

Child Development in the First Year of Life: How Infants Think and Feel

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

Dawson Nichols: 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 the implications and the practical applications of this research. My name is Dawson Nichols, and I am joined by my colleague, Beth Zack, for this conversation. Beth and I are from the National Center on Early Childhood Development, Teaching, and Learning, and we are based at the Institute for Learning and Brain Sciences at the University of Washington in Seattle.

Today, we're starting a three-part series in which we're going to discuss how children think and feel during the first three years of life. We're going to talk about how the world looks from the child's perspective. This series is created with the conviction that understanding how children experience the world – what they are going through – can help us in our work with them. When we see the world the way that they see it, when we empathize with their experience, we are in a much better position to understand how they learn and how we can help them learn. That's what we're after here.

And in this first episode, our conversation focuses on how children think and feel during that very first year of life. We started by considering memory: Do infants even have memories? Here's that conversation.

[Babies babbling]

Dawson: It makes me wonder, is there a time before memory? Can we say, for instance, that very newborn children do not have any memories?

Beth Zack: Yeah, as adults – we've just talked about it – it's going to be hard for us to access them, but doesn't mean babies don't have them, they do. Babies are still forming memories during this time. Just as adults, we either forget them or they get replaced, there's sort of different theories about what happens there. Everything we learn as babies is shaping us throughout our lives, and we actually know that babies are even learning before they're born. And vocal sounds travel particularly well in utero. When a baby is, at birth, it's not the first sounds that a baby has heard. And they actually show a preference for their birth parent's voice when they're born, which is really cool. They're hearing sounds in the womb.

And there's actually this really touching study from— just from 2019 that I wanted to mention, and it was done with preterm infants who were going to undergo a painful procedure. Now normally when that happens, there is no family member in the room with them. But for this

study, they allowed mothers in the room with the infant during this procedure, and they were allowed to talk and sing with them. And then there was another group of infants who did not have their mothers in the room during some sort of painful procedure. And what they – and they compared these two groups – and what they found was through observations and both in measuring the oxytocin levels, was that hearing the mother's voice decreased the amount of pain that those infants felt.

Dawson: Oh, wow! We think that that's because the infant remembered the mother's voice from the womb?

Beth: Yes, and then we have other research that shows that it's not just that newborns recognize their birth parents' voice, but they actually recognize their home language. That's from their birth parent and other people. They're hearing and learning these speech sounds in the womb, which is just amazing. It just keeps going after birth too. Memories get stronger during that first year. Infants develop object permanence, so they remember that objects and people that they continue to exist after they leave the room, or after you go behind your hands for peek-a-boo. They know, "Oh, you're actually still there." They get better at remembering what we do. And they're learning by watching us, which makes modeling what behaviors what we want a really effective teaching tool for us as adults.

Dawson: Yeah, modeling is such an important tool that we have. And again, I want to think about this from the child's perspective because almost everything is new at this stage. So much is changing all of the time. And I, as a baby, don't have any context for any of this new stuff. Understanding things is just so difficult because of that. I'm looking to my caregiver for clues about how I can make sense of all of this stimulus coming in.

Beth: Right, and it's no wonder babies get overwhelmed and need soothing, I mean we'd need help too if everything was new all the time. Can you even imagine?

Dawson: Yes, I need it when I am traveling abroad for instance. I need a lot more soothing things. I'm amazed that for babies it works at all. It just is amazing.

Beth: Right, it is so amazing. And babies, they're born with their senses primed to begin this learning process.

[Babies babbling]

Dawson: But I want to bend this again to the child's perspective. And I am curious about what that child is tasting and what that child is seeing. But even before we get there, whatever the child is tasting, whatever they're hearing or seeing, it's there because the caregiver brought it into that child's environment. I'm not able to do that for myself at this stage. I'm sensing things because my caregiver is putting me in a position to be able to do that.

Beth: Right, that's such a great point, and a really useful context for everything that we're going to be talking about here today. Babies are social creatures, and they're drawn to adults, right?

And they need this caring adult, and hopefully, they have many caring adults, like us, right? Like you, loving, attentive adults to help them bring new experiences and to navigate the environment.

Dawson: Yes. From the child's perspective, again, I am counting on that adult, I need you, you the adult, not just to bring me food but I mean the sounds that I hear. If I hear a sound behind me for example, before my neck muscles have developed, I need you to either bring that in front or to help me turn around to see it. If I'm doing tummy time, and there's a toy that I'm interested in, I might not busy to get to it myself. I need you to either bring it to me or me to it. I am so dependent on you, the caregiver.

Beth: Right, so true, especially during that first year, children are dependent on adults to help them.

Dawson: Yeah. This seems to me that we have come to our first principle here. We are going to get to effective practices that promote learning stops replacing glides these first 12 months of life. But first, our practices are all going to be based on three principles of development and here is our first one: And again, it's spoken from the child's perspective here: "I learned through experience, and I need help getting access to the things that will help me learn and grow."

Beth: Right, and I think this is good to think of it as a principle rather than a practice, because every child and every situation is different. And things change so quickly, as we know, during that first year. But these principles are still going to apply, whether you have a 1 day old or a 1 year old, they're both primarily learning through experience, and they need help getting access to those experiences. Take the outdoors for example. A little baby can't be like, "Yeah, I need some fresh air. I'm just going to crawl outside and get it." Like they need the adult to bring them outside and to give them these wonderful experiences.

Dawson: Yeah, and again, from the child's perspective, if it's there in my sensory experience, it's there because an adult helped me have access to it. And I think of music in this regard. Unless an adult is singing or playing music, a child doesn't hear music, and certainly, that's one of those experiences we want to help all children have.

Beth: Right, and you know the same is true of food, that provider is bringing those experiences to that baby.

Dawson: Also, what am I tasting at this point? Let's talk about that a little bit.

Beth: Right, yeah, as human adults, we have a difficult time describing what we taste. It's really difficult to figure out what is an infant tasting and experiencing. Do they taste? Yes, they do taste. And are their tastes developing and becoming more sensitive as they grow? Yes, but beyond that, we can't really describe what an infant – what that experience of taste is like for an infant.

Dawson: Yeah, I mean we know, I guess, that they are tasting because they do develop preferences during that first year, right? I remember my own daughters liking some foods and absolutely not liking other foods.

Beth: Oh, yes, my daughter is the same way. But this is actually really fascinating. Infants are born with a preference for sweet things and less for bitter. And this is actually basic biology. That preference for sweet, that's drawing it to their mother's milk and that aversion to bitter, it's keeping them from swallowing harmful substances. And this preference can actually last until late childhood.

Dawson: Wow, that is so cool. And I think about that, I compare that to the other senses. It's true for all of the senses. Even in this first year, babies have preferences for different kinds of textures. People know that they like high contrast images and not so much with subtle color differences in the images that they look at. It seems true of all the senses.

Beth: Yeah, and it's important to keep in mind, senses are one of the first things to develop. And then other phases of development, they build on our ability to sense and to make sense of the world.

Dawson: Oh, I like that – “to make sense of the world.” It's right there in the language. And we're concentrating on the first 12 months of life in this webinar, and that is when this sensory development is really, really going strong. And as you say, the senses are developing, and other things are building on top of those things that they're learning through their senses. Development in all of the domains, we should be clear, is happening during this first year. But again, these senses are really primary and help those other developmental areas along.

Beth: Right, and this is a great time to mention the ELOF – the Early Learning Outcomes Framework. Whether you're familiar with it or not, it is an amazing resource for understanding young children's development.

Dawson: Yes, and it is true. It is thorough. It charts development in all areas. It is very systematic. It's such a great resource.

Beth: I look at it all the time.

Dawson: It covers the top one here, perceptual, motor, and physical development, and that's what we're discussing here. Again, it can't be stressed enough, we learn through experiences. And experience starts with our bodies and with our senses.

Beth: Yeah, and our perceptual experiences, they come to babies at different times. We already talked about infants' first experiences with sound. That is happening in the third trimester. They can hear the birth parents' voice from inside the womb. But it's different for vision, right? It's dark in there. They don't have a flashlight to kind look around. There's no visual experience happening inside. They need some time to refine their sense of sight once they're born. We know that newborns can make out faces that are close by, so while they're being fed or

cuddled. And this is sort of – this is nature at its finest, right? Because they need these things, and it's not really until about 6 months of age that that sense of sight fully develops.

Dawson: Yeah, and this is happening with all the senses, Again, I think it's important to remember this is what's happening to the brain as a whole. It is born ready to learn with its exquisite sensing abilities, but it needs practice. It needs something from the world to be brought into contact with it so that it can shape itself according to that sensory experience. It's learning as we go.

Beth: Right, and like anything, the more experience you have with something, the better you're going to get with it. And I think this is a really good takeaway for families, so especially with your first born, right? It's hard to know how to interact with a newborn, and like we said, like everything, it takes practice.

Dawson: Yeah, we've been talking about it with children – they need practice. But it's true, adults too. And the more experience we have with anything, including interacting with infants, the better we're going to get at it.

Beth: Right, and we can help as education staff – so teachers, home visitors, family child care providers – you can help families understand how much development is really taking place and happening even what they can't see it. The senses and babies' senses are sharpening, and experience really helps that process. And a wonderful example of this is language development. Babies, even though they're not talking yet, their brains are listening to all the sounds they hear in their environment, and they're learning from them. And this is why talking to a newborn is so important.

Dawson: So important. And it's true of the other senses too. I remember stringing a string of lights above my daughter's crib, and watching the joy that that brought to her, but knowing that that experience too is actually helping her vision. It helps because it is more gentle stimulation that is available to her, and she can trace thing lights while she's enjoying them.

Beth: Yeah, my daughter has those same lights. But this, you're right, it's these gentle sensory experiences that are really helping babies learn and grow. This visual. It can be touch. And the cool thing is that even familiar activities can be made new. Take crawling inside on a carpet for example. Your baby gets used to that. When you take them outside and put them in the grass or on sand, a different texture. And now there's new feelings on their hands, but there's also new smells, new sights, new sounds. There is so many new sensory experiences that can be had by going outside. I think it's important to mention about how you feel about being outdoors can really influence families. If you're willing to take those babies out and get comfortable with it, it's helpful ... You're modeling for families, and you can also encourage them to explore the outside with their babies too.

Dawson: I think that that is so important. And again, the senses are developing during this first year. And the outdoors is such a rich and environment for that. And I want to get back to the child's perspective. The vision is getting clearer. Things are coming more into focus. And I'm

seeing them from different positions too, by the way, right? Because now, I'm not always lying down. I'm starting to get up and move around a little bit and toddle, and I'm seeing things from a different perspective, which is fun. But smells are coming into better focus. Sounds are becoming more distinct. Touching new things – all of this new information. I think we need to remember that babies are sometimes overwhelmed by the amount of new information that they're getting.

Beth: Right, which makes me think we need to think carefully about that first principle that we've already mentioned. Babies do need help gaining access, but they also need help not becoming overwhelmed by the number of objects or experiences, the sounds, and their own emotional life as well.

Dawson: Yeah, so let's add that to our number one there. "I need help navigating change and regulating my emotions." And let's recognize that this goes both ways with ...

After identifying that second principle – "I need help navigating change and regulating my emotions" – Beth and I spent some time reminiscing about our own children and the emotions they had growing up. I will spare you those anecdotes, and we will rejoin our conversation here.

Sometimes I need you to help me get access to these wonderful experiences that shape my sensory experiences and shape my senses. But sometimes I need you to help me limit new things if I'm feeling overwhelmed with something, maybe you can help me remove some things from my environment.

Beth: Right, or you could move the child, right? To a quiet place or a place that they can rest. Not just removing things, but also moving the baby too.

Dawson: Yes, exactly. Good.

Beth: Yep. And remember, it's different from child to child. Children have different temperaments and that means they need different things, and we need to be adaptable to that. And this is true for all infants, including infants with a disability or suspected delay.

Dawson: They are all individual. I mean wouldn't it be great if there were like rules you could, you just follow. "Here is how you raise a child; one, two, three, and then you're done." It's just not that way.

Beth: Gosh, that would be amazing. But we know it's not only different for each child but for that child throughout time as they grow and develop. And that really makes me think of your wonderful plant analogy again. Some plants need more light, some need less, some need more food or nutrients, and some don't.

Dawson: Yes, and I think it's nice because our job is not to shape them in a particular way. We're not molding them and sculpting them. We're simply helping them grow, I like that.

[Babies babbling]

Beth: There's so much research showing that infants are social from their very first moments.

Dawson: Yeah, and we don't have to do very far out of our office to come up with an example of this. The research really started here. The research on how babies focus, particularly on adults and are social from the very, very beginning, a lot of it stems from some groundbreaking work done by one of I-LABS co-founders, Dr. Andrew Meltzoff.

Beth: Right, and the study we're about to share, it really helped change the way we think about babies, and it was so simple, yet so effective. You want to explain this one, Dawson?

Dawson: Oh, no, we both know it, we should tag team it.

Beth: Sounds good. Let's do it. Dr. Meltzoff was ... He's interested when infants imitate adults, and imitation is a great learning method for adults and children. But the prior belief with that, children didn't actually start to imitate until they were much older.

Dawson: And Dr. Meltzoff believed that this might be not quite right. He decided he was going to test it. He went into hospitals and started testing newborn babies, sometimes within an hour of the time that they were born. His idea was that if imitation is something that babies naturally do, maybe they do it really early. He started making faces at babies to see if they would imitate him and make that same face back. And I've always wanted to see the research study, the research grant that was written up for this. I would like to have these funds so that I can go make faces at babies. I love that.

Beth: Right, I'm sure there were a few laughs, right? I couldn't wait to try this with my daughter. I wasn't sure if I'd remember on the day, but I did. And the cool thing is, is that it worked just like the study. And this study has been replicated across time, and it really opened people's eyes. Something that seems so obvious now maybe, but that infants focus on human beings from their very first days and even hours.

Dawson: Yeah, it's a really important focus that they have too. And subsequent studies have shown that this is not just physical imitation that's going on there, infants are reading the emotions in the adult's faces. And they're not just paying attention to faces but also, obviously, voices and touch and smell. They're getting so much information from the adults.

Beth: Right, and this fits with what we've been talking about. I mean, I've heard people say that human infants are so much more helpless than other species. But you know what, that's only true if you ignore the adult.

Dawson: Yes, and you can't ignore the adults. The adults are the most important part of the environment.

Beth: Exactly, and human babies, they're born with this capability to make quick and close connections. And that's not being – that's not helpless at all, right? Their ability to make these quick relationships and to rely on humans for food and comfort and learning, that makes them

the opposite of helpless if you ask me. And it's one of the reasons that experts refer to the adult caregiver pair as a [Inaudible] because they work as a team.

Dawson: And I love that idea of thinking of this as a special skill that children have, this ability to be social. And again, I want to bend this to the child's perspective. I'm looking out at this world in which everything is absolutely new, but I find myself drawn to these creatures that are like me, and I don't know why I'm attracted to them at this point, but I am. And I'm fascinated by their faces and their voices. And when they're around, I want to pay attention, and I want to learn from them. It's an important principle, probably prior to the other two, so I want to wedge it in here at the beginning and call it number one. I am fascinated by other people, and I readily learn from them. And why? Well, these adults, they provide consistency. They're the ones who are going to be giving me stimulation. They're stabilizing my environment for me. And the environment that can change so much, that consistency that they provide allows me to focus and learn, and it all works together.

Beth: Right, and it works together in the context of that relationship. I know we've really been talking about seeing it from the child's perspective, but I want to jump to the other perspective for a second. It's important for us as adults to remember that this is a relationship. And we're not just providing for babies, we're in a relationship with them. And listening is a huge part of that.

Dawson: Absolutely, absolutely. Yeah.

Beth: Right, and I mean listening in the broadest sense here. I'm talking about really paying attention to those babies – to their cues, to their body language, vocalizations. They are talking to us with their behaviors. We like to say their behavior has meaning, and they're using that to communicate with us. Learning to recognize those behavioral cues, that can be immensely helpful to us as adults.

Dawson: Absolutely. Yeah, and they give so many of them. I mean we've all had that experience that we're reading a book to a child, and they are just not having it.

Beth: Right, exactly, and this means we probably missed some cues. They might have been turning their head away, maybe there's some eye rubs, any number of things, right? We probably missed some cues from them.

Dawson: Absolutely, but in learning to recognize these behavioral cues, home visitors can help families do this. And again, it's different for every child, but as you learn to recognize these behaviors as communication, it's a real game changer. I mean, it opens a whole new window into the child's world, and suddenly, you're better able to see from their perspective.

[Babies babbling]

And it reminds me, we don't teach language to babies. They just pick it up from the environment. It's one of the key differences between how we teach children language and how adults learn language. It's interesting.

Beth: Right, yeah, it is. Children are listening to language long before they know what sounds actually make up words. They have this incredible ability to actually segment language into the sounds that make up their home language or languages. They can recognize what sounds happen more frequently and what sounds are more likely to be paired together. Infants hear all the sounds of all the languages on earth. As adults, we cannot do that.

Dawson: Yes. And can we pause here and just say that again? Infants can hear all the sounds of all the languages on earth. It sounds like a metaphor but it's not. They have the ability to do that. They can learn any language if it comes into their experience. And I know that some people worry that learning more than one language will confuse a child. Not at all.

Beth: Right, and one of the things Head Start emphasizes that for children who are dual language learners, building that strong foundation in the home language. Education staff can encourage families to speak their home language, assure them learning multiple languages is something that babies' brains – they were built to do it.

Dawson: Yes. And what about children with disabilities or suspected delays? Some families and education staff, they worry that a child with a learning disability will be somehow confused.

Beth: Yes, this is another common concern that we hear about. But research shows that all children can learn multiple languages to the same level of ability that they would learn one with the proper support. I think I'd like to spend just a little bit of time here talking about some effective practices that help all children learn language. First, the first one is to speak to children in the language that you are most comfortable with, that you're most comfortable speaking, and encourage families to do the same.

Dawson: Yes, and can I add that this is true for extended families as well. Community members even. But grandparents, feel free to speak a different language to your grandkids. The important thing is that you use the language you are most comfortable with. Hearing rich, meaningful language from anyone really does benefit a child. And in this case, it would help benefit that relationship too, right? It's a win-win.

Beth: Right, great. Use parentese when you speak and read to infants. Remember, that's that exaggerated sing song tone, slowed down speech, and parentese applies to everyone. It's a term parentese but grandparentese, visitorese, however you want to, however you want to do it. And then again, help families do the same. The other one I really want to mention is pausing during back and forth interactions to let infants respond. And remember, that response might not be something verbal. It could be nonverbal. It could be a head turn, where they shift their attention, some sort of nonverbal cue. Really hone into that, again, help families to do the same, to recognize these cues. And remember that babies are processing language even when

it doesn't look like it. They learn language by hearing language, so talk and talk and talk with them some more.

Dawson: Absolutely, talk, talk, talk. I have one more practice that actually fits in with that, and that is narrating. It's a great practice to get into if you just narrate your day when a child is in your presence. It makes things a lot more interesting. It brings a lot more language into the environment, but also it makes the invisible things in the environment visible. For instance, thoughts and feelings, and we have not talked much about feelings during this episode. We will in future episodes, I promise you. But emotional development is definitely a part of this first year. Beginning to identify emotions during this first year, talking about feelings, it can really help a child.

Beth: Right, agree, making that invisible visible. I love that. That can mean being openly expressive with the child. Narrating not only their feelings, but sharing your own can help them too. You say like, "I know you're feeling sad. It's hard to say goodbye to Mom, but she'll be back later." Actually talking that out. And even if the child is too young to understand, one, they're going to pick up on your emotions and those different cues present in your voice and your body language, but you're also setting the stage for their later language learning and learning about emotions.

Dawson: I like how you wrapped that back to body language. Using the voice and things, and those other kinds of communication are so important. Yes, use those emotion words, but use your other facilities for communication as well. We have a lot of wonderful tools for communication. This example ties together our three principles so well. Let's look at them again: I am fascinated by people, and I readily learn from them. I learn through experience, and I need help getting access to the things that will help me learn and help me grow. And finally, I need help navigating change and regulating my emotions. All three so important.

Beth: Right, and I really like them because they're interdependent but there's only three, so they're manageable. You can – we can remember three, right? Can we say that our relationship with the adult caregiver is absolutely primary here?

Dawson: Yes, absolutely prime. Most important thing, absolutely, hands down.

Beth: Right, but it also has to be understood in the context of the other two. Think about a child who's had a big day with all these new experiences. The best thing to do might be to give that child time to recharge. Could be playing soft music, quiet books, letting them sleep. Effective caregiving does not mean actively engaging a child all the time.

Dawson: No, and it depends on the child's temperament as well, right?

Beth: Oh, right, absolutely, but we will cover that next time, because we are almost out of time here. And I just want to leave everyone with some reminders to tie everything together. Caregiving is a relationship, and a big part of that is listening to the behavior states and the body language of babies, being aware of changes, and being ready with new enriching

experiences. And this really – all this depends on being tuned into each individual child. Treat children as an individual with their own needs and preferences. Remember, we're not designing children, we're helping children grow.

Dawson: Not designing children, helping children grow. I love that sentiment. I can only add here at the end, a big thank you for all of the work you do to nurture children and support children and their families. It is such important work.

Beth: Yes, exactly. Thank you so much to everyone for joining us today. We appreciate you and all the work that you do. We'll see you next time.

[Music]

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