



USING SIGN TO FACILITATE ORAL LANGUAGE: BUILDING A CASE WITH PARENTS

Today's Agenda

1. So, what's the problem?
(How do we help parents understand our rationale for using sign to promote oral language?)
2. Five good reasons to use sign to facilitate oral language
 - Typical children learn signs before words
 - Gestures help establish social skills
 - Gestures help establish cognitive skills
 - Our brains process sign better
 - Empirical evidence
3. Important Pre-requisites/Caveats

Reason #1

Virtually all children who are learning to talk use gestures before they use spoken words.

- Language comes in three modes: Gestural, Oral, and Written
- We learn to use these modes in this order!
- First, children use gestures to communicate their wants and needs, then they learn to use words to represent the meaning behind the gesture.
- Eventually, they learn to represent the meaning of the gestures with a spoken word
- The ability to purposefully communicate develops around 6 months – long before children have developed the muscular control to produce oral speech.
- So, babies use gestures to communicate their wants and needs.
- Producing gestures only requires control of larger muscle masses – such as hands and fingers – in comparison to the substantially more refined movements necessary for oral language.
- Typically developing children eventually learn to map orally produced words over the meanings they have learned to express through gesture.

Reason #2

Gestures/sign help establish critical social skills for communication

- Early gestures help babies connect with their environment and develop important means-end relationships and social skills even before they can produce words.
- So, children wave bye-bye, hold up their arms to be picked up, and point to objects they want and need.
- When adults respond to these gestures, children learn they can control their environment through communication.
- This acts as a powerful catalyst to continue to communicate with others.

- Child raises arms to be picked up.
- Adult picks up the child.
- Child learns that he/she can control his/her environment.
- Child learns that deliberate actions on their part can shape the behaviors of others to meet their needs and wants.
- Child more easily maps oral word onto the communicative function previously expressed only through gesture.

- Child learns that using the sign for “more” has the power to make “more” of the desired object appear.
- Child learns that communication gets results!

- As children learn that their communicative efforts get results, they are much more likely to continue their efforts to communicate with others.
- Alternately, children who do not establish a functional communication system at early stages of development are less and less likely to initiate communicative attempts
- So, the sooner children learn that they can control their world through communication – regardless of the mode – the better!

Reason #3

Gestures/sign help establish critical cognitive skills for communication

Imitation

- One of the cognitive foundations skills for language learning is imitation.
- Signs are much easier for a child to imitate than words.
- Children who are having difficulty establishing imitation skills can be guided by positioning their hands to produce a sign (obviously this is impossible to achieve in the oral mode).
- Children can compare their gestural attempts to adult gestures much more easily than comparing word attempts to adult words.
- Once gestural imitation is mastered, children have the foundation skills necessary to move onto the more demanding skill of oral imitation.

Symbolic Function

- Another critical cognitive prerequisite to language development is symbolic function – the ability to understand that one thing can stand for (represent) another.
- Words are symbols for their referents. Gestures are too!

Reason #4

Children's brains process gestures and signs more efficiently than words

Information Processing Theory

- For many children, their difficulty learning oral language is related to a reduced capacity and function of their working memory.
- This makes it difficult for children to retain a spoken word long enough to process it and relate it to a given concept (that is, they “forget” it as soon as they hear it).
- We can compensate for this by continuing to provide the spoken stimuli (saying the word over and over again) OR
- We can show the child a sign and hold it for as long as it takes for the child to process it and move it into long term memory.
- Sign provides a “static, visual- spatial version of what is otherwise a rapidly changing auditory-temporal event” (Johnston, 2006).
- The stable nature of signs helps children identify and learn them much more easily than words.

More support from the brain

- Sign stimulates both visual and auditory neural pathways in the cerebral cortex of the brain.

- Visual cortex matures faster than the auditory cortex.
- Spoken language uses only hearing pathways.
- Sign stimulates both hemispheres, oral language primarily stimulates only the left hemisphere.

Bottom Line is...

- Language input that is paired with a gesture has the potential to facilitate language development that is faster, more organized, and more durable.

Reason #5

Studies have proven that using sign to help children learn to talk is beneficial

Goodwyn et al. (2000)

- Longitudinal study involving 103 infants -11 months old at the start of the study.
- Divided into 3 groups:
 - Sign Training (parents taught methods for using symbolic gestures paired with oral language input)
 - Verbal Training (parents encourage to promote oral language by labeling in context)
 - Control Group (no specific parent training and parents kept blind as to the focus of the study)
- Parents in intervention groups were given books that contained pictures of the words or gestures targeted.
- Retested at intervals until 36 months of age.
- Children in Verbal Training did NOT show higher language scores at any interval than children in control group.
- Children in Sign Training group did demonstrate higher scores – particularly in the second year.
- Statistically significant differences were noted in expressive and receptive vocabulary as well as for syntax.
- Instead of interfering with language development, use of gestures appeared to accelerate language growth.

Daniels (1996)

- Primary school-aged children were divided into two groups.
- The group that was taught using sign and oral language and greater vocabulary development throughout the school year and
- Showed more retention of the vocabulary than those who did not receive instruction in sign

Robertson & Weiskerger

- Two late talking toddlers with very limited oral vocabulary were exposed to two separate lists of new vocabulary.
- Utilized a single-subject, alternating treatments design.
- One list of words was introduced using verbal modeling only (VM) and the second used both verbal modeling and sign (VM+S)

- Children learned to produce words learned in both conditions, however
- They learned more words in the VM+S condition and
- Learned them at a more rapid rate.
- Children learned to say all ten of the new words presented using verbal modeling plus sign over the six week study.
- Children learned 5 and 6 words, respectively, in the VM condition.

Special Considerations

There are a number of pre-requisite skills that must be present in order for sign to be introduced

Communicative Intent

- Typically developing children become intentional around 6 months.
- This is demonstrated by behaviors such as deliberate eye contact, use of gestures, and persistence in trying to communicate.
- Children must have developed intentionality in order to benefit from the use of sign to support communication development.

Symbolic Function

- A child who has developed symbolic function understands that one thing can stand for another.
- This is demonstrated in play such as when a child uses a block to stand in for a car – or a truck – or a telephone!
- Language is symbolic in all modes – gestural, oral, and written.
- In each case, the symbol stands for the real object or concept.

Joint Attention Capabilities

- Joint attending is when a child and their communicative partner are paying attention to the same thing.
- For example, parent and child look at a book together and talk about the pictures.
- Children who are unwilling or unable to participate in joint attending will most likely not benefit from teaching sign

Basic Social Skills

- Eye contact and a desire and ability to participate with others in social settings is critical.
- Children who actively resist communication and eye contact may not be good candidates for this type of intervention.

Summary

- It can be challenging to convince parents that using sign can support the development of oral language for their children.

- However, there is support available from a number of different theoretical and empirical sources to help parents better understand our rationale for adding sign to a child's treatment protocol.
- Sharing this information with parents can facilitate the development of a more collaborative

INTRODUCTION

Professionals who work with children with linguistic deficits often incorporate sign language into their intervention protocols to facilitate the development of expressive oral language skills. Support for this practice is generally drawn from a theoretical base that views language as a symbolic system that included three distinct but interrelated modes – oral, gestural, and written.

While non-empirical and anecdotal evidence describe the positive effects of utilizing the earlier-developing gestural mode to facilitate the development of the oral mode in children with linguistic deficits, empirical support for this practice is not yet evident in the current literature base .

The purpose of the current study was to compare the effects of a traditional verbal modeling (VM) intervention technique, delivered using a focused stimulation paradigm, to that of verbal modeling accompanied by a manual sign (VM+S) on the expressive oral vocabulary of two late talker in terms of both treatment efficacy and efficiency.

METHOD

- A single-case, alternating treatments design was utilized across participants.
- Two male toddlers (P-I and P-II), aged 25 and 31 months at the beginning of treatment participated in the investigation
- Both children were identified as “late talkers” based on their restricted productive vocabulary in relationship to typical development in receptive language, nonverbal cognition, and social skills.

Session	1	2	3	4	5	6	7	8	9	10	11	12	13
Treatment	B	B	B	T1	T2	T2	T1	T2	T1	T1	T2	T1	T2
Word List				X	Y	Y	X	Y	X	X	Y	X	Y
Probe	Z	Z	Z	X	Y	Y	X	Y	X	X	Y	X	Y
				Z	Z	Z	Z	Z	Z	Z	Z	Z	Z

B = baseline measures
 T1 = verbal modeling alone
 T2 = verbal modeling + sign language used simultaneously
 X = verbal modeling target word list (VM)

Three baseline sessions were followed by 10 treatment sessions randomly assigned to either the VM or VM+S condition. During each treatment session the children were provided models of the ten target words in that condition through focused stimulation and the appropriate assigned treatment method (VM or VM+S).

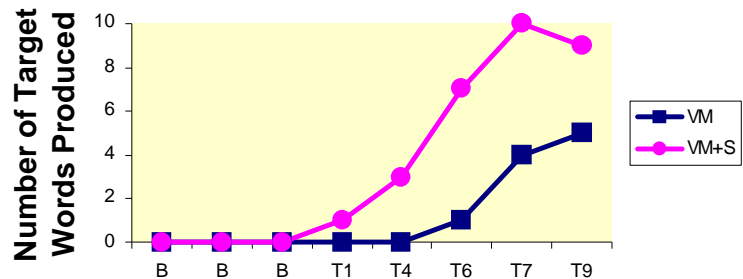
To control for the effects of spontaneous language development due to maturation, two control words were not modeled during either treatment condition. Toys and play activities that supported the use of the target vocabulary were employed to facilitate the intervention and provide a natural context for learning. Following each treatment session, probes were used to elicit production of the targeted words and the control words.

Twenty-two words target words that were not in the either child’s expressive vocabulary were assigned to either the verbal modeling target list or the verbal modeling plus sign target list – plus two control words. The lists were counterbalanced for phonological and lexical difficulty to ensure equivalency.

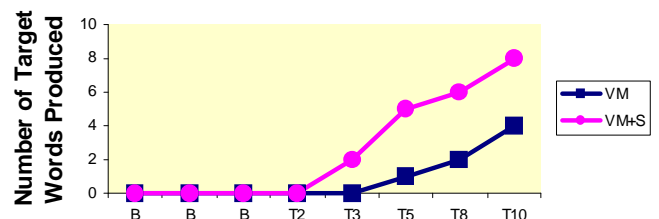
RESULTS

Results suggest that both children learned the words more quickly (efficiency) and learned more words over the course of the intervention (efficacy) in the VM+S treatment condition compared to the VM condition. These results provide preliminary empirical data to support the growing use of sign as an add-on component of intervention for children with delays in the linguistic domain. In addition, positive gains in overall expressive vocabulary, social skills, and utterance length and complexity were noted for both children, but not tested empirically.

Results for P-I



Results for P-II



Sign? But I want my child to talk!

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Chances are if you are reading this article, it is because your child has not developed oral language skills as quickly as his or her age-mates – or perhaps not at all. And now, your child's speech-language pathologist has suggested that using gestures, or sign, to communicate with your child, and to encourage him or her to be communicative with others, is an appropriate first step in his or her treatment plan.

This can be very scary to some parents who, obviously, want to give their child every chance, and every reason, to talk. In fact, you may be thinking that if your child learns to sign, he or she will be less likely to talk. You may also be confused about why your child's teachers would use sign since his or her ability to hear sounds is not a problem.

These kinds of concerns are very common. However, they are also unfounded. In fact, using sign to help your child learn to communicate is one of the best – and fastest – ways to help teach your child to use oral language! This article is provided to help you understand the reasons for using sign with your hearing child and to provide you with additional resources you can explore to find out more.

Reason #1 All children who are learning to talk use gestures before they use words.

Language comes in 3 modes or methods to communicate. Gestural (signs), Oral (words), and Written (reading and writing). Typically developing children learn to use these modes in this order. First, they use gestures, then they learn to represent these gestures with an oral word. Eventually, most children will learn to represent the oral word with a written one.

Most of the time, we don't consciously teach babies to use specific gestures. But, babies are interested in communicating with us long before their oral muscles are coordinated enough to produce words. Fortunately, producing gestures only requires control of larger muscle masses – such as hands and fingers – in comparison to the substantially more refined movements necessary for oral language. So, babies use gestures to get their message across!

Babies put their hands over their heads when they want to be picked up, they point to things they want, they wave bye-bye and blow kisses. Each of these gestures are very effective in communicative what they want to others. Eventually, babies learn to say “up” and “cookie” and “bye-bye” and “I love you.”

Still worried that a child might not be motivated to talk if he or she has learned to communicate through sign? Hmmmm...just because you learned to speak, did that stop you from learning to write? No. In fact, it helped you learn better and faster! (Think how hard it would be to try to write words if you didn't know how to say them) So, think of sign as the foundation for your child's oral language (and eventually written language) development.

Reason #2: Gestures/sign help establish critical social skills for communication

Early gestures help babies connect with their environment and develop important social relationships even before they can produce words. This is one good reason to teach your child to use sign. We want children who are late to learn oral language to communicate in any way they can. In fact, it is critically important that children learn that they can control their world through their actions in order for language learning to take place.

When adults respond consistently to children's signs or gestures, children learn they can control their environment through communication. For example, a child learns to sign "more" and, upon using the sign, gets more of the desired thing. This acts as a powerful catalyst for children to continue to make an effort to communicate with others in their environment and a positive social spiral is established (this means that successful communication interactions lead to more and more communication attempts by the child). Alternately, children who do not have a functional communication system (in any mode) become less and less likely to engage in communication interactions. A negative communication spiral such as this is detrimental to the development of language in any mode.

As you can see, time is of the essence in helping your child learn the importance of communication. The mode of communication is of small consequence. But, delaying opportunities to engage in communicative interactions can have lasting negative effects. On the other hand, once children get the hang of communication, they usually want more

Reason #3: Gestures/sign help facilitate important cognitive skills to support communication.

Another important foundation for the development of oral language relates to specific cognitive, or thinking, skills. One of these skills is **imitation**. In fact, children must be able to imitate in order to learn to talk. Signs are much easier for children to learn to imitate than words. An adult can actually guide a child's fingers into a position that will imitate a specific sign – something that is impossible to do with spoken words.

Since children are able to see their hands and compare them to someone else's hands, learning to imitate sign is much easier than learning to imitate words. Once imitation is mastered in the gestural mode, children can move toward the much more demanding task of learning to imitate spoken words.

Another critical cognitive prerequisite to language development is termed **symbolic function**. This means that children can understand that one thing can stand for (or represent) another. During play, a block can represent a car, or an airplane, or even a building. Words, too, are symbols that represent specific things and concepts in our world. Gestures are symbols, too! A child who has learned to use a specific sign to represent a word has developed the important skill of symbolic function and is much more ready to apply this knowledge to talking.

Reason #4: Children's brains process sign more efficiently than words

Some researchers have found that, for many children, the difficulty learning oral language is related to having a smaller capacity to hold information in their immediate short term memory (we call it working memory). It's hard for them to hold onto the word and think about its meaning since the sounds "disappear" as soon as the word is said (we call this degradation of the acoustic signal). One way we can help children is to keep saying the word over and over again. ("I see a dog, Do you see the dog? I like dogs. It's a dog. A dog!).

On the other hand, we can hold a gesture or sign for as long as we wish. Rather than having to provide the verbal input over and over again, we can keep our hands in the same position. This way, we can give the child as much time as he or she needs to process the word and link it with whatever concept we are targeting. The stable nature of signs helps children identify and learn them much more easily than words

In addition, oral language relies only on the auditory pathways in the brain. Sign is processed through the visual pathways that develop sooner than auditory pathways. When we talk and sign at the same time (which is almost always the case during intervention), a child can process the information through both channels rather than only one or the other. (We have known for a long time that learning that takes place through multiple pathways is much more effective than using a single sense!) Again, this helps support language learning by making it easier for the child to process the incoming information.

Reason #5 Studies have proven that using sign to help children learn to talk is beneficial.

Need some more proof? How about this. There is not a single study that suggests that sign inhibits the development of oral language in hearing children. In fact, just the opposite is true!

Studies involving teaching sign to young children range from investigations on the effect of signing with infants (babies who were taught sign learned to talk much earlier than babies whose parents did not use sign), toddlers (youngsters who were delayed in learning to talk learned to say words much more quickly and learned more words when sign was used) and school-aged children (students who were taught using sign and oral language learned more vocabulary than children who were not provided with instruction that included sign).

Summary

The use of sign to support the development of oral language for your child is supported in theory, in practice, and in research. The evidence is overwhelmingly in support of the notion that sign has the potential to facilitate oral language development that is faster, more organized, and more durable.

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ASHA Convention, 2007

How can you help? Your efforts in using sign at home can make a big difference in the benefit your child can receive from speech-language intervention. So, jump on in and sign, sign, sign! Your child will eventually thank you (in words!) for it.

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