

Brilliant Bilingual Language Development in Infants and Toddlers

Announcer: Welcome to Head Start Talks where big ideas support your everyday experiences.

Beth Zack: Hello, and welcome to Research on the Go, a podcast where we explore some of the latest research in the field of child development and implications and the practical applications of this research. My name is Beth Zack. I'm here with my colleague Marley Jarvis.

Marley Jarvis: Hey, everybody. Beth and I, we are from the National Center on Early Childhood Development, Teaching, and Learning, and the acronym is NCECDTL. We're based at ILABS, which is the Institute for Learning and Brain Sciences, at the University of Washington. ILABS is an NCECDTL partner organization, which is why we're here. It's one of the leading infant research centers in the country.

Beth: We wanted to begin by grabbing ourselves in some shared knowledge and definitions. We're talking about those brilliant bilingual infants and toddlers today, dual language learners. In Head Start, a dual language learner refers to a child who was acquiring two or more languages at the same time, or a child who is learning a second language while continuing to develop their first. While we'll use the terms bilingual or dual language learner today, we're really talking about children who are learning more than two languages too, and that includes their families who might speak two or more languages at home.

Marley: We prefer the term dual language learner to some of the terms you may have heard in the past like English language learner or limited English proficient, things like that. Those kind of center English as the other language that's being learned. Whereas dual language learner does not.

Beth: And we're going to ask that you think about supporting children who are dual language learners as an issue of equity today. Equity is defined as the fair and just treatment to all children, families, and those who support them. Equity enables everyone to achieve their full potential. When we lead with equity, we understand that we have this responsibility to make time and space to support children who are dual language learners, just as we make that same time and space to support children who speak one language. Create nurturing environments where children and their families feel seen and heard and acknowledged, and where they have a sense of belonging and a connection to their community.

Marley: We also want to ground ourselves in the knowledge that bilingualism is a strength. It's a strength that's rooted in culture so our culture and the languages that we speak are really central to our identity. No amount of scientific data can really measure the importance of language to who we are as individuals, of course.

Beth: But we do have science to help us better understand how our brains work and how we learn. And that's what we're going to focus on first today. How we learn languages, and how

learning languages really shapes the brain? Which brings us to our learning objectives for today. The first is to explain the brain's role in supporting dual language learning in infants and toddlers. As part of that, we're going to highlight the cognitive benefits of bilingualism. The second is to identify strategies to support infants and toddlers who are dual language learners, including children with disabilities.

Marley: As we're talking about the science behind bilingual language development, remember, you know, we don't learn in isolation. We're part of a culture or multiple cultures, and languages that we speak, you know, that's really an intrinsic part of our identity.

Beth: Children and adults learn best in environments that are linguistically and culturally relevant to them.

Marley: Before we jump into research on bilingualism specifically, we want to think about how brain development really serves as a foundation for all learning. Brain growth really supports language development. And, of course, this is true whether a child is learning one or more than one language. In those first few months and years of life the brain is growing faster than it will at any other time in our life.

At birth, the baby's brain is about one-quarter by volume of an adult's brain. And if you think about the rest of the newborn baby, its body is not even close to one-quarter of their adult size of their body. You know, if it was, the average newborn in North America would weigh about 40 pounds. Thank heavens that's not the case. Then flash forward by about three years of age, a child's brain has grown to about 85% of an adult size already.

Beth: But this doesn't mean that the brain is 85% finished developing by age three because as we all know, a three-year-old still has a lot to learn.

Marley: Yeah, absolutely. And this is great because children's brains they're so uniquely primed to learn from the experiences they have with you, you know, every single day.

Beth: Our brains look similar to the naked eye, yet at that microscopic level, our experiences are — they're influencing how they're wired so every time we learn something new, we're building and strengthening those neural connections in the brain. Scientists estimate that between the ages of zero and three the brain makes one million new connections each second.

Marley: That number is really incredible but part of what makes this so amazing is that our experiences that we have are guiding which of those neural connections form, to begin with, which become, you know, stronger or more efficient and which are removed. The more frequent we have an experience, whether positive or negative, the stronger those connections grow. In a very real and tangible way, our experiences actually shape our brain.

Beth: Yes. To get us thinking about that, as it relates to language development, we want to start by playing a little game with you. We're going to play a series of sounds and then for each pair, we want you to write down whether those sounds are the same or they're different.

[Audio begins]

Speaker: Ra. La. Ra. La. Da. Ta. Da. Ta. Da. Ta. Da. Ta.

[Audio ends]

Beth: Each pair of those sounds was different. And as a native English speaker, I could only hear the difference between the first two sounds, the “ra” and the “la,” the other pairs of sounds sound exactly the same to my ear.

Marley: Beth, tell us what's going on here.

Beth: When we're born, we can actually tell the difference between all the different sounds of all the languages of the world. But as we grow and develop, we can only hear the sound specific to our own language or languages. When I was a baby, my little brain became good at telling the difference between “ra” and “la” because I heard those sounds in my environment. But I never heard that ta or da in Spanish and Hindi as an infant. I didn't have that experience.

Marley: For those of you listening who maybe did have that experience, you know, could you hear the difference in those sounds? Chances are that you could. Thinking also about some of these amazing parts of this early language learning is that our linguistic journey begins really early like actually in utero.

Beth: Hearing is one of our earliest senses to develop. Beginning in that third trimester, developing infants can already hear the voice of their birth parent from the womb, and that experience builds and strengthens connections in the brain even before they're born.

Marley: It's so cool. But what does this mean for children's, you know, language development? They're not speaking at this point, obviously.

Beth: Right. And this is from research that looks at just that. This baby who is only 20 hours old and is actually listening to vowel sounds from both its home language and from another foreign language using these specially designed speakers. The researchers measured how many times that baby sucked on that pacifier while it was listening to the sound. The more the sucking that baby did in response to the sound, the more interested the baby was in the sound. They expected babies to actually be more interested in the foreign language sound because it was new to them.

Marley: What did they find?

Beth: Well, that's exactly what happened. When the researchers played the sounds from the baby's home language, they actually sucked on the pacifier less compared to when they heard those sounds from a foreign language.

Marley: It's so cool.

Beth: Yeah. From this we know that within hours of birth, newborns are always recognizing and they're identifying their birth parent's language or languages, and this means for some children that path to becoming bilingual can begin before they're even born.

Marley: We're going to take a little closer look at this idea. In the first few months of life, even though babies may recognize that a language that they're hearing isn't their home language, they're just as good at telling the difference between sounds in their home language as they are at telling the difference between sounds in foreign languages. At six to eight months, babies are equally good at telling the difference between sounds in their home language or languages and for foreign languages. We kind of think of this as babies are born citizens of the world.

Beth: They are, but then with those early experiences with language, that's continuing to shape those connections in their brain.

Marley: And we're seeing this change. By 10 to 12 months of age, babies are already becoming specialists in their home language.

Beth: Can you explain that a little bit more like being a specialist?

Marley: That just means that they're getting even better at telling the difference between language sounds in their home language or languages, but they're no longer as good at telling the difference between sounds that they don't hear or sounds that aren't in their home language or languages.

Beth: Babies' brains are being shaped by the language or languages that they hear most often. They become more skilled at hearing and recognizing speech sounds that are most relevant to them.

Marley: Exactly.

Beth: We know from research that the brain is primed to learn different skills at different times. And the results we just showed you are the perfect example of that. Around nine months, the child's brain is primed to learn or is sensitive to the sounds of language. During this early sensitive period, the brain is good at picking out sounds of the home language and learning to recognize them.

Marley: It's important for us to mention here that not all aspects of language learning have the same sensitive periods. There's a lot of different skills involved. For example, the best time to

kind of recognize the sounds of home language or languages, like we've been talking about, is during that first year of life. But the best time for learning words, that's a bit later, in the second year of life. All of that combined, early childhood is the best time to learn languages.

Beth: And we also know from research and suggest that there's a sensitive period for learning to speak a second language with native proficiency. Researchers found is that learning a second language before the age of seven will likely result in a child being able to speak that second language just as well as their first.

Marley: I do want to mention that, of course, we can always learn new things, including a second language later in life, our brains are constantly evolving and changing. It's just a different way that we have to use our brains to learn language later. It might take more experience or more time, it might be a bit more challenging. Anyone who's tried to learn another language as an adult, it could be kind of challenging. But the takeaway is not that we can't learn these skills later in life, but rather our brains are incredibly well adapted to learn multiple languages in the first years of life.

Beth: Since children who are bilingual are exposed to two or more languages, they remain sensitive to the sounds of those languages, so they have more sounds in their repertoire compared to their peers who only speak one language or are monolingual. Adult monolingual and bilingual language development is similar in many ways, their sensitive period is actually where we see some difference. It turns out that dual language learners have a longer sensitive period for language learning than children learning just one language. And that extra time gives children more time to have more experience with the languages that they're learning.

Marley: I just want to clarify that this extended sensitive period, it's not a delay. Other than this extended sensitive period, children who are learning more than one language, they're following the same learning trajectory as far as those milestones, as children who are learning one language. And we're going to talk about this a little bit more just to really dispel that.

Beth: Then what is going on in the brain while young children are learning a language or two or even more?

Marley: Scientists often wonder the same thing. But we've taken a look at this with this pretty cool machine that we have at ILABS. It does something called MEG for short because the full name is real long, magnetoencephalography. And our researchers can use this to sort of peek inside the brain of infants. In this case, are they listening to the sounds of language in real time? We can't really see the connections that are forming, but we can see what areas of the brain light up or are active while they're listening.

Beth: We're going to show you a short video of the process with a Spanish-English bilingual 11-month-old. Here we go.

[Video begins]

Speaker: Our researchers first prepare the babies for data collection. They use the hat and the special digitizing pen to track the shape of the baby's head. This procedure allowed us to continuously monitor the baby's head position as they moved in the MEG machine. Then we brought the babies into the MEG room. The magnetoencephalography or MEG machine is safe, non-invasive, and completely silent. By detecting changes in the magnetic field, it precisely pinpoints both the timing and the location of activity in the brain. A baby is sat on a special highchair beneath the MEG helmet, with their parent sitting nearby. The babies listen to a stream of sounds such as da's and ta's.

Speaker: Da. Da. Da. Da. Ta. Ta. Da.

[Video ends]

Marley: Beth, can you tell us a little bit about what the researchers found in that study?

Beth: The monolingual babies were learning English as their home language, and the bilingual babies were learning English and Spanish. Let's look at those monolingual babies first. When monolingual babies, when they listen to Spanish sounds, their brains showed little response. But when the monolingual babies heard English sound, their home language, their brain showed a strong response. Their brains responded to the sounds that were familiar to them.

Now if we look at what did the bilingual babies do. They were good at processing both Spanish and English. The strength of their brain response was high for both languages. These are the languages that they're learning, right, it makes sense that their brain is becoming specialized to process the sounds of both. This means that their experience of hearing more than one language is already changing babies' brains at 11 months old as they build those strong language pathways.

Marley: I wanted to talk about another finding from that same study. That was pretty cool. We're jumping now to talk about the prefrontal cortex. This is the area of the brain way behind your forehead, it's shown there on the slide as well. The prefrontal cortex area showed activity when those bilingual babies listened to a stream of sounds in both of their home languages. And that's what's shown in the image on the right, yellow and the orange areas show where the bilingual babies had the stronger brain activation, right here, than their monolingual peers.

Beth: Marley, what does that mean for their development then?

Marley: Yeah, who cares? So, the prefrontal cortex, this is a pretty key area of the brain, you probably might hear about it more. It's responsible for a lot of our executive function skills, which are super important. Those include things like planning, paying attention, problem-solving, being able to switch between tasks. Clearly, executive function skills are fundamental for success in school but also life. And we knew about this sort of activation in that area of adult

brains who are bilingual but it's exciting really to see this sort of increased prefrontal cortex brain activity in bilingual babies too.

Beth: It's just such an interesting example of how our experiences are shaping the brain in a very real way.

Marley: Absolutely. And it's in line with the growing number of studies that suggest that being bilingual comes with a variety of advantages, including things like mental flexibility and cognitive control. Both have something to do with cognitive flexibility. What that means is just our brain's ability to quickly switch from one task to another, multitask. And again, it's part of that suite of skills called executive functioning. You can learn more about executive functioning, it's part of the approaches to the learning domain in ELOF or Early Learning Outcomes Framework.

Beth: And this is not to say that bilinguals are the only people who have cognitive flexibility, right? Anyone can develop cognitive flexibility with practice. The best kinds of activities to develop these skills are ones that require you to switch rules or to inhibit your impulses. We like to play a game so that you can experience what cognitive flexibility feels like. You're likely familiar with the classic Head, Shoulders, Knees, and Toes game. When I say head, you touch your head, when I say shoulders, you touch your shoulders, and so on.

Marley: We're going to add a little twist to the standard version. We're going to play it with Beth. Beth, I'm going to ask you to stand up, feel free to do the same. I'm calling out instructions, I might stay seated. If you're unable to stand or you feel more comfortable, we'd love for you to play in whatever way it works for you, you can stay seated. The first part goes like this. When I say touch your head, what I want you to do is actually touch your toes. And when I say touch your toes, you need to actually touch your head. We'll practice. Touch your toes. Touch your head. Touch your head. Touch your toes.

Beth: Good. Now, we're going to try. I'm going to sit back down for this. We're going to try two more. This time when I say touch your knees, you're going to touch your shoulders. And when I say shoulders, you're going to touch your knees. Everyone ready? Yep. Here we go. Knees, knees, shoulders, knees.

Marley: Don't bump your head on the way down.

Beth: Shoulders. Now, Marley is going to help us put both of these sets together. I'll stand back up for this one.

Marley: Good old stretching. Touch your toes. Touch your shoulders. Touch your shoulders. Touch your head. Touch your knees. Touch your toes. Touch your shoulders.

Beth: This is pretty fun.

Marley: And obviously challenging.

Beth: Yes, and if we're talking about infants and toddlers today, for older toddlers, you can try playing this with just two sets of body parts like we did at the beginning so only your head and toes.

Marley: You can kind of simplify it a little bit. It's fun with teachers too. And including, this game gets kids moving, it helps improve some skills that we're talking about as well, some of those key skills. Think about what you needed to do in order to play this game. You know, you had to pay attention, you had to remember the rules, you had to inhibit your impulse to reach for the body part that I was actually saying. And instead had to follow that new rule.

Beth: Yes, I think I might have messed a few of those up myself. This is just one game you could try, right, there's other games like Red Light, Green Light or sorting games are also great where you switch the rules that children need to sort by. You could ask them to first sort by color and then by shape, and these are just fun ways to build those executive functioning skills.

Marley: Yeah.

Beth: And anyone can exercise their cognitive flexibility but children who are bilingual, well, they get that practice naturally. Bilingual environments give children extra experienced with those skills associated with cognitive flexibility.

Marley: Let's think about that relationship a bit more.

Beth: Children who are dual language learners, they are getting that extra practice because they are listening and then they are also starting to speak in two or more languages each day. To do those things, they need to pay attention and switch between languages and inhibit their impulse maybe to speak a language in certain contexts. And then that practice actually allows them to be faster and more accurate at these skills, switching between tasks, paying attention, inhibiting impulses in other learning domains as well.

Marley: It's pretty cool.

Beth: Yes. What's really neat is that these findings also extend beyond typically developing children too. In a recent study, parents reported on their children's executive functioning skills. And all the children were under the age of six and diagnosed with autism. And of those children, half were dual language learners and half were monolingual. For those children who were dual language learners, their parents reported that they showed fewer challenges with executive functioning skills such as impulsivity and cognitive flexibility compared to those parent reports of their monolingual children. These findings suggest that there's benefits to learning more than one language. They extend beyond typically developing children to children with developmental disabilities such as autism.

Marley: I love seeing more inclusion in these research studies here.

Beth: Yes, me too. And in this study, the children were also from many different cultures, and they spoke 13 different languages. And we have that added piece in there as well.

Marley: We've touched on some of the bilingual benefits really, including improved executive function skills and cognitive flexibility, but we're going to highlight a few more before moving on. Compared to infants raised in monolingual environments, infants raised in bilingual environments show a greater ability to control their attention.

Beth: Right, they show increased memory flexibility to remember actions and then to generalize that information.

Marley: And even later on in life, we know that being bilingual is related to stronger cognitive abilities as we age, delayed onset of dementia.

Beth: Lots of benefits. Given these examples, and more, we really want to end this section by returning to the idea that bilingualism is a strength, rooted in our culture. And our understanding of bilingualism and our attitudes to children who are dual language learners, that's an important piece to providing both children and families the supports that they need.

Marley: So far, we've mostly been focused on what's happening inside the brain of children who are dual language learners, let's talk a bit about their language milestones.

Beth: There's a lot of misconceptions about language development in children who are dual language learners as well as children who are dual language learners who also have a disability. We want to talk about their language trajectories as they compare to children who speak one language.

We often jump right into first words here, but we want to kick off this section by showing a cool finding about babbling in a 12-month-old. Research found that 12-month-olds learning two languages, they actually change their babbling to match the vocal patterns. For example, the intonations of the language of the person who's talking to them.

But that's not all, they also found that babies who were only learning English at home. Monolingual babies, but who came to the lab and received five hours of exposure to Spanish during these play sessions, well, they changed their babbling in the exact same way as those babies who were already learning two languages at home. But the babies who were learning only English, they did not show this change.

Marley: That's kind of amazing just how the short exposure to another language is already shaping even their babbling.

Beth: It really is amazing. Whether you're on a home visit or in a research lab, at a

family childcare center, or in a classroom, these are the times when babies are listening to us and they're developing those connections in the brain based on the languages that they hear.

Marley: Right. These everyday interactions, they really matter.

Beth: They really do. I want to emphasize that we don't see delays in babbling for children who are dual language learners, and the babies actually adapt their babbling to match the language environment that they're in, which is pretty sophisticated and amazing.

Marley: Yeah, okay. I'm glad we're talking about delays because I think this is one of the areas where there's just the biggest misconceptions about children who are dual language learners in their language production.

Beth: Yes. Some people believe that bilingualism puts children at risk for delays, but there's no research suggesting that. What happens if we add together the bilingual children's Spanish and English vocabulary knowledge?

Marley: The combined vocabulary for a typically developing bilingual 22-month-old is the same as a monolingual 22-month-old.

Beth: Yes. When we look at the trajectory of children's language development, regardless of the number of languages they're learning, they typically say their first words around 12 months of age, and this could be in one or both languages. And it really just depends on the child's experience with each language when that happens.

Marley: Bilingual vocabulary and grammar development, it shows the same pattern as monolingual language development. Children who are monolingual and bilingual get the combined words around 18 months, and then by age three to fourish, children produce more complex sentences. Now, of course, just like children who are monolingual, those who are bilingual, they are going to have some variability here in the ages that they reach each of these milestones.

Beth: Right, a simultaneous bilingual, they might reach those milestones at the same time whereas the sequential bilingual they may reach milestones at standard times sometimes months or even years apart. But the main takeaway here is that children who are bilingual do not lag behind their monolingual peers when we include growth in both of their languages. Learning one language does not take away from their ability to learn another language.

Marley: Thanks, Beth. I also want to make sure we address children who have or are at risk for developmental delays.

Beth: Yes. There is a lot of misconceptions here too. Learning two or more languages doesn't lead to developmental or language delays. From research, we know that children who have a

developmental delay are capable of learning more than one language with the same proficiency that they can learn their first language.

Marley: Unfortunately, it's common for professionals to recommend to a family that children with developmental delays only learn one language. But there's really no research to support this position.

Beth: In fact, we know that the opposite is true. For example, there's research with monolingual and bilingual children who have Down syndrome and when they match them for their developmental level, they found that they performed the same on standardized tests and language measures as their typically developing peers.

Marley: To cap us off, even if a child has a language learning delay, adding a second language will not confuse the child or lead to further delays. To become bilingual, both typically developing children and children with disabilities, they all need the same thing, they need frequent high-quality exposure to language on a continued basis.

Beth: Right. We're going to talk about strategies soon, but I want to emphasize this here too. Encourage families to speak their home language, even with children with disabilities. Taking the time to answer their questions and listening to parents is really a key part of this process. And it'll help parents to understand that learning two or more languages will not lead to confusion or developmental delays.

Marley: And sometimes parents are hesitant to use their home language. There's a lot to unpack there but one thing is that they might worry that it will make it harder for the children to learn English in school later on, but we do know that's not the case.

Beth: We know that a strong foundation in a child's home language serves as a resource and a bridge to learning another language.

Marley: I want to circle back to something you just mentioned, learning a second language does not add confusion. This is something we hear a lot from adults working with children who are dual language learners and sometimes their parents. There's this fear that using multiple languages confuses children, especially when they do something called code-mixing or code-switching. We're going to talk about that. Code-mixing happens when a child or an adult uses multiple languages in a single sentence or situation.

Beth: We're going to show you a video example now of code-mixing. Here we go.

[Video begins]

Child: Look, papa.

[Speaking in Spanish]

Speaker: Does it go here?

Child: School bus. School bus.

Speaker: School bus. It is a school bus, Mateo. Students take that bus to the school.

[Speaking in Spanish]

[Video ends]

Marley: The video shows an example that both the child and the adult are code-mixing here. In the first part, the little boy says, "Look papa" in the same sentence. And then we see the adult switch back and forth between English and Spanish. She's encouraging Mateo to complete a puzzle there.

Beth: And code-mixing, it was a natural way for the child and adult to interact here. Research shows that code-mixing does not indicate confusion or language delay, or an inability to keep languages apart.

Marley: For example, toddlers are able to identify words they hear in sentences that contain code mixing without difficulty. Code-mixing is the creative and effective strategies that many bilinguals use to support communication. Children who are dual language learners, they may use code mixing when they don't know an appropriate word in the target language. Sometimes that's why they might code mix, not always but sometimes. And because they have access to the word in another language, they might use that to fill in the gaps.

Beth: We also know when bilingual children code mix, they rarely break grammatical rules in either language. This shows that their linguistic knowledge is quite sophisticated to keep those apart.

Marley: And when children code mix, they clearly understand what the language of their conversational partner is. For example, two-year-old bilingual children will increase the proportion of words in a given language to match the language that the person they're talking to speaks.

Beth: That reminds me of the babbling research that we shared earlier; those bilingual babies change their babbling to match the vocal patterns of their conversational partner. I just find it so fascinating that all this occurs without any sort of direct teaching, right, it just happens.

Marley: Yeah, totally.

Beth: Now that we've talked about the foundation of language development, the benefits of bilingualism, let's talk about putting what we know into practice.

Marley: How can we build connections with families and create environments to support infants and toddlers who are dual language learners?

Beth: Well, we have to lead with equity. This means recognizing the strengths and the needs of children in your care, it's ensuring that children have equitable opportunities to express what they know and what they can do, and it's recognizing and honoring that every child deserves to feel comfortable and accepted, safe, and intellectually engaged to feel like they belong.

Marley: Yeah. And to do this, we have to look at ourselves, our own beliefs, and practices first.

Beth: It's so true. Our biases, whether they're explicit or implicit, could impact the children and families we serve in real ways. Sometimes we might make assumptions about children who are dual language learners and their families without even realizing it. We might assume what languages they speak, where they were born, how well they speak English, or what family traditions they have.

Marley: Taking the time to understand our own culture and beliefs about language, as well as working to understand different points of view is one of the best ways to support children who are learning more than one language.

Beth: Yes. And then we can be intentional, right, more intentional about how we show up to support infants and toddlers who are dual language learners. Remember that every child is unique and their culture and the amount of experience they have in each language will vary.

Marley: This is another great resource that we like to shout out here, it's called the Professional Learning Guides, specifically to support dual language learners. The first one there it focuses on integrating culturally and linguistically responsive practices. It includes reflecting on your own beliefs and cultures. We build belonging by building connections between a child's home and your program.

Beth: We encourage you to partner with families on this journey by first listening to and learning from them. There's another resource, Gathering and Using Language Information that Families Share, that's a wonderful starting point, it includes questions to ask families to learn about their child's language experiences and to begin building those connections.

We encourage you to go and check it out and think about what other questions you would add when you're talking about and learning from a family, maybe something new about their culture, their values. Write down at least one new question you plan to ask the family to build these better connections.

Marley: I encourage you to actually then ask them when we show genuine interest in learning about a child, what you're doing there is you're building trust and belonging with children and their families.

Beth: Part of the reason for learning from families, right, is so that you can provide those individualized supports which is also an important part of inclusive practices. Those practices that support the right of every infant and young child and his or her family regardless of their ability.

Marley: We wanted to make space today to talk about children who are dual language learners, who also have a disability. And we have a video to share with you from a special guest expert today Dr. Xigrad Soto-Boykin.

Xigrad Soto-Boykin: My name is Dr. Xigrad Soto-Boykin, and I am an expert on early childhood bilingualism and disability. My background is in speech-language therapy. Prior to becoming an assistant research professor at the children's equity project at Arizona State University, I worked as an SLP in school systems Early Intervention in the State of Florida. This is talking about bilingualism and the intersections between bilingualism and disability, that's the topic that's near and dear to my heart.

Children who have disabilities who are also bilingual are able to develop their two languages or more without difficulty. In fact, it's in the best interest of families and the educational team around the child to ensure that that child's bilingualism is fostered because part of them being able to thrive in their communities is being able to communicate with their families.

What does this look like specifically for infants and toddlers who might still be emergent communicators? What this means is, A, educating parents about the value of bilingualism and noting that bilingualism is always a strength, even if a child has a disability. Number two, when we're providing language modelling or creating communication devices, it's important to integrate all the languages that the child knows or is exposed to.

It's really vital that we understand that in order to identify a child who is bilingual or a dual English learner with a disability or a developmental delay, we have to identify delays across their entire linguistic repertoire. In other words, we need to be able to assess them in their home language and English as appropriate. Sometimes if we don't have somebody that can provide that English input, continue to encourage the families to provide home English input because that's such a strong foundation for future learning.

I think one thing it's really nice is that Head Start's Performing Standards already offers a grounding framework for providing children who are bilingual or dual English learners with disabilities the supports they need. One of the big tenets of the Head Start Performing Standards is to provide children with coordinated services that support their entire development and in their home language.

That's one thing to really think about is that we don't want to exclude children that are dual language learners with disabilities from having the services that they need, both for their

overall development and for their bilingual development. It takes a team; it takes a coordinated approach to make this happen. But the rewards are infinite.

Beth: We're so lucky to have Xigrid share that video with us. One of the things that really stuck out to me is something that we've already mentioned and that is viewing bilingualism as a strength. When we take a strengths-based approach and provide those individualized supports, that's a really important theme is to carry through the rest of today's discussion.

Marley: We're adding individualized here as our first research-based strategy.

Beth: Yes. The rest of the strategies we share are based on decades of research on infant brain and language development, as well as findings from a successful intervention program. That program emphasized using social interaction, play, and high-quality language supports with infants.

Marley: Research shows that children learn language best when they learn from other people. For infants and toddlers, this means lots of individual or small-group activity time.

Beth: Yes. Those one-on-one interactions and that small-group time, that allows adults the opportunity to build those important relationships and be more responsive to infants' and toddlers' needs. If we think about it from the child's perspective, you know, when they have that individualized one-on-one time or small-group time, it's easier for them to listen and to watch adults using sounds and the words of the languages that they're learning.

Marley: Language learning spaces are social. This provides lots of opportunities for contingent that back-and-forth interactions that really support language development.

Beth: Yes. Back-and-forth interactions are so important and our next strategy. How do we encourage them with infants and toddlers, especially before they can talk?

Marley: A lot of their language learning happens simply listening to the language they hear around them. But we can still connect with them and kind of continue the conversation if you will so they might look or babble, point or kind of change their posture. That's all communication.

Beth: We can use their responses to keep that conversation going. You know, give children who are dual language learners that opportunity to show us what they know in nonverbal ways too.

Marley: And this is a great way to engage when you don't necessarily share a language or speak a child's home language so you can use your body language, gestures, or other visual aids to demonstrate what you're trying to say.

Beth: Other things you could think about doing is singing a song that includes movement to get them involved, you could build a tower together or color a picture together to encourage those

back-and-forth nonverbal interactions too. The type of language that we use with infants and toddlers is another important piece of these back-and-forth interactions though.

Marley: Yes, think speech that has large variations in pitch, that's slower, often includes repeated words. "Hi, baby. Let's get your coat. Yes, your coat so we can go outside." I have a one-and-a-half-year-old right now, I'm doing a lot of this. It's called parentese. But you don't have to be a parent, anyone can use it.

Beth: And it actually helps babies more easily recognize those different elements of a language. And they love listening to it. It's a signal that we're talking to them and that we want to engage in these wonderful back-and-forth interactions with them. And this is true across cultures and languages.

Marley: And there's a few kinds of misconceptions around parentese we want to address. Sometimes we think of parentese as something that just women do. But we know this isn't true. And actually, in a study that focused on bilingual Latinx fathers, every single one of the fathers used parentese even if they didn't think that they did.

Beth: And they also found that fathers actually use this type of language-boosting speech more if they knew how important it was to language development. We encourage you to encourage both mothers and fathers to use this type of speech as a wonderful way to support their children's language development.

Marley: And using parentese, it's just one part of providing a language-rich environment which is the next strategy here. Two key pieces are being a language model and providing intentional language support.

Beth: We know that parental language input is one of the best predictors of children's language achievement. One way to provide that support is, for example, when a child code mixes, the best thing to do is to be that strong language model so respond in full sentences and in a way that invites further conversation, and in a language that you feel most comfortable speaking.

Marley: You can help families understand the importance of using their home language. Both throughout the day but also you can think of this during focused conversational times as well.

Beth: Even when we don't share our child's home or their heritage language, it's still important to provide them with as much experience in their home language as possible so that intentional language support. We have a lot of strategies there, but we're just going to highlight a couple of them. First, supporting children who are dual language learners requires dedicated planning time on our part, right, and then staff expertise. That includes hiring bilingual staff, and then carefully created environmental supports. It takes planning to be intentional about embedding a child's home language or their languages into their learning experiences.

Marley: And to do that, we have to learn from families so that we can provide that individualized support.

Beth: For infants, you might learn a song or a lullaby maybe that includes their home language to help them feel more comfortable. To find out about that, you're connecting with families to learn what that might be.

Marley: This ties into the second strategy. Learn 10 to 20 survival words in that home language. It might be milk, sleep, help, things like that. You can talk to families, you can check out the Ready-DLL app, or use Google Translate for quick translations. These are some of those ideas.

Beth: We encourage you to use a child's home language in a variety of contexts and across the day.

Marley: That's a great one to end on because it connects to our final strategy here.

Beth: Yes. We all know that children learn best through play and the same is true for children who are dual language learners.

Marley: Absolutely. We want to design intentional learning experiences that are play-based. Incorporating skills or concepts intentionally around maybe a theme or a topic throughout the day. That way children are exposed to the same words in different circumstances.

Beth: I love that because each interaction with a new word or idea, it just continues to build our understanding. You can use that theme, when you think of that theme to bring in their culture or their interests and their home language too, to really make that experience meaningful to them.

Marley: I love that. What about a child who is a dual language learner, but doesn't share a home language with any of their peers?

Beth: Well, the beauty of play is that children don't need language, right, they can interact with their peers using actions or gestures, their eye gaze. We talked about an adult building a tower with them, they can do that, take turns with their peer. During those times of play, their peers are also serving as a language model for children who are dual language learners. Those children, so they have the experience of hearing other languages and then also the chance to practice their emerging language skills too.

Marley: And play is fun. Like it's very motivating. This is all happening on that great learning without a child feeling pressured to learn this specific word or concept.

Beth: I love that. No pressure. Play is there's no pressure.

Marley: We're almost out of time. We're going to wrap up here.

Beth: Yes, we want to leave you with some final thoughts. And to do that, we'd like to go back to where we started. Lead with equity so that all children and their families, they have consistent and equitable access to all services and supports and to really feel like they belong.

Marley: Kind of a key message here is that children's brains are built to learn two or more languages at the same time.

Beth: We also talked about how children and adults learn best in environments that are culturally and linguistically relevant to them.

Marley: Finally, here that supportive learning environments can have a positive impact on children who are dual language learners really in their development across learning domains. I think that serves as a great summary. With that, we're pretty much out of time. Thank you again for your time and attention and for all that you do on behalf of children.

Beth: Yes, thank you so much. We hope to see you next time.