

Baby Talks

Sandy Petersen: Hello, and welcome to Baby Talks. We are so pleased to have you join us today. Baby Talks is a series of webinars for teachers, providers, and home visitors working with infants and toddlers, serving Early Head Start, Head Start, and childcare programs. These webinars will introduce you to some of the research behind the Head Start Early Learning Outcomes Framework, or the ELOF.

I'm Sandy Petersen from the National Center for Early Childhood Development, Teaching, and Learning. We are very pleased that our partners at I-LABS, the Institute for Learning and Brain Sciences, will be presenting these webinars. I-LABS is one of the leading infant research centers in the country. The series will provide a deeper understanding of why the subdomains and indicators of the ELOFs were chosen. The research provides amazing insights into the thinking and experiences of infants and toddlers.

The ELOF provides clear examples of how children use these emerging skills in learning. Before I turn it over to our colleagues I-LABS, let me give you a little information about how this webinar platform works. During the call, your phones will be on mute. If you would like to make a comment or ask a question, please type it into the chat box. If there is time at the end, you will be invited to ask questions. Amelia?

Amelia Bachleda: Well, hello, everyone. My name is Amelia Bachleda, and thank you so much for joining us today. And today we'll be talking about language development in young children. After this webinar, you'll be able to describe why back-and-forth social interactions support language growth, identify the ingredients of everyday interaction that help language development and later literacy, understand some key stages in language development and how to support them, and be able to incorporate at least one new social interaction into daily language activities with children. In this webinar, we will cover the latest research on language development and the brain.

Today we're going to talk about how the brain begins to learn language through experience, how back-and-forth social interactions during everyday activities support children's language development, how to identify and support language development during several key stages, and we'll also talk a little bit about supporting dual-language learners. So, a lot happens in the first three to four years as children prepare to speak fluently. Somehow children blast from listening to speech as newborns to cooing and babbling as infants. They race from learning new words as toddlers to speaking in complex sentences as preschoolers.

Language learning is not a single part of children's development. It's a journey with many steps along the way. The Head Start Early Learning Outcomes Framework is a new framework that's designed to show the continuum of learning of infants, toddlers, and preschoolers. It is grounded in comprehensive research around what young children should know and be able to do during their early years. In the language and literacy domain of the ELOF, you can find a wealth of information about some key steps children take along their language-development progression. For childcare providers, information on children's language development can also be found in early-learning guidelines. So, today's session will focus on information found in the ELOF. You can find a link to the ELOF, as well as to the Head Start Planned Language Approach, or the PLA, and other resources in the handout for this webinar. The PLA is a comprehensive, systematic research-based way for Head Start and Early Head Start programs to ensure optimal language and literacy services for children who speak English and for those who are dual-language learners, or DLLs, and has many useful resources to support you in your

work with children and families. Language milestones are important. But it is how children develop these skills, the path that they take on their journey that lays the path for later success. So, how do children learn language? And what are the best ways to help children become strong language learners?

Let's find out. When babies are born, their brains are primed to learn language. From the start, infants begin learning the language or languages that surround them. All around the world, typically developing children learn their home language effortlessly. And I'd like to make a note that during this webinar, I will sometimes refer to home language as "native language." Most children will learn to speak at least one language by the age of 3 or 4. But how are these babies so good at learning language? Scientists have been trying to understand how children learn language for decades. New science tells us that an infant's language learning begins very, very early. In fact, research shows that experience plays an important role for children even before they are born. Beginning in the third trimester of pregnancy, developing babies are able to hear the sound of their mother's voice from inside the womb. And so this means that the baby can hear whatever language or languages the mother is speaking.

Since the mother's body amplifies the sound for the baby, only the mother's voice is loud enough to be heard from inside the womb. Are babies learning anything as they listen to the sound of their mother's voice? To find out, researchers at the Institute for Learning and Brain Sciences, or I-LABS, played vowel sounds for newborn babies through special speakers. And you can see a picture of this on the right. The vowel sounds were from their mother's home or native language and from a foreign or non-native language. Researchers measured how many times the infant sucked on a pacifier while they listened to the sounds. When a baby was more interested in a sound, it would suck on the pacifier faster than when the baby was less interested. Infants sucked on the pacifier more when they hear the foreign-language sounds. Babies are naturally more interested in things they don't recognize. So, while they're in the womb, babies listen to their mother's voice and learn from it. This is evident through their ability to identify their home language immediately after they are born. Even before a child is born, language learning has begun. In the first few months of life, infants can tell the difference between sounds in their home or native language and sounds in foreign languages, even though babies may recognize that a language they are hearing isn't their native language.

But very quickly, children's experiences begin to shape the connections that are forming in their brains. By 10 to 12 months, they are already becoming native-language specialists. In other words, they are really good at telling the difference between sounds in their own language, and they are not as good at telling the difference between sounds that they hear rarely or that aren't used in their native language. Let's look at this graph to see an example. Researchers at I-LABS measured how well English-learning American babies and Japanese-learning Japanese babies could tell the difference between the sounds R and L. R and L are two distinct sounds that occur frequently in English. But in Japanese, R and L are not two distinct sounds. On this graph, American infants are shown in red and Japanese infants in blue. At 6 to 8 months of age, both groups are just as good at telling the difference between sounds in English. They each got it right about 65 percent of the time.

You can see those two little dots overlapping on the graph. Just a few months later, at 10 to 12 months, that changed. American infants, who are shown in red, got better at telling the difference between English sounds, but Japanese infants got worse at telling the difference between English sounds. This is because while American babies are getting better at English, Japanese babies are getting better at Japanese. If you tested these same babies on their ability to tell the difference

between sounds in Japanese, the results would be just the opposite. By 10 to the 12 months, Japanese babies would be getting much better at telling the difference between sounds in Japanese and English-learning American babies would be getting worse.

Language learning results from experience. And everyday early experiences with language build a healthy brain and prepare a child for a lifetime of communication. Children's brains are primed to learn language. In fact, regions important for speaking are active long before babies utter their first words. Research from I-LABS has demonstrated that as early as 6 months of age, regions important for listening and speaking are active in the brain at the same time. These areas are active even when babies are just listening to language. It is as if the infant brain is practicing while listening, trying to figure out how to produce all those sounds that it hears every day. This suggests that the speaking and listening parts of the infant brain are beginning to work together. Connections between these two brain regions grow over the first six months of life. The connections strengthen as babies listen to language every day. As infants hear more and more language, the coordination between these two brain regions grows.

Early experiences with language are especially critical for infants. The infant brain is connecting and coordinating these regions long before they say their first words. So, what does this research mean for all of you who work with babies and toddlers every day? From research, we know that children build their brains over the course of childhood. We also know that connections forming in their brains and what they learn are a result of both their biology and their experiences. Children's brains are primed to learn language. And they often appear to be natural language learners. We can help children by making sure that they have plenty of rich language experiences to support their learning. This is true whether a child is learning one language or is a dual-language learner. Talking a lot, for example, narrating what you're doing as you're changing a diaper or helping a child into their winter coat is one of the best ways to support language growth. And remember that even if a child is not yet talking, they are listening to what you are saying and forming connections in language regions of their brain. Singing songs and reading books are also excellent ways to provide children with rich language experiences. Even if a child is too young to understand the story, you can still point to the pictures in a book, name them, and describe them.

And being close to you during story time and listening to your voice will help them associate reading with being comfortable, safe, and an enjoyable experience, all of which helps set the stage for later literacy. So, what are some other things that we can do with very young children to help them develop language skills, even when a child's home language may be different than yours? We'll talk about some specific ways to support children's language development later in the webinar, but before we do, please take a moment to think about this question and share your responses in the chat box. So, I'll say the question again. What are some other things we can do with very young children to help them develop language skills, even when a child's home language may be different than yours?

Sandy: I had a couple of thoughts while I was listening to you. And one of my thoughts was how often we are naturally face-to-face with a baby, especially a young baby who, you know, we're handling so much, we're holding and feeding, changing diapers, that it just provides so many opportunities for language. And it comes naturally because you're face-to-face. And then a second thought that I had is -- You were describing the many things we can do and the kind of language that is useful for babies. You're really talking about responsive caregiving and where we're being -- describing the child's actions and your actions in the environment. And here we have a number of responses.

Labeling objects, using pictures with labels, using sign language, being responsive to the child's attempts to communicate. In other words, like, the idea that you respond as though you understand the child's intentions. Pairing words with baby signs, music, poetry, songs, and finger plays. Singing about what you're doing with them, not even just talking, but making up little songs that are so fascinating for babies. And someone wrote in "practice conversation." I think that's that responding back and forth is so you understand what that infant was trying to tell you. So great answers, everyone. Amelia?

Amelia: Yes, wonderful answers. Thank you all for sharing so much. I'm gonna be just a moment. I got kicked out of the webinar platform here. So, hopefully you can all still hear me, But I'm gonna attempt to sign back in. So, you can keep thinking about all of those great answers that you just provided for us, and we'll be back with you in just a moment.

Sandy: And I'm going to add here, a number of people wrote about book reading and... I missed that as I was scanning answers here. And I know Amelia will talk more about that, but that's such an important part of language. Someone wrote "exercising." How fun to do baby exercises and talk about them? And to do parallel talk, to be describing what you're doing or what the baby is doing. And all of this is so rewarding for you as an adult because the baby is just going to be so interested and enjoy it so much that, you know, you're going to have -- you're going to be very motivated to keep doing this.

Amelia: Absolutely. And I was able to get back into the platform, so thank you again for sharing your responses, and we'll keep forging on. So, in the next section of the webinar, we'll talk about some specific elements that we can add to our everyday interactions with children that help them learn. All right, so if children listen to the sounds of language, connections are rapidly forming between regions in their brains. But what type of experience with language is best? Infants hear language everywhere, from speakers on the radio to characters on the television. But what is the best source for language learning? Researchers at I-LABS wanted to know who or what babies are learning from during their first year of life. Remember that when babies are born, they're universal language learners. They're able to tell the difference between sounds in all of the languages spoken around the world. But by 12 months of age, children start to become native-language specialists. They get much better at telling the difference between sounds in their own language and worse at telling the difference between sounds in foreign languages.

So, researchers wanted to know how well English-learning 9-month-old infants could learn to tell the difference between sounds in a foreign language from different language sources. So, to do this, they compared how well English-learning 9-month-old infants learned foreign-language sounds. Babies came to the research lab for 12 25-minute learning sessions. Some of the infants spent all 12 sessions in person with a native Mandarin speaker. The Mandarin speaker read books, sang songs, and played with toys. A second group of infants watched DVD recordings of the Mandarin speaker for all 12 sessions. A third group listened to the audio recordings only for all 12 of the sessions. All three groups were exposed to the same amount of language, but their experience with the language were different. This graph might look a little bit familiar to you.

We saw a similar graph earlier. The blue line shows how well babies born in Taiwan, where Mandarin is the native language can tell the difference between sounds in Mandarin Chinese. The black line shows how well babies born in the U.S., who do not have any experience listening to Mandarin, can tell the difference between sounds in Mandarin. At six to eight months, Mandarin-learning babies and

English-learning babies are equally good at telling the difference between the sounds in Mandarin Chinese. But by 10 to 12 months, Taiwanese babies get much better at telling the difference between sounds in Mandarin, while babies born in the U.S. get worse.

So, how well did the babies in the study do? Babies who participated in person, with the native Mandarin speaker, did very well. In fact, they learned the sounds of the language so well that they were able to recognize Mandarin sounds just as well as babies living in Taiwan. You can see this shown on the graph in red. But what about babies who watched the same session on DVD or the babies who listened to the audio recordings of the session? These are shown in green and yellow. Neither the DVD language-learning sessions or the audio sessions seemed to have any effect. The babies who participated in these groups did not get better at discriminating Mandarin-language sounds. In fact, they were no better than English-learning babies who did not take part at all. So, what does this mean? It means that at 9 months, babies' exposure to language sounds through live interactions has a powerful effect.

After only six hours of in-person exposure, English-learning babies could discriminate Mandarin sounds. In fact, they were able to discriminate -- differentiate Mandarin sounds like a baby from Taiwan. This means that infants learn best through face-to-face interactions with native-language speakers. This research shows us that social interactions are critical for language learning. From a very early age, infants want to be part of the conversation. In the communicating and speaking subdomain, the ELOF indicates that infants begin trying to engage familiar adults in social interactions early, starting from birth to 9 months. Fundamental language learning occurs within the first few months of life. Whether a child goes on to learn one or several languages, the foundation for language and communication is laid in these early months.

The gains a dual-language learner has made in the first few months of life should be maintained through continued home language support and development. Bilingualism and biliteracy are strengths that we will discuss later on in this webinar. In the next section of the webinar, we'll discuss several things that adults can do during back-and-forth interactions to support language development. Early interactions, especially those that include back-and-forth exchanges, are key to early language learning. These interactions allow adults to customize their response to their child's needs. This way adults can follow a child's interest through conversation or play. They're also called serve-and-return interactions. Children gain extra confidence to take part in communication when adults listen and respond. By doing this, you are reinforcing their effort to learn language. These kind of interactions can even begin long before the child is speaking. Let's look at several things that parents, teachers, and caregivers can do to help language development during back-and-forth interactions. As we go over these interaction elements, think about how you could share and use this information in your role in supporting the families of children that you work with. Back-and-forth exchanges with infants are a perfect time to use parentese, or infant-directed speech. This kind of speech sounds like a singsong, exaggerated tone of voice. It sounds like something -- Ah! How do those nice, clean clothes feel?

Listening to parentese or infant-directed speech can actually help babies learn. And they love to listen to it. Science shows that babies who hear more parentese tend to learn more words. Parentese is helpful in language growth because the syllables and vowel sounds are accentuated. This makes them easier for babies to recognize. Have you ever tried to learn a new language as an adult? When you are first learning a language, it can be very difficult to hear when new words start and stop. They all blur

together. But if the language is spoken slowly and carefully, it makes it easier to tell when one word stops and the next begins.

Unlike simply speaking slowly and clearly, parentese not only exaggerates different words, but it also accentuates vowel sounds, which helps babies learn those sounds. Anytime is a good time to use parentese. Think about times in the day when you might have routine, one-on-one interactions with children, perhaps during diapering or hand-washing. These little moments in the day provide excellent opportunities to use parentese. Babies learn from watching. One of the most important ways that babies learn is imitation. Starting immediately after birth, infants can observe and imitate or copy facial expressions and gestures. Later, babies use imitation to learn about objects, themselves, and other people. They learn the similarities and differences between themselves and others just by watching.

Children even use imitation to learn language. They do this by listening to and mimicking language sounds and lip moments. Babies are most likely to learn through imitating a responsive adult, especially a caregiver who is able to use body language cues to understand a child's feeling and needs. Back-and-forth interactions with responsive caregivers are critical for language learning, brain growth, and development. Children often amaze us with how well they learn things just by watching us. In addition to imitating our actions, babies are also looking for any cues we can give them about what we are trying to communicate. Two big clues are where we are looking and what we are pointing at. Towards the end of the first year of life, infants begin to follow our gaze towards what we're looking at. They also begin to look where we are pointing and to use the pointing gesture themselves to communicate their own interests and desires.

Following our gaze and looking where we are pointing helps infants to isolate and identify what it is that we are talking about. And before they had the words for objects, pointing helps babies direct our attention to things they want, are interested in, or need. Infants around the world use pointing as one of their early communication tools. In the attending and understanding subdomain, the ELOF indicates that between 8 and 18 months, children begin to point or gesture when an adult is pointing, naming, or singing about a familiar or a new object. And the child is able to use this information to learn names and uses of objects. In fact, research from I-LABS indicates that looking and pointing is linked to higher vocabularies.

Babies were tested on gaze following and pointing at 10 to 11 months of age. When those same children were 2 years old, the children who tended to follow adults' gaze and point more often have larger vocabularies than children who did so less frequently. It's not necessarily gaze following or pointing that cause bigger vocabularies, yet it does indicate that they are related in some way. It's also important to note that infants who do not follow gaze as much are still learning language. But infants who score high on gaze following and pointing learn language at a faster pace. So, why is it that gaze following and pointing are related to vocabulary? When you show a baby an object, either by holding it or pointing to one further away, you are giving her a cue to pay attention. Infants use this cue to quickly figure out the names of the objects that you are talking about.

By interacting with an object together with a teacher or caregiver, children learn what different objects do. When an adult and a child share attention between each other and an object or an event, this is called joint attention. The ELOF indicates that between 8 and 18 months, children begin to participate in joint attention with an adult by looking back and forth between the adult and the object. Playing with an object or toy together is an excellent example of joint attention. The baby on the left may

focus on her caregiver and follow the caregiver's attention to see what the caregiver is doing. Here he is playing with a rattle. They're now both focused on the same rattle, as well as each other. This is joint attention. Caregivers can use this opportunity to label objects and describe experiences to infants. This helps babies learn the meaning of those labelled objects and experiences. Caregivers can also interact with the rattle alongside the baby, helping the baby to hold the rattle on their own. They can even show how the beads move in the bottom or how to shake it and make a sound. During joint attention, babies connect words to objects and begin to build their vocabulary. Infants learn nouns -- the names of objects and people -- first.

Sharing joint attention is the perfect time to help young infants begin to learn the names of things in their world. We can help infants develop their vocabulary by using these communication tools to engage them in joint attention. We can look at babies, catch their attention, and then deliberately look at an object that we want to talk with them. We can look between the object and the baby, shifting our gaze as we continue to engage. And we can also point at objects long before infants begin to point themselves. Modeling these communication tools will not only help the baby focus on what we're talking about, but it will also help them to learn to use these tools themselves as they continue to build their communication skills and vocabulary.

Remember that children who follow our gaze and point themselves tend to have larger vocabulary. Sharing attention with toddlers can also help them with their language development. In the photo on the right, a teacher and a student share attention. They're both looking at the flower. This is a wonderful time for the teacher to talk about the flower, to describe it, or ask the child questions about the flower. In this moment of shared attention, there's great potential for language learning. At around 2 years of age, children often experience a vocabulary spurt, where they learn new words at a rapid pace. But different children learn new words at different rates, even after this vocabulary spurt. Many children know about 500 words by 36 months.

The ELOF indicates that by 36 months, children should be able to demonstrate a vocabulary of at least 300 words in their home language. We just talked about several different techniques that we can use to help children develop vocabulary and language skills. What do you think are some factors that might help vocabulary growth? What are some things that you think might hinder vocabulary growth? Please take a moment to think about these two questions and share your answers in the chat box again. And I'll say the questions again. So, what do you think are some factors that might help vocabulary growth, and what about some things that might hinder vocabulary growth?

Sandy: Okay, so, we're getting a number of responses. People are very aware of the effect of hearing loss or even temporary hearing loss due to ear infections being a factor in hindering language. Someone here mentions the emphasis on social media. And actually several people say that. And I think that that applies both to adults giving babies social media -- phones and tablets to look at -- but it's also adults being preoccupied with their social media and not providing as much face-to-face interactions. So...the neglect and abuse will certainly hinder vocabulary acquisition. On the other hand, reading with children -- book sharing -- helps, lots of talking, sharing information between the child and caregiver. Let me see what else we have here. This is such a good one -- interactions with older kids. That's such a motivator.

Amelia: Yeah. Absolutely. And I'm also noticing that we've got a lot of comments on Screen Time. And I wanted to point out that the new American Academy of Pediatrics recommendations just came out. And they still are saying no or really limited screens for babies younger than 18 months, except with

the exception of video chat, where you might be Skyping with relatives that are far away. I just wanted to add that little piece to the conversation.

Sandy: Well, I'm glad you did. And then let me add that they are saying that when you do give your infant or -- you know, hopefully not your infant, but your toddler screen time, that you are there with them and you are talking about it together. so that they're still getting lots of interaction with the adults.

Amelia: Absolutely. Like maybe if you would be -- the same sort of interactions that you might be having if you're reading a picture book together, you're asking questions, you're asking about what's going on, this very rich interactive that's happening around the device, as well.

Sandy: Yes. And then I'm going to add one more that's in here. And I'm adding a little piece, that adults who just don't talk with children -- many times it's because they think, "Well, she's a baby. You know? She's not talking. So I won't talk." So it's that basic -- and in some ways reasonable -- lack of understanding of how much a young infant is getting from language.

Amelia: Yeah, and we know with so much of the new-brain research that those areas in their brain are really active, even before they're speaking. You know, they're practicing, and so they need all that language exposure to help those areas in their brains wire and get ready. And they're learning as they're listening to us. Well, thank you again for all your comments and such a rich conversation. Sandy, is there any other things that you'd like to add, or should we go ahead?

Sandy: I think can you move forward, although people are still adding wonderful comments, and we'll keep an eye on them.

Amelia: Yeah. Yeah. Thank you all so much for your participation. We really appreciate it. All right, so, sometimes vocabulary learning speed can be due to a child's personality even. So, children who participate in more conversations typically have a larger vocabulary than their peers. And this is because they've simply had more practice talking and using new words to communicate their thoughts and feelings. But it's not just personality that determines how fast a child will learn new words. The experience that children have with language early in life plays a very important role. And we were having just such a nice discussion about this. The more babies hear and interact with language early on, the more vocabulary words they will have later.

There are also some factors that affect this, including socioeconomic status, or SES. SES is an economic measure of a family's resources, including a family's income, education, and occupation. Children from low-SES families tend to have fewer opportunities to practice language skills, and their vocabularies are more likely to lag behind their more affluent peers. A baby from a high-SES family hears an average of over 2,000 words per hour, while a baby from a low-SES family hears an average of about 600 words per hour. And so by the age of 3, many children from low-SES families will have heard 30 million fewer words than children from high-SES families. Remember that the force of language matters, too, not just the number of words. Hearing words on the TV or radio does not help young children develop their language skills. Children build their skills when language occurs in a meaningful context, when we talk to them and engaging in back-and-forth interactions.

This graph shows the average number of words a child is able to produce or say at different points in development. The green line shows the average number of words a child from a low-SES family knows.

At 24 months, the average child from a low-SES family knows just over 200 words. And at the same time, an average child from a high SES family knows over 400 words. At 2, a child from a high-SES family is likely to know twice as many words as a child from a low-SES family. But it is important to be very clear that growing up in a low SES-family does not cause children to have lower vocabulary. Instead, it is that children from low-SES families often have fewer opportunities to build their language skills. For example, parents in low-SES families often have less free time after work. And many childcare centers that are less costly also have larger classroom sizes. This means that there are often fewer opportunities for one-on-one interaction.

Small group sizes with a high adult-to-child ratio ensure that every child has opportunities for high-quality one-on-one interaction. And for this reason, the Head Start Performance Standards require that for center-based Early Head Start programs, there is one teacher for a maximum of four infant and toddlers and a group or classroom size of no more than eight children. Taken together, children from low-SES families often will simply not have had as many face-to-face interactions early in life. All caregivers and teachers, regardless of SES, can support children's early language. The quality of interactions rather than the quantity of interactions counts for a lot. Back-and-forth interactions that help build language can happen at any time.

They can happen during routines, such as during mealtime. They can happen on a bus or while zipping up jackets and putting on boots. Everyone has the tools needed to help a child develop language, no matter how busy life gets. These early quality interactions and language exposure are essential to children's successful language learning. What are some other ways you might help infants develop early language skills? Please take a moment to share your answers in the chat box. Again, the question was -- what are some other ways that you might help infants develop early language skills or maybe some times during the day that would be a great opportunity to insert these one-on-one interactions?

Sandy: Here's a great answer. Being exposed to new words, like that stuffed animal is fluffy, soft...

Amelia: Oh, yeah. I love that.

Sandy: ...silky. And it can be hindered by not having any personal interactions. But the idea of those rich vocabulary words.

Amelia: I see some comments about doing laundry and sorting laundry, a great time for all sorts of new vocabulary words. In the grocery store -- so many things to describe there, too, right? You know, all the colors and the smells and the different cans, lots of great examples of great time to use language.

Sandy: Amelia, I think my Internet is failing me, so...

Amelia: Okay.

Sandy: You're looking at the comments. Mine are not coming through.

Amelia: All right. Yeah, We've had a lot of great -- a lot of great comments here. And there's one on doing yard work together outside, raking leaves, pulling weeds. Depending on the age of the child, that can be a really fun time, doing some chores together, learning about the outside, talking about the ants that you see. All of these are really wonderful suggestions. And you can also see some excellent

examples of how to support language growth during everyday interactions. And you can do this by watching the language-development practice moment in the "Early Essentials" series, which is available on the ECLKC. And you can find the link to this practice moment in the handout for this webinar. All right, so, language learning can happen anywhere and at any time. During your daily, face-to-face interactions with children, think about incorporating some of the language-learning ingredients we just discussed.

Can you add parentese to diapering or feeding? Could using imitation help children learn words to describe their emotions? If you want to talk to a child about an object in the classroom, how could you use pointing and eye gaze to help the child discover what you're talking about? During times when you and a child are both looking at or playing with the same object, how could you make an effort to describe the object or interaction that you're having to boost language growth? Incorporating some of these ingredients into your daily work with children can help turn everyday routines into language-growth opportunities. Language learning is a journey with no one path or clear route that everybody follows. But there are some key steps along the way. In this section of the webinar, we'll talk about how we can support children by using back-and-forth interactions as they learn language sounds, as they learn the meaning of words, and as they learn grammar.

After listening to this webinar, you can learn more about milestones in children's language development in the ELOF's language and communication domain. So, how do children go from listening to speech sounds to making speech sounds? Babies begin by practicing the individual sounds and syllables of the language. In fact, babies make sounds right after birth. While most of what you might hear from an infant is crying, babies can also make other non-speech sounds, like sneezing or burping. Then by six to eight weeks of age, babies begin to coo, practicing long vowel sounds, like, "Aah," and, "Ooh." Around 6 to 9 months, babies begin to make a series of consonant vowel sounds, like a "ma-ma-ma," "da-da-da," or a "ba-ba-ba." This kind of babbling allows children to practice making a variety of sounds. Babies actually have to practice moving their tongues and mouths in the correct way. This helps them to produce the same speech sounds they have been listening to for months.

Because listening to language is such a crucial aspect of language development, it is important to ensure children have ongoing, routine hearing screenings, which is something that you all mentioned earlier. How much a child babbles also predicts a baby's later vocabulary ability. Babies who babble early and frequently say their first words sooner. They also have larger vocabularies when they begin kindergarten. Responding to babies babbling can help support their language development and even lead to larger vocabularies over time. Research shows that when caregivers respond to an infant's babbling contingently or in direct response to a child's babble, rapid language learning takes place. In one study, caregivers were instructed to respond immediately to their infant's babbling. Caregivers based their responses off the specific sounds of the baby's babbling, and they responded using full vowels and full words. The researchers found that when caregivers responded to babies' babbles, the infants dramatically changed the way they were babbling. These babies began making new word sounds based off their caregivers' responses.

These new sounds contained the same patterns that they heard their caregivers make when they responded to their babbling. So, for example, an infant might look to her caregiver while holding a doll and say, "Ba." The caregiver might say, "Oh, yes, Maya, a doll. Look at that doll you have. What a nice doll." In response, Maya might change her babbling pattern from, "Ba," to, "A dah, a dah." This study suggests just how important it is for teachers and caregivers to respond and interact with infants when

they babble. It shows dramatic changes in their learning of word sounds. Using some of the tools we talked about earlier, like parentese, eye gaze, and pointing can also help infants learn as we respond to their babbles. One Early Learning Outcomes Framework goal from the language and communication domain is attending, understanding, and responding to language from others. From zero to 8 months, children should participate in back-and-forth interactions, exchanging facial expressions and language sounds with familiar adults.

By 9 to 18 months, children should begin to understand the meaning of familiar caregivers' verbal and nonverbal communication and respond with facial expression, gestures, words, or actions. As children have more and more experience with language, their language abilities continue to grow. Children go from babbling to speaking their first word at around 10 to 15 months. But learning new words is slow in the beginning. 15-month-old babies say, on average, just over 30 words. These words are things that infants encounter on a day-to-day basis, such as familiar people, favorite toys, and clothing. They can also be routine, such as, "Night-night," or sound effects like, "Yum," or animal noises. Children's vocabulary begins to increase rapidly around the time that they have learned their first 50 words. This vocabulary spurt often happens sometime during the middle of a child's second year.

Some children's vocabulary may double in the course of just one month. Other children may show a more slow and steady gain in their vocabulary. Both trajectories are normal, and in either case, the second year of life is time of great vocabulary growth. Near the beginning of their third year of life, you may notice that some children also exhibit a spurt in sentence length. In their third year, children's sentences grow from two-word requests and descriptions to longer sentences of four or more words that allow them to express more complicated ideas. Between 3 and 4 years, children will also begin to be able to answer simple who, what, where, and why questions and be able to talk about activities that happened somewhere else, for example, at home or in daycare. Children's early vocabularies are similar around the world as they are learning their language. As children gain more and more experience, they become more active participants in conversation. Studies show that the more words children hear, the bigger their vocabularies tend to be.

This is especially true when they hear responses to sounds or words they've made. Babies learn new words by mapping -- connecting the words they hear to the things they refer to. Children follow other people's eye gaze and gestures to map words onto objects or events. When they hear a new label, they connect the label to what the adult is looking at or pointing to. For example, if a parent or teacher points to and looks at an object, then says, "Apple," infants begin to map this word with the object. Word learning can be challenging for children. Imagine if you had to learn a whole set of vocabulary for a new language. One shortcut that children use to quickly learn the meaning of words is mutual exclusivity. Mutual exclusivity is the assumption that every object only has one label. Say a child is presented with a ball and another object that they don't know. If you label the new object, they'll assume that the new label refers to the unknown object since they already know what... This is a good strategy. But it doesn't help children when objects have names like "apple," but they also have parts.

These parts can have different names like "stem" and "skin" and "core." Research tells us that children begin associating words with whole objects during their second year of life. Children's tendency is to associate new words with whole objects and not to their parts. This tendency to associate new words with whole objects continues well into the preschool years. This is a typical phase of language development. As teachers and caregivers, it can be helpful for us to know that this is a child's tendency as they're learning language. We can help children as they learn by acknowledging that they named

the whole object correctly and then providing more information. "Yes, that is an apple. You see how it hangs from its stem?" The child might repeat, "Apple." And we can say, "Yes, an apple hanging from its stem." As children learn more about the world and become more familiar with objects, they eventually begin to learn that different parts of objects can have different names. Mutual exclusivity -- or assuming that every object only has one name -- is also not a particularly useful strategy for dual-language learners. Can you guess why? Children who are learning two languages know that objects can have more than one name, right?

So, for example, "shoe" is also "zapato" in Spanish. Instead of relying on mutual exclusivity dual-language learners use other strategies to learn words. These strategies often require the child to pay close attention to the different properties and structures of language. Dual-language learners' enhanced awareness of these language properties can help boost their language-learning skills, making learning a third language much easier. Whether a child is learning one language or multiple languages, talking a lot with children, especially about things that they are interested in, helps them build their vocabulary. Providing more information about an object while you and a child are engaged in this joint attention with that object is an excellent language-learning opportunity. Children use complex learning and strategies, like word mapping, to develop language skills. This is similar to how children learn and understand grammar.

When children begin to string words together into sentences, they start using more complex grammar. Since many grammatical rules can be difficult to learn, children initially make some errors. For example, a child might say, "Dad go," rather than, "Dad is going." Proper verb forms and the parts of words that go on the end of verbs, nouns, and adjectives are often missing from those early sentences. For instance, in this example, the child used "go" rather than "going." As children continue putting words into sentences, they learn the rules of grammar steadily despite any errors. So, how do children learn grammar rules in their language? Studies show that children can learn rules of grammar just from hearing these patterns. Scientists can use a simple game to test this. In this test, an adult shows a preschool-age child an unfamiliar object.

And this object has some made-up name, such as "blick," for example. The scientist then asks the child what the plural of "blick" is. And what do you think the child says? When asked, children say the plural of "blick" is "blicks," even though they have never heard this word before. They know that in English, we usually form plurals by adding "S" to the end of nouns. Children have heard other examples of plural words, which means they can generalize this knowledge to new words. While children are learning new grammatical rules, they will often make mistakes. These mistakes are signs that the children is learning. They are practicing different rules that they have learned to see if other words follow those same rules. As a caregiver or teacher, we can support children's language development by providing the correct form of the verb.

If a child says, "I rided in the car," we can say, "Oh, wow, you rode in the car. Who else rode in the car with you?" After a child hears this correction a few times, she'll to start use the correct grammatical form in sentence. Engaging children in conversations and modeling the correct form of the word is a great way to help extend their learning. What about children who are learning two languages? How can we support their language growth? Sometimes caregivers and teachers are worried that children who are learning two languages will have language delays, but research does not support this. Typically developing children learning two languages reach developmental milestones at the same pace as children learning only one language. When thinking about language milestones, it's really

important to consider how many words children know in each of the languages they are learning. Let's consider a dual-language learner who is learning English and Spanish.

Add up all the words a child knows in English. Then count all the words that the child knows in Spanish. The total number of words they know in both languages is likely to be same or greater than a child who is only learning one language. And as a child gets more proficient in both languages, they will soon know many more total words than a child who is learning only one language. There is more and more research indicating that knowing and learning more than one language has many benefits, including mental flexibility and cognitive control. Both of these have to do with something we call cognitive flexibility. This is the ability of our brain to do things like quickly shift from one task to another, come up with creative solutions to problems, or multitask. Children who are learning more than one language tend to be particularly good at doing these types of activities because they have a lot of practice switching between languages.

Due in part to updated research on dual-language learning and the many benefits of learning more than one language, the updated Head Start Program Performance Standards highlight the importance of developing one's home language. The standards now indicate that for all dual-language learners, a program must recognize bilingualism and biliteracy as strengths and that language development should be assessed in each of the languages spoken by a child. It is important that children have high-quality language interactions with the adults in their life. This needs to happen from the start, regardless of whether the child is learning one or more languages. These interactions build a strong foundation for language learning. To build a strong foundation in their home language, encourage parents to speak the language that they have the most competence and comfort using in the home. These interactions not only help a child develop their first language, but it teaches children what they need to do in order to learn any language.

Think about some of the interaction elements that we talked about earlier that help support language development. Whether a child is learning one language or several, these interactions help build language. In your role supporting families, think about ways that you could encourage families to use some of the strategies that we discussed as they help establish their children's strong foundation in their home language. Knowing how to learn a language is a skill that helps children learn a second language. It is important to note that even if a child may not speak English well when they start in your program, this does not necessarily mean that they have a language delay. When a child has a strong foundation in their home or native language, they will be able to quickly learn a second language. Whether children are learning one language or more than one language, there are some ways you can foster quality early language development in children. You can respond to infants' gestures, looks, and sounds. When caregivers respond to babbling, babies show a much larger vocabulary 4 years of age. Teachers and caregivers should respond to babbling in complete words and sentences. Listen and talk to children.

As we've mentioned, back-and-forth interactions are essential to early language learning. They also help children build confidence interacting with others. You can help children build on their language skill by trying to use a new vocabulary word every day, like "fluffy," like a teddy bear might be. And take time to have a conversation that uses the new word in ways that is meaningful to the child. Encourage language-based play, like songs, rhythms, and finger plays. Narrate what you do as you go through your daily routines. And read together. Recent research shows that babies make more speech-like sounds during shared reading than during any other play time. Even young infants can gain language skills through reading with an adult as they look at pictures, hear new vocabulary words, and

begin to explore what a book is by holding, carrying, or maybe even chewing on it a bit if they're very young. In this session, we've focused on the language development of infants and young children. We've talked about how infants learn the sounds of language and how back-and-forth social interactions support brain development and early language growth.

We talked about the ingredients of everyday interactions that you can use to boost language learning, like parentese, imitation, gestures, eye gaze, and joint attention. We have taken a quick look at some of the key stages in language development, including early sound learning and production and word learning and grammar. And we talked about how we can use early interaction to support a child's language learning, whether they are learning one language or several. With this webinar, we just began to explore the amazing journey that every child undertakes as they learn language. We focused on the first steps today, but a child who has a strong foundation and needs early skills will be prepared to add the next building blocks of language -- learning to read and to write. But long before they learn to read their first word, we can trace the roots of early language development to the womb. Here children begin their language-development journey by listening even before they're born. Thank you all so much for listening today. We hope this information will be valuable to you as you consider ways to enrich the experiences for children and families you serve. I think we ran right up to the end here, maybe even a little bit over, so I don't think we have much time for questions, but please continue to add your comments. We really thank you so much for participating and being here today. And I'll turn it over to Sandy if she has anything else she'd like to add.

Sandy: Okay, well, I certainly would like to thank you, Amelia. That was so informative and so fascinating. And I would just like to add that these materials will be posted on the ECLKC, but, you know, it will take a couple of weeks. So, thank you all for participating. And we will close out now. Thank you.

Amelia: Thanks so much. Have a great rest of your day.

[End video]