL, showing them that this sentence is actually making a meaning of something. But then show on the paper the written words, showing the child where they got that information. Now, one would have the subject and where it is. What is the duck doing? Show the child that the duck is swimming in the pool. He is not going to swim, he is not finished swimming, but the duck is swimming right now. After that process, one would need to sign it in ASL again. That is an example of going between the two languages,

and connecting them together. Repetition and committing basic words to memory is the key to reading success for any child and deaf children are no different in that manner. I think this is the best way to teach a deaf child to learn to read and write. A deaf child needs ASL, before anything else, to be successful at reading. Yes, there are some exceptions on lipreading and children learning to read and write, but to reach the most amount of deaf children, and not take a chance, a deaf child needs American Sign Language to be able to be successful in school and everyday life. In my opinion, and studies have shown, the best way to do this is by using the bilingual approach. Works Cited Bailes, Cynthia Neese. Bridging Paths to Literacy. Gallaudet University Press, Christensen, Li-Rong Lilly Cheng.

Chapter 6 : Language acquisition by deaf children | Revolv

Deaf children acquiring signed languages do so without any modification, loss, or delay to the timing, content, and maturational course associated with reaching all linguistic milestones observed in spoken theinnatdunvilla.coming at birth, and continuing through age 3 and beyond, speaking and signing children exhibit the identical stages of language.

After 2 years, Marie agreed to take on the full-time position of Bilingual Bicultural Coordinator, which she held from In , James Cummins predicted that proficiency in a first language would correlate to competence in a second language because a single cognitive process underlies language acquisition for both languages. After decades of using the oral method of education, some advocates sought a new method for teaching deaf students. After the perceived failure of Manually Coded English systems, some educators began using the bilingualâ€”bicultural model. Deaf children with hearing parents, whether they were educated using spoken English or ASL, showed delays in two ToM tasks, false beliefs and knowledge states. The primary cause of delays in theory of mind is the lack of access to conversations in the environmental, opportunities for incidental learning, and the difficulty in communicating about daily routines. Those create challenges in discussing thoughts, beliefs and intentions among deaf children lacking language. Evidence have suggested that there is a correlation between having a strong theory of mind and a strong language foundation. It can be argued that the Bi-Bi approach provides deaf children with optimal access to language to support typical socio-emotional development. Deaf children use sign to express themselves, discuss events, ask questions, and refer to things in their settings, just as hearing children use spoken language. Sweden passed a law in that mandated bilingualism as a goal of deaf education. Denmark recognized sign language as an equal language and espoused sign language as the primary method of instruction in schools for the deaf in Topics in Language Disorders: Journal of Deaf Studies and Deaf Education. Journal of Youth and Adolescence. Review of Educational Research. Play and its role in the mental development of the child. Soviet Psychology, 5 3 , Play, dreams and imitation in childhood. A Study of Deaf Children". Deafness, conversation and theory of mind. Insights into a theory of mind from deafness and autism. From gestures and vocalizations to signs and words. Istituto di Psicologia CNR Language development in children who are deaf: Journal of School Psychology. Education Resources Information Center.

Chapter 7 : The Importance of Early Exposure to American Sign Language with Deaf Children | Signing Sa

English-based signing systems (like SEE) were developed on the assumption that they would help deaf children learn to read English, but there is little evidence that they work any better than American Sign Language (ASL), which is a natural language (rather than an artificial sign system) but does not easily map onto English.

Sign languages are as different, and as specific to their communities, as spoken languages. They are, in fact, true natural human languages—a relatively recently discovered fact with crucial implications for the education of deaf children, say cognitive neuroscientist Daphne Bavelier and her colleagues. Each year in America, some 8, children are born deaf or hard-of-hearing. How will they learn to communicate—and at what pace, with what success, and with what implications for later education? New systems and technology offer deaf children some additional alternatives, but now research on the nature of language and how the brain acquires it is compelling a second look at the critical advantages of sign language. Three University of Rochester neuroscientists ask: What are the implications for the 90 percent of deaf children born into settings where signing is not used? All spoken languages draw their sounds from a small subset of the possible sounds humans can produce. All combine these sounds in sequences to form words, phrases, and sentences. In every culture, there are words for a similar set of concrete and abstract concepts that refer to objects and actions. Children are equally capable of learning any language. Barring drastically adverse circumstances, they acquire their native tongue on a similar timetable, regardless of culture or family circumstances. When incapable of hearing or speaking—for example, when born deaf, in impossibly noisy environments, or in cultures where long periods of silence are imposed as in certain aboriginal cultures when a woman is widowed—humans readily develop sign languages, using their hands and eyes to express themselves. Only in recent decades have we learned that these sign languages are truly natural human languages. They are learned by infants in similar ways and there are many commonalities and some provocative differences in how the brain processes them. As we shall see, the left hemisphere of the brain, in particular the left perisylvian cortex, appears to be the agent for this human specialization for language, spoken or signed. No other species possesses a natural language. Animals do communicate, but their systems do not rely on principles for ordering and combining words or elements, and despite some publicity to the contrary animals reared in human families do not appear to be capable of readily acquiring a human language, even when signed language is used. Special, shared abilities for complex communication are unique to our species. What has become increasingly clear from studying the characteristics of natural languages, spoken or signed, and how the brain processes them, is the critical importance of providing even the youngest deaf children with access to a natural language. Two such systems created for the deaf community are Cued Speech and Signed English. We are now discovering, however, that these systems, unlike sign languages, do not provide adequate natural language input for deaf children. What has become increasingly clear from studying the characteristics natural languages, spoken or signed, and how the brain processes them, is the critical importance of providing even the youngest deaf children with access to a natural language. Perhaps the most thoroughly studied natural system is American Sign Language ASL, the visual-gestural language predominant in the deaf community of the United States and other parts of North America. Although its regional distribution overlaps that of the English-speaking community, ASL bears no resemblance to spoken English. It is not some kind of translation or awkward representation of English; nor is it pantomime. During the last 20 years, linguists have shown that sign languages exhibit all the grammatical characteristics of spoken languages, including phonology, morphology, and syntax. As the pioneering work of William Stokoe, Ursulla Bellugi, and Ed Klima initially showed, signs are not icons or global wholes but rather, like speech, are created by combining basic phonological units. In speech, these units are formed by the placement of the tongue in the mouth or by the shape of the lips. In ASL, the hands are the medium for the three basic phonological units: Signs, like speech, are created by combining basic phonological units. Courtesy of Ted Supalla As in spoken languages, these phonological units are constrained in ways that differ from one sign language to another. By linking the parts, signs are built, just as words in an oral language are created by linking sounds. Also, as in spoken languages, the basic classes of

words, including nouns, verbs, adjectives, pronouns, and adverbs, are combined to form sentences. ASL has what linguists call a basic Subject-Verb-Object word order sign order that can be used to indicate who is doing what to whom. However in contrast to English, ASL also has other means of indicating who is doing what to whom, thanks to its complex morphology. Morphology is the system for forming or altering words in a language. In ASL, the marking is done through gesture. The richness of ASL morphology, though, is apparent in the structure of its verbs. Typical ASL verbs are marked for agreement in person and number with both subject and object, as well as for timing of the action completed or ongoing, occurring once or habitually and other grammatical features common to verbs in many spoken languages. As in spoken language with complex morphology, when verbs are marked for subject and object, word order in ASL is relatively free. Navajo has a similar structure. In contrast, in English this same event requires a to word sentence, but each word has only one or two meaningful parts. Languages of the world vary in how they construct such expressions, and ASL falls within the usual types of variation. The basic Subject-Verb-Object order of ASL is not required when the signer marks the subject, object, or verb phrase as the topic of the sentence. In these constructions, the topic phrase is moved to the beginning of the sentence and is marked by a special facial expression. This is a particularly intriguing property of sign languages: Facial expressions, ordinarily used to convey emotion, here become formal grammatical devices. The principles of word and sentence structure are common to both signed and spoken languages. First, because sign languages have nonlinguistic roots in gesture and pantomime, some iconic characteristics remain. One is that the association between a word and its meaning, which is usually arbitrary in spoken languages, is often more evident in sign languages. Although the visual form of such signs resembles their referents in some way, signs, like words, are conventionalized. Also, although some signs have these iconic features, most signs are arbitrary. An important note here is that studies of sign perception, memory, and acquisition show that iconic and arbitrary signs are processed similarly by the brain, which focuses on the form and structure rather than any iconic meaning. Sign languages also differ from spoken languages in certain ways that result from being gestured and seen instead of spoken and heard. Each medium offers different capabilities. Of course, separate signs are articulated in sequence, just as words are in spoken languages. Many ASL signs, however, consist of elements combined with one another simultaneously, or even nested inside one another. Few signs show elements combined in linear sequence, which is common in spoken languages like English. But in ASL verbs of motion, the shape of the hand is one morpheme while its path of movement is another; these two are articulated simultaneously. Signed and spoken languages have these strikingly different physical representations, but, as noted above, their grammatical properties are surprisingly similar. By 20 weeks, vocalizations begin to include more consonant sounds, a stage called babbling. While initially these vocalizations are similar around the world, by the time babies are 8 to 10 months of age the sounds resemble the narrower range of sounds used in the surrounding language. Sometime during the second year, vocabulary grows dramatically for both hearing and deaf infants. Short two-word sentences display considerable control over the structure of the language being articulated. As do their speaking counterparts, young signers go through a two-sign sentence stage, in which they display the full range of childhood semantic relations and use word order to express subjects and objects. Thus, as is the case in young speakers, young signers do not merely mimic the language they are absorbing. Questions, negation, passive, and other grammatical constructions are acquired at this time. Similar patterns of development can be observed in the acquisition of ASL. Indeed, across all natural languages, spoken or signed, a similar pattern of acquisition occurs. For languages with simple morphology, this last stage is reached around three to four years of age; for languages with complex morphology like ASL, Russian, or Navajo, errors on some idiosyncratic morphemes continue as late as age seven or eight. Noninvasive brain-imaging techniques that have become common during the past decade open a new window on the neural bases of language-processing in adults. Soon we may be able to see how neural control and the representation of language develop and change in infants and children. The origin of this left-hemisphere specialization for language is unknown. One hypothesis is that specialization has evolved to enable humans to control the sophisticated motor movements required to speak, as well as the auditory ability to perceive what is spoken. This hypothesis is consistent with the fact that the temporal and frontal areas of the left hemisphere appear to be specialized for processing and

producing speech sounds. An alternative hypothesis is that these brain specializations are involved in processing the grammatical structures of natural languages. In this view, these brain areas should be recruited in the processing of all natural languages, whether or not they are spoken. Studying signed languages offers a singular perspective on these questions. As we have seen, signed languages require structured grammatical processing but involve visual perception of signs. These results are consistent, as well, with evidence from deaf stroke patients. This would support the hypothesis that certain regions of the perisylvian cortex in the left hemisphere do indeed mediate the processing of grammatical aspects of natural languages, regardless of their modality. At the same time, there are fairly predictable differences in how the brain processes spoken versus signed languages. Does this suggest that signed language is less lateralized to the left hemisphere because the left hemisphere possesses an innate specialization for processing auditory language? Alternatively, the processing of visual gestures may impose additional demands on the brain, requiring the participation of more cortical regions than does the processing of auditory speech signals. This suggests that the symmetry is not simply or solely the result of greater sensory demands during sign processing. These are provocative questions, but because the ASL materials used in this study were fairly complex, further investigation is needed to pinpoint the particular aspects of sign language that are activating various regions of the cortex. Typically, these devised communication systems must be explicitly taught, involving many hours of practice and feedback; they do not develop naturally or easily among users. Speech-reading lip-reading is one such devised system, but there are others: Cued Speech, Signed English, and several versions of Manually Coded English that rely on invented signs to represent English grammatical features. Because devised systems are invented by individuals rather than arising spontaneously among users, they do not exemplify the unfettered natural tendencies of humans to develop gestural languages. In fact, the devised systems studied by linguists have been found to violate the universal structural principles of both spoken and signed natural languages—even when the system was intended to match a particular spoken language. Is this because the inventors were unfamiliar with linguistic principles and so created their systems without considering the implicit constraints and pressures of the circumstances in which natural languages evolve? Whatever the case, children do not readily learn these devised systems. We know something about how the brain processes these devised systems. While natural sign languages recruit the usual left-hemisphere language regions in native signers, the devised system of lip-reading leads to a rather anomalous pattern of brain activation in congenitally deaf people. In contrast, hearing individuals asked to lip-read displayed robust activation of the left hemisphere. These results point to the conclusion that, when they process English visually, the deaf may not rely on the same brain systems as do hearing native speakers. Although no brain imaging studies have investigated the neural bases of Manually Coded English, it would not be surprising if, as with the results reported for the lip-reading system, it turns out that these devised systems do not rely on the typical left-hemisphere language brain structures.

Chapter 8 : Sign language demanded for deaf students | The Japan Times

The National Association of the Deaf asserts that the right to a natural, visual language is a human right of all deaf and hard of hearing children. Sources and Citations Note: Research, key concepts, and, even text was drawn from many sources.

Some hearing parents may be concerned their own signing skills are not good enough to model as a communication input for their children. Learning ASL and using it with your child is a great way to communicate with them, increase bonding, and help them learn ASL, but there are several factors involved. The deaf students who perform best academically usually are the ones whose parents have effectively communicated with them from an early age. The culture and peer groups children are exposed to play an important role. Being exposed to a diverse set of signers, of different ages and abilities, is also helpful. Maybe we should just focus on one language to start. There is a misconceived fear that teaching babies more than one language too early may cause language delays or language confusion or that the child may never be as competent in either of the languages as a monolingual child is in one. In fact, research shows babies know that they are acquiring two distinct languages and are able to learn them without language delay or language confusion. Bilingual babies are able to reach the classic language milestones on a similar timetable as monolingual babies, such as when they say their first word, when they can say their first fifty words, and when they say their first two-word combinations. There are a few differences though. Early exposure of both languages is what is best for the child and will help the child to reach fullest mastery in each of the languages. There are both linguistic and cognitive advantages to being bilingual. Learning both ASL and English from an early age will help the child to reach fluency in both languages. The best time to start learning language is now. Cognitive and Linguistic Processing in the Bilingual Mind. *Current Directions in Psychological Science*, 19 1 , Bilingualism as a protection against the onset of symptoms of dementia. *Bilingualism, aging, and cognitive control: Evidence from the Simon task. Psychology and Aging*, 19, *Journal of Speech, Language, and Hearing Research*, 20, American Sign Language syntactic and narrative comprehension in skilled and less skilled readers: Bilingual and bimodal evidence for the linguistic basis of reading. *Applied Psycholinguistics*, 29 3 , Why sign with deaf babies? Unimodal and Bimodal [Video Lecture]. The effects of audibility and novel word learning ability on vocabulary level in children with cochlear implants. An introduction to bilingual development. Research findings at NTID. Retrieved from <https://> Preference for language in early infancy: *Developmental Science*, 11 1 , The linguistic genius of babies [Video file]. *Biological Foundations of Language. Early language acquisition and adult language ability: What sign language reveals about the critical period for language. Doctoral dissertation, University of California, Berkeley. Chasing the Mythical Ten Percent: Sign Language Studies*, 4 2 , Lawrence Erlbaum Associates, Publishers. Nicaraguan Sign Language and Theory of Mind: *The Journal of Child Psychology and Psychiatry*, 47 8 , The structuring of language: Clues from the acquisition of signed and spoken language. Signed and spoken language: Biological constraints on linguistic form. Recognition of signed and spoken language: Different sensory inputs, the same segmentation procedure. *Journal of Memory and Language*, 62 3 , Evaluating attributions of delay and confusion in young bilinguals: Special insights from infants acquiring a signed and a spoken language. *Sign Language Studies*, 3 1 , Human Nature and the blank slate [Video file]. Some aspects of the verb system in the language of deaf students. *Journal of Speech and Hearing Research*, 19 3 , Institutionalization and psycho-educational development of deaf children. Council for Exceptional Children. Language and cognition in deaf children. When learners surpass their models: The acquisition of American Sign Language from inconsistent input. *Cognitive psychology*, 49 4 , A study of the educational achievement of deaf children of deaf parents. *California News*, 80 A study of the relationship between American Sign Language and English literacy. *Journal of Deaf Studies and Deaf Education*, 2 1 , The influence of early manual communication on the linguistic development of deaf children: *American Annals of the Deaf. American Annals of the Deaf*, 5 , The use of ASL to support the development of English and literacy. *Journal of deaf studies and deaf education*, 5 1 , Theory of mind in deaf children. *Child development*, 73 3 , Early vocabulary development in

deaf native signers: A British Sign Language adaptation of the communicative development inventories.
Journal of Child Psychology and Psychiatry, 51 3 ,

Chapter 9 : Language acquisition rights for deaf children

For example, deaf children learning sign language try to express the system that results is a manual code for a spoken language, rather than a natural sign.

Close Position Statement On Early Cognitive and Language Development and Education of Deaf and Hard of Hearing Children Context Requiring Action Young deaf and hard of hearing children continue to experience delayed cognitive and language development in early childhood that lead to academic difficulties and underperformance when they begin schooling. Despite the good intentions of government, schools, and professionals, this condition persists, resulting in significant under-education and underemployment for persons who are deaf or hard of hearing. The effects of early language deprivation or limited exposure to language due to not having sufficient access to spoken language or sign language are often so severe as to result in serious health, education and quality of life issues for these children. Position on Early Childhood Development and Education for Deaf and Hard of Hearing Children The period from birth to 2 is a critical time for the acquisition of language and cognition for all children, and this period of time is often when deaf and hard of hearing children are deprived of processes that promote healthy language development Humphries et al. Until recently, the view of those in science, society, and education has been that these children will be severely disadvantaged because they lack access to auditory input and therefore auditory language exposure, even if deficient, is the best pathway to resolve this disadvantage. Signed or visual languages are naturally evolved languages of which there are many throughout the world. ASL is the signed or visual language that is prevalent in the United States and is the subject of much of the research discussed in this paper. During this period of early life, many deaf and hard of hearing children are, sometimes unintentionally and unknowingly, unable to access the language of their families or peers because this language is not in a visual form. In the absence of a visual language such as American Sign Language ASL , the risk of harm from language deprivation is heightened and their cognitive capacities are reduced. Language deprivation is the harm that results when a child does not receive sufficient language input to acquire or learn any language or readily develop cognitive capabilities. The presence of a signed language from birth greatly reduces this risk of harm Humphries et al. Studies have shown that early exposure to visual language changes visual processing and heightens skills in joint-attention. Children with early exposure to sign language frequently shift eye gaze, which leads to early vocabulary development. These studies, among others, show that by the age of 4, deaf children who use ASL are able to self-regulate attention to a visual language. Their self-regulation is achieved by careful and constant orchestration of visual gaze and engagement on the part of the adult, especially in contexts involving competing visual input such as book sharing. Early visual skills, particularly the ability to quickly find a picture in an array, predict later reading performance Fernald, It appears that visual learning, which develops along with visual language, is crucial in this correlation. Unlike hearing children, object exploration and receiving caregiver linguistic input in deaf children requires sequential or alternation of gaze, which can be hypothesized to be a more demanding type of visual attention. Managing divided visual attention between signed language input and English print on the page has long been thought to be a particularly effective bilingual strategy of deaf signing mothers with their deaf babies. The persistence of belief that reading a spoken language like English must logically require awareness of phonological coding of English has distracted from consideration in deaf education of the possibility that there are other efficient pathways for deaf children in learning to read. In a meta-analysis of research studies examining spoken language phonological coding abilities in deaf students educated in a variety of communication modes i. Specifically, they found two factors correlated with reading achievement: ASL fluency and exposure to print. However, the correlation between print exposure and literacy only holds when in the presence of ASL fluency. While spoken language phonological coding may not predict reading ability very well in deaf children, signed language phonological coding is a stronger factor in development of reading ability. These findings suggest that an emphasis on visual language development activities as a path to successful reading acquisition may serve as a better model of literacy development for deaf children. Importantly, use of sign language from an

early age does not inhibit the motivation and interest in the learning of speech Swanwick, A study of six bilingual children found that both a baby girl acquiring spoken French and English simultaneously and a baby boy, who was acquiring spoken French and Quebec Sign Language Langue de Signes Quebecoise "LSQ", achieved classic linguistic milestones and exhibited patterns of lexical growth that were consistent with monolingual norms L. Yet another study concluded that young bilinguals were not delayed in the achievement of early language milestones in either of their respective native languages. This finding indicates that both modalities are viable pathways for language acquisition. Moreover, research studies emphasize the importance of fingerspelling for reading. These studies suggest that: Learning to read and write English remains an important educational component for deaf children, and fluency in ASL is linked to literacy and their linguistic, cognitive, and cultural development. When controlled for other factors, these studies and others showed that fluency in ASL predicts reading achievement. With the link between ASL and English literacy, the basis for visual language in the development of literacy in deaf and hard of hearing children is clear. Another source of research support for the importance of visual language and visual learning is suggested by the link between deaf families and English literacy in their children: Hypothesizing that deaf families must be doing something in their daily lives that produces bilinguals able to read and write in English, a number of researchers focused on what happens between signing deaf adults and deaf children in deaf families and communities. These studies identified specific cultural practices and the ways that deaf people link ASL and English in everyday lives, such as: For this reason, early childhood is a crucial point in the education of deaf children. It is here that support for families and support for the child between home and school begins. It begins with clarifying whole-child development to parents—including language both ASL and English, social, cultural, literacy, and behavioral development. Listening technology is often beneficial to deaf and hard of hearing children, with augmented hearing aid systems and cochlear implants playing a role in the development of spoken language. However, as discussed earlier, spoken language development can be enhanced if sign language is also present. Hearing aids have been acceptable and effective listening devices and cochlear implants can, in some cases, be important in the development of spoken English. However, these technologies and devices vary greatly in their linguistic benefit to individual deaf and hard of hearing children. Humphries, et al argue that due to a cavalier treatment of the importance of keeping this kind of data on linguistic benefit, only informed estimates can be made. Such informed estimates indicate that no more than 40 percent of deaf and hard of hearing children who have cochlear implants but do not use sign language get a linguistic benefit from the device. Reliance on only spoken language input via cochlear implants may result in linguistic deprivation if sign language is excluded from the environment of the child. Put simply, if the child is only provided linguistic input through speech and hearing and the CI does not provide the child clear and unambiguous access to this input, language learning is compromised. Often medical and audiology professionals counsel parents to deprive deaf and hard of hearing children especially those who are implanted of exposure to sign language input. This advice to parents arises from a profound misunderstanding about languages, language development, and signed languages. This advice often leads to delayed language development and limited communication in the home and educational planning that does not acknowledge that the lack of progress in all areas of the school curriculum. If listening technology and speech are used with deaf and hard of hearing children, it is critical that signing also be used in a bilingual, bimodal environment. Deaf and hard of hearing children like all children have a right to language. Signed language, being a visual language, is the only completely accessible language for these children. Exposure to signed language from the onset is the only way to ensure this right. Language is essential to education and the education of deaf and hard of hearing children is no exception. Sign language is not only a necessity to ensure a normal cognitive development, language acquisition, and future academic success, but it is also shown to be biologically equivalent to spoken language L. Hope for improvement in the education of deaf and hard of hearing children lies in early exposure and development of signed language fluency. To achieve full participation in American life, deaf and hard of hearing children and youth will need two languages, English and ASL. Development of both English and ASL must begin as early as possible for every deaf and hard of hearing child. Required Action Research has shown that thousands of deaf and hard of hearing children are experiencing various levels

of language deprivation, many to an extent that constitutes harm in the form of educational, social-emotional and cognitive delays. For this reason, it is the position of the National Association of the Deaf that an all-out effort needs to be made to ensure that all deaf and hard of hearing children have full and meaningful access to language from birth and the benefit of visual language and visual learning. All institutions and individuals in the health, education, and child care professions need to be educated on the visual language needs of all deaf and hard of hearing children. It is the responsibility of government agencies such as federal and state Departments of Education and Departments of Social Services to develop safeguards to ensure that every deaf and hard of hearing child is progressing on a developmental path commensurate with children who hear. Federal and state health agencies and disease control agencies have a responsibility to recognize the epidemic nature of language deprivation of deaf and hard of hearing children, including therapies and treatments that have unacceptable failure rates and unpredictable results. There must no longer be excessive reliance on hope and tolerance of high risk that are not acceptable in other health and education contexts. The National Association of the Deaf further encourages the development of legislation to ensure age appropriate language acquisition and development in every deaf and hard of hearing child from birth. Laws and regulations that make clear that deaf and hard of hearing children have a right to language from birth through visual language, need to be legislated and enforced. The National Association of the Deaf asserts that the right to a natural, visual language is a human right of all deaf and hard of hearing children. Sources and Citations Note: Research, key concepts, and, even text was drawn from many sources. The citations made are selected ones, there are many others that are equally supportive of the positions taken in this position paper. Normative Data for American Sign Language. *Journal of Deaf Studies and Deaf Education*, 7 2 , Evidence of a bilingual reading advantage in children in bilingual schools from English-only homes. *Bilingual Research Journal*, 36 1 , Cognitive complexity and attentional control in the bilingual mind. *Child Development*, 70, Psychological Science in the Public Interest, 10 3 , A set of deaf parents and their deaf daughter. Theorizing about the relationship between ASL and reading. American Sign Language syntactic and narrative comprehension in skilled and less skilled readers: Bilingual and bimodal evidence for the linguistic basis of reading. *Applied Psycholinguistics* 29 , The Revolution at Gallaudet University. Developmental social cognitive neuroscience: *Child Development*, 80 4 , *Journal of Deaf Studies and Deaf Education*, 18 4 , Teacher practices for promoting visual engagement of deaf children in a bilingual school. Spoken English language development among native signing children with cochlear implants. *Journal of Deaf Studies and Deaf Education*, 19 2 , Phonological coding in word reading: Evidence from hearing and deaf readers. Visual attention in deaf and hearing infants: *Journal of Child Psychology and Psychiatry*, 46 10 , Foundations and Outcomes pp. English reading achievement and ASL skills in deaf students. Paper presented at the The 21st annual Boston University conference on language development.