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BABY STEPS: EARLY LANGUAGE DEVELOPMENT IN ASL

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>> JODEE CRACE: It's 11:00, so we're going to go ahead and get started. We'll start by introducing ourselves in here. Hi, I'm Jodee Crace from Indiana.

>> PAULA PITTMAN: And I'm Paula Pittman from Utah.

>> STACY ABRAMS: I'm Stacy Abrams from the Laurent Clerc center.

>> JODEE CRACE: We'll be taking turns between the three of us. I'm going to start, so please, have a seat. I'll be voicing for myself. It's difficult for me to hear the interpreter or my voice through an interpreter, so I hope everyone is okay with that. So I'm going to switch to my voice now.

Okay. So she's going to be your only speaking presenter today. So thank you for coming. We are excited to be here. Yes. Can't see anything?

So what we want to talk about this morning is the early development of ASL. Some of you may already know what early ASL looks like, what are the stages of development of ASL and some of you are like, I kind of know, but -- all of these videos can be found on YouTube with the exception of one or two of them, and, of course, the presentation will go online and you can go find those links if you want to study. If you get online and look on YouTube, there are a million people who put their babies online, but they don't always label the level of language appropriately, so you know.

What we get asked -- go back. Go back again. Here we go. The three of us, we're a part of the Deaf mentor National Training Team, and as we train people for the programs, we get a lot of the same questions. Some are, do babies who sign babble in sign language? We also hear, do people who babble in signs, can they also babble using speech sounds? Is that possible? Do they do both? Are there rules and structure that must be observed in ASL, and then the developmental milestones, sign language, are they similar to milestones in spoken language. And our answer to that one is yes. To all of them. Yes, yes, and yes, and yes.

So there is a pattern in which early ASL development occurs. It's very similar to the pattern of spoken language. It's just in a manual form. The one thing -- and we'll talk about this again, but the one thing that's really different is babies who are exposed to sign language will use their first word well before a baby who is using just spoken language. I personally in my work with families, I've seen babies use their first sign as young as three months of age, with intent. You'll see babies doing babbling movements, but they're not really intent or a specific word. But as early as three words, they can have a specific sign.

So we're going to show you a little example of that. This is a -- this is a hearing baby, actually, who is using sign language. So I want you to look, as you -- how old do you think that baby is, and do you think she's on age level linguist -- mom is asking for -- and you sign food.

So this is an example of a real home visit. You've got the baby's attention. So how old do you think that baby is when you look at that video?

>> Six months.

>> I would say seven or eight months.

>> JODEE CRACE: Eight-month-old baby there. Does she look typical in her development in every way? Yeah. She's got these little baby signs. She's hearing mom say, sign mommy, sign daddy. She's still using some manual babbling, but she's also using some real words. She knows what some of these real words are. Okay?

Okay. Next slide. So like we just mentioned, in zero to 5 kids, when that early language is occurring, spoken language and sign language look very, very similar -- or very closely milestones are similar, -- different, but they look similar. Auditory, simple cooing and moving into babbling, and we'll show you some specific examples of kids doing that. It's the same with babies who are using visual language. They use the hand shapes or the phonology of ASL. Hearing babies, what are some of their first sounds that they make? Babbling sounds. Ba, ba, ba, ma, ma, ma, and put that together, and so babies who are exposed to fingerspelling or sign language, they'll use hand shapes, those early hand shapes of sign language, just like hearing babies use the early consonants or sounds of spoken language.

There are six of those hand shapes. We don't have them, but I'll show you right now. A five hand shape, a one, an A, an S, a claw, and a baby O. Did I get them all? Okay. And you'll see babies use these in a variety of ways. As they're playing. Doesn't have any meaning, just like, ba, ba, babies who are signing are playing with signs on their hands. If they're exposed to spoken language and ASL, they'll do them both, at the same time, fingerspelling or just movements and then just spoken language.

So one of my favorite experiences in a home visit was a little guy who -- he had CHARGE syndrome, and he had engaged with us and he was tired. He wanted to play by himself. He rolled over and there was an old entertainment center with glass, and he rolled over and he could see himself in the glass, and he was there going (indicating) not saying anything, but babbling by himself, telling a story. And that's what early ASL will look like. We know if you have any training in linguistics and brain, an infant's brain is primed for language, immediately. For years, researchers in the field felt that the brain really progressed spoken language in a different way than it processed visual language. And that may be that some centers of the visual brain weren't being used if you're using visual language. But now we know that is not true, because of research, especially Lar and Petitto and ER2 (phonetic), really, ASL is using the same center of the brain for language development as spoken language does. And so we know that there are still myths out there because really, ASL didn't have -- wasn't really recognized as a true language until the 1960s, and so there were a lot of myths out there that ASL wasn't a real language, it's not a true language. Now we know that that is not true. It's an extremely complex language and if you're a hearing person ever trying to learn ASL, you know you begin to see very easily how complex it truly is.

So basically we know that these languages can develop simultaneously. Any child that is exposed to two languages, you'll see them use one language for a while, play with it, and then they may stop using it, use another language and play with it, or you may see them not say a whole lot but understand an awful lot in the first couple of years and then when they do begin to express themselves, either in sign or in spoken language, they'll come out with, you know, big sentences in both. So they're processing both of those languages. All that research about bilingual children using two spoken languages is also the same with kids who are using ASL and spoken language.

Okay. Let me just go back to this last piece, right there. So again, kids who are exposed to sign language, these muscles develop faster than the tiny muscles in the mouth. Okay? So if a baby is exposed to sign language, they will typically be able to sign a word here, a word approximation here, like the sign for milk, this is a natural movement for babies, isn't it? So they see milk and milk and within a few moments, you'll see babies early on that are practicing it with parent support and encouragement. But this is an easy movement for a baby to make. So if you pair that sign with the act of getting a bottle or having a meal, having milk, it won't take the baby long to use that. But it takes a lot longer for the muscles of the mouth to develop so that the child can say the word "milk." So in the first year, like I've had kids who will have a vocabulary of 15, 16 words by one year of age who are signing, and they may have a couple of spoken word approximations, if they have access to sound.

But about 18 months of age, that language kind of levels off. So they'll have their visual language and their spoken language will be equal. If they have equal access. Okay?

Now, all kids who are using ASL are exposed to ASL in the US need to also be exposed to English. And we have a tendency to think that English can only be expressed in one form, which is spoken. That is the purist form of English. However, written English is also a pure form of English, and some kids who don't have access to stand will still be bilingual using English through a written modality.

You can also use signed English and Cued Speech for children to have exposure to English order and use of English. And those are the systems that people don't want to talk about, we don't talk about those two, but I have experience with families who have used those two and those kids have developed good English skills and also good ASL skills. So we just want to be sure that our kids are exposed to English in one or more formats, because they're going to need to read and write in English. And reading and writing in English is really a great neutralizer. Even if you don't have spoken English, if you can read and write in English, as far as getting a job and succeeding in school in the United States, there's no limit to your opportunities. Okay?

Okay. Early babbling for babies, signed, phonetic, and syllabic on their hands, the speech, ASL will happen on the hands. Babies who are Deaf or hard of hearing who don't have access to hearing aids in the first six months of life, they will babble. They don't have access to sound. A profoundly Deaf baby who doesn't have access will have spoken language in the first six months. They don't hear themselves so they don't keep using the sounds and don't get feedback. If they have hearing aids, access to sound, access to sign language, they'll do both. They'll babble and continue to babble, both vocally and with sign, if they have exposure to sign language.

We just talked about this. The sign phonology and spoken language phonology, it's processed in the exact same part of the brain. Doesn't matter. So really, we learn language here, and the voice and the hands are just a vehicle to get that language to the brain. The brain is where language is processed, where we understand language, and then are able, then, to express language.

What babies are looking at are patterns. Infants, babies, they learn in patterns. So how many of you have children who watched "Frozen" so many times that you know the entire movie by heart? Or you have a child who has read a book so many times so that in your sleep, you can read it, you hear it in your sleep. Why do they do that? Why do babies do that? Because they're learning through a pattern. It's that repetition, that pattern, that helps those brain cells. So when a baby is born, their brain cells have not migrated to the portion of the brain that they need to be in order to function. So the first few months of life, all those brain cells are migrating to the language processing center. They're migrating to the auditory processing center. They're migrating to the motor processing center. So everything that they do, they're creating pathways for all of these brain cells to move to the area of the brain that they're going to be working for the rest of their life. They do that through patterns.

Babies repeat everything they do. They're learning to try to set up, they'll practice and practice and practice and practice and practice and practice. Or to roll over, they'll practice and practice and then they finally get it. They're creating these pathways, all through the first three years of life. And that's what's happening with speech. That's what's happening with sign language. They're practicing these hand shapes. This becomes daddy or mama starts as a playful hand shape. This, which starts as a point, then becomes think or research. So this, which is -- we start with play, then becomes bath. Then all of these little hand shapes that they're playing with are the foundations or the building block for formal ASL. The point which babies do fairly early in life, in ASL, a paint is part of grammatical structure of the point, which we call indexing. So if a baby points, they point to get joint attention so we're both looking at the same thing. As the baby gets older and have more exposure to ASL, that becomes part of the syntactic grammar to ASL. So we talk about the boy and then place him in space. So all of the movements in their hands become formal movements of ASL or formal structures of ASL.

Okay. So this is a zero to five-week old baby with Deaf parents. You can see the parents are encouraging him to use a sign. So early play.

So does he know he's signing "bottle" here? No. We're forming. We're shaping. Look at mom's responses. He gets his hands near his face, and mom says, oh, did you say milk? And Jodee is just making a point. When you watch the baby, look how he's sucking the pacifier when he's taking information in, and then he's processing, I'm thinking about it. So he's like, I'm thinking, I'm trying to do it. Okay. Now, I'm going to go back to sucking. Okay. Is that -- really? Fine. Yeah.

So you can see, just like hearing parents, the baby goes, ma, ma, ma, yes, it's mommy! Say my name first. It's mommy! Same with babies exposed to sign, they get their hand anywhere near the mouth, bottle. That looks like mommy. Mommy! For sure, we want mommy first. And that connection is what creates language. It's that intent, which -- or preintentional movement then become the intentional movement, then eventually becomes language.

Okay. Jodee?

>> JODEE CRACE: We're waiting for the slide.

>> Let's do this one again. I'm sorry. I got ahead of myself. So very quick, we mute the sound. These are two very quick videos. One is a child who is exposed to speech. Been exposed to speech. And the next baby is a child who has been exposed to sign language. Okay. We just want the sound for this one. The system is Deaf.

Now, watch the sign expose. Watch the difference in her hand movement. So there we've got feet, we've got hands. This is the hearing child. There's the Deaf baby exposed to ASL. So a different look, right? That's a very intentional kind of a babbling movement. Okay. Now, Jodee.

>> JODEE CRACE: What do I need this for?

(Laughter).

Okay. So it doesn't matter how much I love Paula, how much we share our lives together, she still hands me the microphone, and I don't know why. Mental stress, something going on there? You want to share? Share what?

>> (Away from mic.)

>> JODEE CRACE: I see, share. So my background is strongly focused on early language acquisition and how to help parents become connected with their child. Saying, I can do this, and building confidence. I can communicate with my child. I can sign. So we have linguistic proof of where language develops in the brain, and we have the proof. Now, we're using that research to guide parents into building confidence in signing with their child.

The other thing I'm fascinating in working with is being a good observer and making sure that they're noticing the baby, like noticing the baby sucking on the pacifier and what that means, and also, leg movement. Communication doesn't necessarily mean obvious things or only on the hands. It could be a motion of the shoulder or a knee kick or, you know, it could be many different things.

For hearing parents, it's harder, because it's not having they recognize. They're relying on their hearing or their ears, and they think, oh, my baby is breathing faster. Maybe they're coughing. But they're not looking at the pacifier movements or anything else. So I'm empowering parents to read their baby, to help them and encourage them to build that communication connection with their child.

Research already is there saying that the brain is developing with those are implants and also using sign language. They're processing all their language information in the same area, and they are benefitting from auditory and visual language. So we've already had visual images of the brain that proved this. Some people think that ASL acquisition will not hinder language development. It will not impede on the other auditory information, even on implanted babies.

So we continually send parents letting them know that implants are not on argument, that we want language. Our focus is visual language.

Next slide, please. Children who are exposed to sign language and parents signing are using gestures with their children, pointing and using co-location, develops cognitive skills for the child too and attention skills with the child for tracking and visual experience in the world, and I notice that, when children are born and when they go to school, those kids were mainstreamed, or if they experience visual language a lot, they know how to handle different things that come up, interpreters, through eye movement, they can catch everything. So they're not missing the information. How to handle situations is increased as long as they're exposed to language early on.

I do encourage parents to go to mainstream schools too because they have an advantage already if they have been exposed to an visual language, and it's rich for them. They already have that. Parents know that. They may not be ready for their child to go to a residential school, and that's fine, but really, visual language exposure as a child is helpful and beneficial for the child and the family.

Exposure to sign language, vocabulary, increases exponentially. Parents who are at home visits, I explain to them that sign language, vocabulary, plus the addition of grammar, like, for example, ball. If you just sign "ball," what about it? You could indicate the size of the ball. Is it a small ball or a large ball? Or you could have several different markers on the ball. Does it bounce? You can show that. And also, including the facial expression of adverbs, adjectives, location, is all in one sign.

So I teach that to parents, and that cognitive ability to recognize all those grammatical features leads to literacy skills. You could say, I'm going to tell a story about a red dog and a house. And then remember, in connect that ball to the story. Hey, remember that ball we talked about? And that will increase their literacy skills, just from one sign. So we're not just labeling items, objects, or nouns. We're giving more information there in grammatical features.

Recently, what I talked about, this quote, reinforces that. Learning more than one language, or cochlear implants does not impact language acquisition. Learning more than one language is only advantageous. There are no negatives. The brain doesn't care what modality. The point is, you need to provide language. Your brain doesn't discriminate on persons, parents, or caregiver. If you're feeding them language, the brain doesn't care. It doesn't discriminate.

I think we're all familiar with language developmental milestones. Zero to three. So my job, or our job, is how we encourage parents to become communicators and communicate with their child all the time, not just five minutes in the morning, five minutes in the afternoon. You know, how we encourage parents to do that, we encourage them to do it all the time. Often, my experience of what I've seen parents say, their excuse is they don't have time. Or they'll say, well, I think -- my point is, it's not a buy-in. I don't have to convince them. They haven't been sold on this idea. The importance is responsibility, and their job is to communicate with their child day in and day out.

We have to, quote/unquote, help the mother and father take on that responsibility and Deaf mentors can help with that.

We're looking at expressive and receptive skills. And Paula explained that earlier.

Next slide, please. Now we have a video.

Notice the baby signing, leaning in, also ready to feed. Okay. That's fine. Thank you. Exactly, not paying attention. The mother, really, we were videoing and encouraging them to do that. Okay. Sign milk. Sign milk. You did it. They're not wired to do that. Don't withhold rewards from your children. When I saw the baby look at the mom. Okay. I understand. I got what you said. Feed me. And then I noticed the baby making those hand shapes and noticing in three different ways, I suspect, crying, leaning in, and a hand shape.

The baby was frustrated, right, because the baby is thinking, I already told you I understand you by leaning in, but the mother didn't catch that. So three to six months, early babbling, in milestones.

I noticed, the developmental milestones, as educators, with infants, our young children, we tend to look at their cognitive skills, their fine motor skills, their gross motor skills, their self-advocacy skills. Do they have awareness of their environment, from zero to three, and then from three to six months, we do the same thing. The fine motor skills. We focus on things differently. The babies are having to have more control with their hands, they tend to be more fist and hold it close to their chest. Then three to six months, they're reaching up, pulling hair, and then they start to control and can grab things on the ground and pick things up and hold them in their fingers. The same thing happens with sign language. The same milestones. So we have the first five hand shapes that Paula mentioned. Six, the baby O, the A, the one. So all those are fine motor skills from zero to three, and three to six, they develop harder motions that require more fine motor skills.

When you have the red flags, if they don't have the five to six, the five or six hand shapes by five or six months, that's a red flag. You might need to work on their fine motor skills at that point.

By six months -- next slide, please. Oh. No, this is not the video I wanted to show.

Notice the hand movements here, and the eyebrows, and the facial expressions here. Now, looking away, obviously, ready for a break. Do you see that? What did you see? Tell me. What did you notice? Obviously, I'm using eyebrow movement. What else did you see? Eye gaze was very strong. Eye contact was very strong. Yes. What else did you notice? Some hand movements. Babbling. How did -- how did the baby feel? Excited and happy, right? Very excited to learn and be receptive to new information. And develop being patterns, right, and developing patterns, right? Okay.

And then the baby decided, okay, I'm done, and looked away. I'm ready to stop. But it was a great interaction.

So now we have another video. Now the legs are kicking and moving. You can see that. And hands stretched out. Notice the baby is trying to grab something. Okay. That's enough. Thank you. Thank you.

What did you notice in this video? What do you think the baby was trying to do? The baby was -- mom wanted to take the book, but the baby wanted the book. So it was grabbing for it. And the mom was trying to expose the baby to sign language and wasn't really paying attention to that and didn't get to get it. The baby doesn't want that information. Wants to take the book. So maybe the baby was reaching for that book and trying to grab the book and trying to roll over to grab that book. So we notice that behavior. We want to follow that baby and their attention and what they want to look at. So yeah, and -- oh, you want the book. Here you go. You can have it. And have that interaction with the child.

Now, seven to ten months. And more often, we are seeing more control of the hands. More patterns. And this one, also uses hand movements to gain attention, starting to wave or pat. Responding. Okay. Let's move forward.

Notice the hand movement. I have other people in the background here. Right? Who are signing. And now they're singing "happy birthday" and -- okay. Okay. Thank you.

Next video. Notice the left hand as well. They're looking at their hand shape while they're trying to control their fine motor skills. Their left hand. And now grabbing their other hand with their -- the left hand with the right hand.

That's a fun game the mother can play, this game, using hand shapes and just trying different hand shapes and playing with rhythm and music and a rhyming game. You can do different hand shapes, do it in a circular motion or just with the hands, playing a game, and the baby will recognize that this is, oh, something to build language from.

Here they're becoming more diverse with their hand shapes and their language, and it becomes a lot more controlled, more in line with communication.

Around 12 months, the baby will start to use words. Real words. Before then, it's early word development. And at 12 months, they're using single words, on average. Some before, some after.

After one, it really takes off from there. And then we have Stacy.

>> STACY ABRAMS: Is everybody doing okay? A quick check-in. Are you still with us? We have less than 20 minutes left, so I'm going to go through some of these. 12 months to about 18 months, we really do see the explosion of language that happens with our children, and sometimes, parents are amazed. It seems to happen quickly, but it happens with hearing babies, and we should expect the same thing, regardless of what language modality, they're using, from about 12 to 18 months we see that, and again, it's the access and the input that we have given them. The more input we give them, the more expressive receptive skills they will be developing. If their input is limited, so will the output, and that's why we encourage the parents to get involved with the mentors in the Deaf and hard of hearing communities so that the children will have all of those experience and the early intervention will include all of those varieties.

We are limited in time, so I'm just going to show one of these videotapes, but you'll have access to it. A 13-month-old, we'll show.

(Video)

The story, practice -- and -- she doesn't have the full shapes. She is still babbling, baby sign. And some of you, she's from New Zealand, if you didn't recognize the signs. It doesn't matter what modality. It doesn't matter what language. The milestones are at the same time line.

Can we see the 16-month-old so we can see the difference between the 13-month-old and the 16-month-old with the language? She is just enjoying by herself. This is the storytelling period. So, again, (indistinguishable). The story, or -- (indistinguishable). And there's some pride. Maybe proud of himself. 16 months old, very typical, (audio cutting out) not that they're a past recipient of -- tell to themselves.

And let's look at the 21-month-old. And, again, all these are on YouTube. You can go study them at your leisure, and they will be in the PowerPoint. As we said, sometimes people don't label the video clearly, but they're out there.

I'm sorry, the technology is a bit frustrating. I know that. I appreciate your patience. See, she's signing girl, wolf. So there's that indexing, the pointing behaviors. Again, those indexing behaviors as a response to a question, where's the mother. The child has pointed. Julie points to herself when asked, where's Julie. So she's looking for reinforcement. You can see, she's looking at the person whose lap she's sitting in to make sure she's getting it right. That's her sign or "train." It's an early iteration of the word. So it's important to know the signs for "sorry," right? That's an important one. All kids need to know that one. And you can see, she has changed the orientation of how she's signing, train. She put it on her arm, instead of her finger, and used the same word. And she knows "please." That's also an important one to teach. Milk is dripping, so she's indicating dripping milk. Thank you. We'll go ahead and stop it there.

So those are the things we might expect to see from 18 to 24 months are up on this slide. Storytelling, engaging in play, being able to put two words together, a subject and a verb, like eat cookie, or meat ate. They do start the W-H words, the who, what, when, why and how, a little bit later on in the comprehension, but W-H words, and possessives. They understand things that are mine and yours and they're very clear about that, so that's when we want to start talking about sharing, and they can understand fingerspelling in more, and they think they're saying it. They don't realize that it's fingerspelling. They think they're creating a sign. But it's their mimicry of fingerspelling. And it's so important to make sure that they are being exposed with different kinds of videos that are out there, like Hands Land or hand speak, and again, it's rhythm and pattern that is going to feet the brain.

There are some great videos out there. People think that ASL resources are limited, and I'm not sure that's actually the case. I think we also have a repository, quite a bit. It's not, of course, equal to what we have in English. But we have resources out there. You may have to work harder for them. Signing Times videos are out there, made by Deaf people. Hands Land is a great resource, because they make use of pattern and play and make it very fun, and just the way that English has patterned, ASL has as well.

Let's see this one. (Indistinguishable). Again, it's (indistinguishable).

If we continued watching, which we won't be, you'll see the same child a year later and see some incredible conversations in the car. Should we skip this one? Okay. How much time do we actually have? I'm asking the room moderator. No, I don't think we do have time. We could talk all day about this stuff, obviously, and there's great videos we'd love to show, but we'll continue moving on, obviously, language continues to develop as children get older. You can see some of the milestones on the PowerPoints that we'll show. Sometimes they fingerspell like hearing kids do. And sometimes they will engage in private conversations by using sign space in a different way.

Okay. Let's move on. This is a 3-year-old reading, telling a story. (Indistinguishable).

You can see, what's the English word for that sign? Sometimes you see, I don't know what the English word on the print is, but, you know, maybe it was "oops" or something else. I'm not sure.

Again, language continues to develop. We do have developmental milestones that we can clearly see. They understand about -- at this spatial relations at ages three and four. Do we have time for this or no? Should we just go ahead -- I think we don't have time. So I'll stop the slide show at this point and just say, start to think about the work that you're doing. What can you do? Sometimes, you know, the language development is different than the child that you're working with. So this is just all things to keep in mind, how we can reflect on our own work, how we can be open minded, make use of other people in our community. Our resources out there. There are resources out there. Don't be afraid to seek out access to Deaf and hard of hearing adults. There may be groups you can call on and we're all here for the same goal. We want Deaf and hard of hearing children to succeed and thrive and language is the key.

>> We do have tips for you, but we're out of time, so we're just going to show you this very last video, but please download the PowerPoint, because there are some tips for you as providers, how you can encourage the use of ASL. We just ran out of time. But we do want to show you a final message.

>> I think you have to go through the slide show to get that message to play. I'm sorry. We are having technical difficulties. Apologies. It's difficult to run a laptop when you're looking at a screen.

>> Touchy touch pad. Thanks very much for coming. You do have access to the PowerPoint, at Paula said. There's a lot of information there and there's a lot we can do to support the next generation of Deaf and hard of hearing children. Thanks very much for coming.

(End of session at 12:01 p.m. CT)