Speaker 1 (00:00):

Stacy Gehringer (00:06):

Hello. Welcome everyone. Thank you for tuning into the CASCW podcast channel. My name is Stacy Gehringer and I'm the Outreach Director at the Center for Advanced Studies in Child Welfare. We are excited to share our latest podcast series with you. This series is titled Early Development and Child Welfare and features interviews with a variety of professionals in the fields of early childhood and child welfare listeners will enjoy content related to attachment, culture, screening, brain development, infant mental health, and more. Please be sure to subscribe to our channel for future episodes. Thank you for listening and take care.

Kris Johnson (00:50):

I'm Kris Johnson. I've worked in Minnesota for many years in child protection, both as a worker and as a child protection supervisor. I'm here with Dr. Dan Berry Associate Professor of Child Psychology in the Institute of Child Development at the University of Minnesota. Today, we will be talking about early brain development and how it is impacted by interactions of genetics and the environment. So our first question, what are the neuro-biological hallmarks of an infant brain and how does the infant brain look different from an adult brain?

Dr. Dan Berry (01:25):

Thanks Kris, for having me here. I appreciate it So the big question and I guess the kind of easiest answer is, well, those brains are much smaller. Baby brains are smaller, but they're also different in kind of qualitatively and, kind of amazing ways. And one of the biggest hallmarks, I think of early brain development is just how rapidly it's going. It's kind of unprecedented. So if you think about what's going on prenatally. We go in, and of course of, uh, um, pregnancy, you're going from a neural tube, that's about three millimeters long, which actually become the brain, um, to this. So this little thing that grows into essentially what is a very small kind of adult level shape looking brain by the second trimester, you've got all those gyri and all those, those, the, the kind of worm-like structures, the gyri that my kids say, it looks like a bowl of shrimp.

Dr. Dan Berry (02:24):

So you you've, you by a second trimester, you've got all that. Um, and you continue to develop that. Um, and until you're born and you had at birth around a hundred billion neurons, right? So that's kind of adult level neurons in terms of the number you have. And so neurogenesis, the creation of neurons, um, is kind of largely there at birth. Um, you can continue building growing and building them, um, throughout life. But largely what's happening, afterwards. So you've got this massive growth that's going on. So prenatally, so to get to that level, you've got to go from essentially nothing to creating about 250,000 neurons a minute for the entire time of pregnancy phase. So it's this massive growth, and then it's no wonder that, you know pregnant moms are so tired. This, all the energy that goes into building these brains is amazing after birth.

Dr. Dan Berry (03:27):

So it's more about building the connections between those neurons. So it's not just forming neuro neurons, it's the way you're creating networks between them, how they talk with each other and that's

going under rapid growth, really across infancy and toddlerhood and early childhood. Just this really rapid growth of the connections of these areas. So as kids are getting input from the environment, it's, what's building these connections, creating this architecture, that's the foundation of how they interact with the world. So, so much so that they're actually over producing these, these neurons, these synopsis, these connections between neurons, and with time and experience the ones that get used the most they become increasingly more efficient. So, they developed what's called myelin, but it's a fatty sheet that actually it functions like insulation on electrical wire.

Dr. Dan Berry (04:27):

The more insulated a wire is the less energy is lost in north efficient energy is transmitted. The more that happens more easily information is passed from neuron to neuron. And the more that happens, the stronger these networks become the ones you don't use. So you've created an overabundance of them. They become pruned away. So if you don't need it, you, you get rid of them. So the growth of the brain early on is this rapid cycle of kind of pronounced growth. But then slowly a kind of pruning away of the networks that you don't need as much. And that leads to much more efficient connections that are tailored to your environment.

Kris Johnson (05:16):

So, as you're talking about it, when an infant is born, they kind of have the hardware, you know, that, that the structures are there. And then it's the experience that connects up or creates the connections within the brain. And then as time goes on, those connections either become strengthened or just sort of fall away, depending on that ongoing experience. Is that kinda what you're saying?

Dr. Dan Berry (05:42):

That's exactly right. That's exactly right. Yep.

Kris Johnson (05:45):

All right. So then, then one of the take home messages of that is those, those early early experiences that are laying down, the connections becomes so vitally important.

Dr. Dan Berry (05:56):

Yeah, that's right. I mean, these are, again, it's like a foundation. It's everything that comes afterwards is built on it. And so, uh, you're kind of think about it is setting, it's sending you down a pathway and now, there's always room for change, right? So these are, these are probabilistic, connections, these are probabilistic you know, phenomenon in terms of development. It's not that you you're, if you have one thing happen, you're, something's definitely going to happen with their brain. You know, there's but it is this gradual process.

Kris Johnson (06:31):

So as you're talking about this, I'm trying to think of like an example of, you know, a six, seven month old infant, sits on a parent's lap and you read a book and the more you, you know, so as you're doing that, just the experience of sitting on the parent's lap and reading a book, is that creating brain connections in that experience?

Dr. Dan Berry (06:54):

Well, so in terms of the networks that you use, so yes and no. So that is, that's a kind of a, kind of a first step in the process. So typically when you're trying to connect these networks together, so it's if you think about kind of what learning is in the brain, it's sometimes referred to as long-term potentiation, but it's the, the extent to which these connections remain robust. So they're there and they're pretty ingrained that usually takes multiple GOs. So if you just do a once-off, you know, it's, they're going to be benefits from it, right. Kids feel good when they're next, do caregivers that they like being around, right. There's going to be benefits in terms of just their experience of the world, which I think is also a very good thing. But in terms of learning from that book, what they're learning is at that age at six to nine months, they're learning, oh, this is enjoyable.

Dr. Dan Berry (07:45):

When I look at mom in the course of this book, or look at grand mom or dad or whomever, they look it back at me. Oh, and they smiled well, that makes my body feel nice. I like that. I'm gonna smile back at them. We're going to have this back and forth of me engaging with my caregiver and they're going to respond back. And that is building neuro-circuitry, that is not necessarily learning about the book per se, but it's learning about myself. It's learning about my relationship in a kind of implicit, automatic way with this adult. I'm building my kind of, internal understanding of what I should expect from this adult. And that is for that, that itself serves as a structure for supporting engagement with the environment. If I feel safe and I'm enjoying this interaction, I get to, my attention is going to dig into it. I'm going to get more out of it. And I'm going to unders, and I get to understand this relationship a little bit better.

Kris Johnson (08:44):

Sure. So then I think about maybe a little bit older than six to nine months, I'm holding the book and I'm saying, where's the bear and babies points to bear, and I think there's bear. And then they giggle or something like that. Is that more like the interactive stuff you're talking about?

Dr. Dan Berry (09:00):

Yeah. And, but I think, I think functionally, they work, they work very similarly, whether you're dealing with a kid, who's just learning to read, say a kindergartener, uh, or whether you're dealing with a baby, because ultimately what you're trying to do is facilitate engagement. And with a baby, it's more about facilitating engagement with the relationship with the parent, what is like, it's building that back and forth and the baby learns what to expect, but to pay attention and learn from it. It needs that kind of an effective kind of feeling component to it. And that's the same way if you're teaching a child to read and reading a book, and you're saying, it's not just about there's a bear. It's, there's a bear. Oh my goodness, this feels really good too. So now I'm actually looking where mom is pointing, or caregiver is pointing.

Dr. Dan Berry (09:46):

I'm probably making more note of it because my body has been primed to pay attention. My brain it's been prime to say, oh, this is cool. I really enjoy this. I'm going to put my attention here. And if you do that enough and get those inputs, you're gonna gradually learn what a bear is, or, you know, all the, all the component parts that come in, the reading, the language development, the, you know the critical thinking, all those things come through, through engagement, but you learn more when you're in an affective place where you feel good, where you're feeling kind of comfortable.

Kris Johnson (10:22):

Sure, sure. So, so the, the kiddo, the infant, the baby's feeling comfortable and I'm as a caregiver, noticing that. So let's say I'm noticing baby's not comfortable. You know, the baby's going or starting to whine or starting to cry or whatever. Then, then what you're talking about as, as the parent, then I'm kind of tuning in and trying to figure that out so that the baby can settle and get more comfortable. Is that, does that form brain connections too?

Dr. Dan Berry (10:51):

Absolutely. And in the brain of the parent, right? So what we're talking about is two brains and two bodies that are learning from each other. And the same works. Parents get a boost of physiologically when they see their child smile and they see their child's face compared to another face, another child's face. It's nice experimental work that shows that's the case of the brain responds to pictures of your own child, more than it does to pictures of children. You don't know. And so you can think about these as it's really two bodies and brains talking with each other and they're learning from each other. Um, and so, but it is this back and forth. It is this child's leading the game. If you, if you misread something, that's fine. Um, w you're not supposed to be getting it all the time. It's kind of, are you learning though, are you learning how to read your child's needs and in turn, how to respond them?

Dr. Dan Berry (11:42):

It's not just about being lock step all the time. Um, but it's about kind of accumulation of experiences over time, that allows us to attune to our kids more effectively. And it lets the child understand kind of what they should be able to predict in their environment. And this predictability is a big part of feeling safe, understanding what's going on in the world. Is that historically, you know, when I've gotten made that noise or I seem unhappy, well, mom or caregiver has noticed that, I'm a little, not so happy and she's backed off she'd maybe I was overstimulated. Maybe I'm feeling hungry. Is she able to, you know, or he able to understand that and respond accordingly? And that's what we, that's the idea. The folks at the Center on Developing Child at Harvard have coined the term serve and return. So it's a nice metaphor for child serves parent under interprets, notices, and then interprets the kid, the child behavior, and tries to respond accordingly. Maybe you don't get it right all the time. That's fine. You just try again, until it works and with time, you get to it and parents know you get to know your kids, you get to know the little signals and you get better with it with practice as well as a parent.

Kris Johnson (13:03):

Sure. So serve and return that process. It, isn't just kind of getting us through the day of my baby's fussy. I want him to settle so he can go to sleep, you know, that's the here and now, but the other thing that's happening in that is that all that brain work is happening. So that they're the next time they're learning what to expect about. If I do this, then mom and dad do this, and then I settle, or if I do this, then grandma hears me or auntie hears me or whatever. And I settle. That's kinda what you're saying too, that it isn't just about getting through the day. It's also about the very longterm, um, brain building that's happening in those immediate interactions.

Dr. Dan Berry (13:42):

Yeah. So I say, I'd say yes and. So I'd say, I say this as a parent with two young kids, sometimes you just need, sometimes you do need just to get through the day, right? Like sometimes, like we're real people. Right. And part of you know, in being a parent is learning how to regulate, regulate yourself in the context of being a parent. Right. So I think we need to be careful not to get parents scared that they can't make, you know, small mistakes. And these aren't even, that's just, this is just the real world. Right.

So, I want, I don't want to go to too nuts on it, but I do think it's, it's kind of a yes and scenario. So sometimes if I just need to, you know, get, get my life in order and baby, baby's going to go have a nap, hang out for a little bit.

Dr. Dan Berry (14:29):

It's, sometimes you need to do that to regulate yourself. So you can be in the picture in a better way, the next time, setting yourself up for success, in terms of these back and forth, like more nuanced, back and forth. I think it's not one of the other, there could be some very practical things about, you know, engaging with your kids, but I think you're absolutely right. That is not just here now. It's here now and the here and now by the nature of this exchange between us, that is what's building these foundations. It is creating quite literally a physical structure in terms of connections in the brain that are gonna they're undergirding, all the other stuff, all the higher level learning, if that structure is not there and makes all that other stuff more difficult. So that's, that's kind of the way I'm thinking about that. Yeah.

Kris Johnson (15:20):

Well, and that's, that's a super helpful clarification because as parents, we also put so much pressure on ourselves and it's just the, you know, that feeling of, oh, no, we had a bad day or, oh, no, we had a thing happen. Doesn't mean that kids can't bounce back from that and recover. And it like that long-term consistency is probably what we're going for, you know, within the hiccups of bad days, bad experiences, rough times, that kind of thing.

Dr. Dan Berry (15:45):

Yeah. That's exactly right. You're building a repertoire. Right. And that, and the nice thing about that, if you have that, if you're working on that early, the stronger foundation, they have that the more okay. It is to get off a little off kilter every once in a while, right. Because the expectation, and so over the first year, really when kids are kind of developing these attachment relationships, what those attachment relationships are, is essentially their ability to understand that you're going to be there. And that when they get a little dysregulated, they can look to you for help. This is all kind of automatic and implicit. This is not, you know, kids reasoning about this stuff. This is all the bodily understanding that you're there for me, that's not, that's not created through a one-off thing, right.

Dr. Dan Berry (16:33):

That's created through the kids are in coding, these experiences over the longterm. Over the longterm, my caregiver is able to read my needs and respond accordingly. And that serves as we kind of think about it as like an eternal affordance, if I believe that I'm taken care of, I'm more likely to explore things on my own. I'm trying, I'm going to be as a toddler a little bit more you know, bold as I explore the world, cause I can look over my shoulder and know that my caregiver is there just the fact that they're in mind and that I know they're, there is a support, it's a scaffold to try new things.And that is the kind of cornerstone of learning.

Kris Johnson (17:19):

So we used to hear a lot about nature versus nurture, the argument with respect to a child's development, but in light of modern research, we've come to understand it's not one or the other, but an interplay of the two. So, I think we've been talking about the research fields current perspective, but do you have anything to add to that or, expand on with that?

Dr. Dan Berry (17:40):

Sure. I mean, just to reiterate, I think I'm glad that the old debates of is it nature or nurture or um, made their way to the dustbins time as my, one of my old advisors used to say, um, uh, so that's done and that's partly because we know now that at a, at a molecular level, you can't separate experience from, from genetics. So, genetics, typically people think about DNA, right? So these are the, what allows the us to pass along traits, right. It's has, it's this four letter language where it's read and transcribed into RNA, which is made into amino acids, which in turn is turned into proteins. That's what a gene is. It's something that turns a protein on or off, but the way genes work is they're not like a light switch that goes on or off.

Dr. Dan Berry (18:30):

It's more like a dimmer switch. So you can turn it a little more or less on and what we've learned and the.... we here, I'm not an epigeneticist. Um, but the folks who do epigenetics have, have found through a lot of really elegant work in rodent models and increasingly with human models, um, shown that experience actually, kind of intercedes in the level, going from DNA to essentially to turning the gene on or off. So gene expression. So quite literally an experience will go in, put a biological molecular marker that sits on the DNA, particularly in areas of DNA that play a role in this regulating the gene, how much it turns on and off and through experience that gets embedded in the DNA and therefore the gene that it would have coded for prior or the how the gene functioned prior in the cell is now changed because this little marker is sitting there and it changed the way the gene is read. So you just think about this as kind of like, oh, a biological way of embedding experience that literally function how the gene turns on or off.

Kris Johnson (19:43):

Sure. So a lot of super technical information in there, but it sounds like, again, the take home message in that is that our brains are changed at a genetic level based on experience. And that, that experience once that brain changes. So that dimmer switch goes up a little higher. Does it stay there? And so it's just there now based on that experience or does it dim, you know, brighten or dim based on continued experience?

Dr. Dan Berry (20:18):

Uh, great question. So the answer is kind of yes, to both once there is this kind of epigenetic and embedding. It can actually be passed on to future generations. So if, if a mom or dad has this change, it's possible, they can actually pass along that change to their own children. So once it's there, it's kind of, there, there can be changes at the, at the level of the DNA, but ultimately you can still change the behavior. So let me see if I can come up with an example. So a lot of this work was actually started in rodent models and what they would do is you could have, you could have mice that are genetically identical, right? So mice, you can inbreed them over and over and over again. So you have these mice you work with and did it have the same DNA for pretty much almost like mz monozygotic

Dr. Dan Berry (21:07):

twins and it also happens that there's kind of natural variation and some mouse moms are really engaged. They're doing lots of licking and grooming. They're just really into kind of licking and grooming their pups. They're doing art, they lean their backs and an arch. So the pups could feed really well. Um, and despite the fact that they're genetically identical, some mouse mom or rat moms do this more than other rat moms. So what you can do is you can actually take one of the rats from the high licking grooming mom, have it be raised by the low licking grooming mom and do the vice versa. And so if they

had, they had presumably if they had passed along this epigenetic marker. So let's say there was an epigenetic marker for licking and grooming. If you were a low licking grooming baby, and you're raised by, a high licking grooming mom, you will look more like the high licking and the grooming mom, like later in life. So even if, even if you have the epigenetic marker, you've inherited it from your parents, let's say, you can still change the behavior. It just may not be through the same, uh, epigenetic mechanism.

Kris Johnson (22:19):

Sure. So like a that's a really good example of it really is both. It is, it is the genetics and it is the experience and the interplay of those things to see how that plays out for the infant. And as child welfare workers, I think we, it's helpful to remember that. And as parents, it's helpful to remember that, that the experience isn't the be all end, all the genetic, isn't the be all end all, it's both. And we, and we want to see that interplay over time.

Dr. Dan Berry (22:52):

Absolutely. The brain is massively plastic. It can reorganize. So even if you had certain experiences that lead to, to be the epigenetic or, or not, they could just be experiential in terms of the way a brain is forming. That's setting up a pathway of development, but things can change. The brain can reorganize. And so, you know, an extreme version of this, for instance, language, you know, language development, is language is lateralized. So it's you see a lot of the kind of language regions of the brain, the left hemisphere. There are kids who have epilepsy who long after developing language into their mid, mid childhood, even adolescents. Um, one, if you have extreme epilepsy that doesn't respond to certain treatments, the extreme, intervention is to cut out one of the hemispheres. Um, and you'd think that, you know, because language is so lateralized to the left, that if you, if you cut out one of the hemisphere, the left hemisphere you'd lose language.

Dr. Dan Berry (23:57):

Right. But the brain actually reorganizes. So even this thing that's thought to be, you know, kind of have a sensitive period even into adolescents, in the middle childhood, when you have this very extreme intervention, the brain can reorganize around it. And these kids can still have language despite this, this change, so that the brain is remarkably plastic and finds ways to reorganize. It doesn't mean we're always erase everything completely from our past you know, but, we can learn from our past and we can recreate neural pathways and novel ones.

Kris Johnson (24:40):

Sure. Well, and you just alluded to this a little bit, but maybe you could talk a little bit more about those sensitive periods of brain development. Can you explain what's, what's meant by those sensitive periods and what's happening neurobiologically ?

Dr. Dan Berry (24:54):

Sure. Well, yeah. So when folks talk about sensitive periods, I guess first we'll say what I think most people mean is that there are times in development that are particularly sensitive to certain types of inputs. So, um, you know, an example might be the brain is expecting to have back and forth exchanges, social exchanges with another character, with a caregiver and adult .Like the through evolution, processes, that's baked in. That's what we call that an experience expectant process. And if you don't get that kind of basic species level expectations, so for instance, extreme neglect, if you're in a neglectful

environment, that's not giving you those things, a sensitive period would suggest that maybe if you don't, if you miss those experiences at a particular time in development, say in the first few years of life, it's going to make it harder.

Dr. Dan Berry (25:52):

If you then get got those experiences later, say at age three, uh, it makes it harder to kind of fix or ameliorate kind of the things that were caused by the early deficit, that does that make sense? So, and that's distinct from a critical period. So people also often kind of use the terms interchangeably. I don't think I don't like that because I think critical window suggests that there's a window and then it closes and then you're done. Um, and I, and there's very little evidence for critical periods for complex things like social outcomes and complex, cognitive outcomes. So sensitive period just means that there might be a time that's particularly sensitive to these experiences, but not that the door is shutting completely. And so there does seem to be some, so a lot of this evidence, comes from studies of kids who are in institutionalized care, often in places in Eastern Europe, Russia, Romania, that for reasons of history had big influxes of kids that were going into these orphanages as institutions, but they didn't have the infrastructure to get these kids proper care.

Dr. Dan Berry (27:06):

So these are kids who are getting, you know, the basic needs they're being fed and they're being changed. But they're not getting social stimulation. They don't have consistent caregivers. They're being housed in, you know, rooms with many, many kids. So this is just, this is straight up neglect that they're getting. And there's some indication, that the earlier, if you, for kids who are, who are taken out of those circumstances, the earlier you're taken out the better, in terms of your long-term outcomes. And this is true for, you know, really a big range of outcomes, everything from, you know, physical growth to brain growth, to, you know, attention, executive functions. So how you hold information, and do kind of complex thought., Neural development to kind of the way these connections are being built in the brain.

Dr. Dan Berry (28:02):

Um, so the earlier the better is typically the take home there. Um, I, you know, I don't think from the data you can say there are any hard and fast thresholds, um, and it kind of varies across the different outcomes and, and such, but I think that one take home message from that literature is that they're, you know, getting less of bad stuff early is a good thing. But I'd also say that these are really extreme environments. So this is not talking about the types of normative experiences that kids have. These are, these are the types of environments that aren't normal for our species. And so this is kind of, you're not getting a basic need. So that's typically when folks talk about sensitive periods, it's a really hard thing to study empirically. Because we can't ignore, we want to randomly assign kids, you know, to certain doses and certain timings of bad stuff.

Kris Johnson (28:59):

Yeah. But it sounds like the thing that's important for us to remember. And I think when you, when you think about it, in terms of child welfare, the situations that might grab our attention would be kids acting out or kids exhibiting behavior issues, which oftentimes you don't see till school. And the thing for us to remember is actually those sensitive periods are happening before school.When kids might not be signaling us, so to speak that there's concerning stuff happening, but we as child welfare workers need to think that way and be aware that those, that early life experience, is making a difference. Even if the kids aren't showing us the poor brain development that might be happening, is that fair to say?

Dr. Dan Berry (29:48):

Yeah. That's a really great point and great observation, Kris. And we actually, that that's, that's evident in the data to some degree. So if it's the case that, you know, you see kids that are maybe acting out, but maybe that you don't, that doesn't become more clear until school. So you have to kind of look for those signs are, are evident before school, but they also, those transitions into new environments bring with them all kinds of new sets of experiences that could be challenging for the system, but they're challenging because of, you know, where you started, right? You didn't, so if you didn't have those, if you're in those experiences that lead to difficult attention, not great social skills. So one thing, for instance, you see with these kids who are in this post institutionalized care, and then, you know, moved out of that, those situations, they, one of the trends of behaviorally is these kids tend to be kind of overly solicitous. They tend to be, they'll hang out with anyone. They're excited about interacting with any adult. It's not about special relationships. It's like, you're equally happy to see this stranger as you are to see, you know, this is the person, you know, better. And you can imagine how, what that's like, a kid who's entering a peer group, in this overly solicitous way that could lead to peer problems. And those are stressors that could exacerbate problems.

Kris Johnson (31:05):

Sure. I think in, in child welfare, we see, we see that all along the continuum. Sometimes we see kids that like, you walk in the door and they jump on you. And it's like, oh honey, you don't know me. And so we try to say, you know, you sit over there by your mom, cause you don't know me, do you, and then we also see those kids that are a little more, I don't think this is the right word, but it kind of numbed out, you know, that, that that's also, you know, that, that might be, you know, parenting, you might think they're, they're doing okay, but actually they, you know, they're not seeking cues and they're not seeking out adults. And that's a different type of, of signaling to us that something isn't going on well, or that there's a problem.

Dr. Dan Berry (31:49):

Absolutely. Right. So there are kind of more externalizing types of behavioral profiles. What is the kind of, and then there's the internalizing, the turning in and those anxiety kind of early depression, you know, even, even kind of PTSD type symptoms you can see with kids. And so yeah, some things are easier to see than others. And you, you kind of got to keep a skilled eye looking for both.Absolutely.

Kris Johnson (32:16):

And I think that's a message that I'm hearing from you is keeping that skilled eye on the child, you know, that as child welfare workers we'd go in and we're so focused on the parent and we're talking to the parent and getting information from the parent and listening to that. But then also then to turn our lens to what are we seeing in this kid and asking the parent, you know, what, what does the interaction look like and how is it to parent this kiddo? And is this a baby who cries a lot? Is this, is this baby pretty quiet? You know, that's what I'm hearing from you too, is that, not just the interaction that we have from the parent, but, but you're really speaking from the perspective of the kid and what is the kid or that infant telling us, or showing us in their behavior.

Dr. Dan Berry (33:04):

Yeah. So I think you definitely, that's something one needs to attend to also, the interactions. So when a child is behaving, so how does the caregiver respond? You know, so in that, what is the dynamic between the two? I mean, that's the, if I can relay anything its the importance of systems, so, you know,

children and parents don't exist as these standalone things, there's a dyadic component that's bigger than the sum of its parts. And so understanding that relational back and forth. And that it, I think that's kind of where the, where we need to pay critical attention to. And also though I go beyond that, it's not just the child and it's not just the parent. It's not just the dyad. These kids have rich networks of systems. So that could be other family members. That could be extended family members. That could be resources in the community that could be, and you know, all these things play in, they affect each other.

Dr. Dan Berry (34:04):

That's the thing with systems when you affect one part of the system, it trickles down and affects the others. So I would say absolutely think about what's going on in that child's life, but also the child in the caregiver context, how they work together and then broadly, how is that, that kind of dyadic context between caregiver and child nested within these other structures of the family. And my guess is that family's vary in kind of what those networks look like, right? And so what is going to be the best way to kind of intervene? And it's going to differ between kids in terms of, you know, how our families, in terms of what networks they have, what assets they have. So that, yeah,

Kris Johnson (34:50):

Well, I was just going to say hat's helpful clarification, and that's also ideally how we're doing our assessments and how we're, how we're interacting with the family as we're looking at that whole picture, not just what happens in this household or in that snapshot of the hour and a half visit that we have with the family, but what are the other relative seeing other parents, the extended family, what did the teachers and the neighbors, what are they all seeing and experiencing with this family and how can they add in support to the family? It really fits with what we do in child welfare, because we want to be seeing that family as part of their whole environment. And it sounds like you're saying that we want to strengthen up and support and consider all those different aspects of the environment to add and support to the child's development.

Dr. Dan Berry (35:38):

Yeah, absolutely. So, I mean, just as given that, you know, maybe try to give a concrete example if you are a parent and particularly if you know, if you're in a family that's struggling with economic adversity, these families are often working multiple jobs. They're working service sector jobs. They are not kind of nine to five, and a big stressor in these family's lives is what do you do with your kids? Like you want to find high quality care. So maybe it's, maybe you have an extended family that can help, but maybe you don't. And so some families are going to have that other families are not, if you're in a family, that doesn't, well, how do you think about the system? Well, if mom is, or caregiver is stressed about having to negotiate, where are the kids going to go?

Dr. Dan Berry (36:20):

That's just one more thing. That's one more thing on this pile of things that these families are trying to negotiate and that can, and does trickle down to these more proximal engagements. So perhaps it seems like if I were walking into that situation, you know, one solution would be like, all right, well, let's think about parent child engagement. Well, maybe they're actually fine if you free up mom's resources, if you, if you just kind of allow her to be less stressed, she's going to fall right into a nice rhythm. So a way to alleviate for some families might be like, maybe we should talk to our childcare resource for folks and what is available, how can I fill in that gap? And maybe if I alleviate that tension, that's going to help the system kind of fall into it's more, you know, optimal back and forth. And that's going to differ

between families, but it's again let's think about all these different systems and all the kind of culmination of leavers that you could do, interventionally that are going to help facilitate this kind of going back to this more optimal serve and return. It's thinking that's the mechanism of growth that we hope for. So what can we do for a family system to maximize that for kids' experiences?

Kris Johnson (37:37):

Sure. And that I think about experience that I had with families, I would look at some families and say, if this family had everything else around them, okay, they've got it. They are attentive, attuned, really, and do really sensitive parenting. And then there are other families that I remember looking at and thinking, I don't think they know what to do if it was just this caregiver and baby in a room, I don't think they would know what to do. And so that's an entirely different intervention, right? That's more like those home visiting programs and that kind of thing to say, let's, let's talk about how you coolat your baby and talk to your baby. Some parents do need that very hands-on, you know, for example, if they didn't get that in their upbringing, they need that versus the family that's like, they can do that. It's just everything that around them is stressful or all gradations in between. But that's part of what we're watching for in child welfare.

Dr. Dan Berry (38:45):

Yeah, absolutely. Right. So and they're gonna require different mechanisms, right. And different types of interventions. And that could be within the same family over a given stretch of time. Right. They can go from not knowing to knowing, how to engage, that it's interacting with kids at different ages is, are different, right? So maybe you're not so good at it with a baby, but maybe once they're talking and able to express their needs a little better, you're going to be able to, to engage a little bit more. So even within a family, this balance of kind of where the most effective leavers for change are, could change. So I think it's a really hard job, right? Like you're expecting a lot out of you know, limited resources.

Dr. Dan Berry (39:33):

You're seeing a lot of families for a limited time, it's a lot to figure out. So I, by no means I don't want to give the impression that this is easy. It is, it is not. But I think starting with that kind of systems level thinking and individualizing for families again, with the keeping in mind, the goal, the goals for kind of these are the optimal types of engagements that we want between caregivers and children. How do we make that happen? And that's going to vary.

Kris Johnson (40:06):

And I think that's, it's helpful feedback to say, if you've got the mom or primary caregiver, whoever that is, working two jobs and struggling to keep the basics, there are other people in that environment that can, that can be that sensitive attuned caregiver for that period of time while the mom is meeting basic needs. And so in some ways that's kind of a relief almost that, that if we think bigger and we think more systemically, it gives us more options to bolster up that family. And so it doesn't just have to be, oh, oh it's this parent or nothing like w we can get at it from multiple directions.

Dr. Dan Berry (40:51):

Yeah, absolutely. Yeah, I mean, it's kind of a light at this point, but it takes a village. It does like it, you know, like we don't exist as kind of standalone entities in this world. Right. We're tethered to the world and other relationships and we should find where those assets are, and try to use them the best we can. And I think that's going to be very different for different families. And even within a given family for

different, for a given point in time. But thinking, you know, with that, starting with the mechanism and then backing out to kind of the systems that can support that mechanism, it might be a fruitful way of kind of thinking about these questions.

Kris Johnson (41:31):

Sure, sure. Well, I think we've gone through our questions, that we we've covered a lot of different areas. Is there anything else that you think we should talk about, in this worker or some of the main takeaways that you want us as child welfare workers to get from this field that you're working in?

Dr. Dan Berry (41:53):

Yeah. I mean, in terms of some takeaways, I'd say you know, as a species, we are social animals, we come expecting these things. Kids also come with lots of skills, so we're not, you know, just blank slates either. Right. And so figuring out how to kind of maximize these, these social engagements early on are literally the foundations for all higher order stuff. So it is everything is built on these, these early experiences. Not that they can't be fixed later, but we're setting the systems off in a direction. And that's how these, and so we want to start in a good direction and in a direction in which kids are engaged with other people, they feel safe. And, at the neural level, this actually allows you to learn better. So I, it is just this idea of the way you experience in the way you feel the world actually experiences how you learn from the world they're inherently intertwined.

Dr. Dan Berry (43:02):

And so in a sense, it's like saying something as emotional, as something as cognition is really a false dichotomy. You know, these things are always interacting. And so the more we kind of think about what is getting kids feeling good? What is getting them engaged, challenged in a good way? So like stimulated, right? Like these are the things that are just crucially important. I also think that you know, we need to think about what one of the things these kids are, all kids as a species, like as a human species, what kids are bringing to the table is a set of skills where they're interested and engaged in social interactions. But they're also, we've evolved that these systems are very flexible to experience. And so our experiences are calibrating our brains, our experiences are calibrating these complex connections between everything, between our stress physiology, the way we think, our immune systems, all these things are complexity organized, but it's experience that is organizing them and it's organized.

Dr. Dan Berry (44:08):

And then in a largely consistent way to adapt in that environment. Sometimes the kids might, it might look like this is, oh, this is a kid who is dysregulated. And I think it's easy to toss that up as saying, oh, this kid has, this is a broken brain. This is a broken, what have you. And that's not really the right way to think about it. It's the way to thinking this is an adaptive set of behaviors that allows this child to live in this, to live in this given environment, because that's the way their environment shaped these complex systems. It helped organize it. And so I think the idea of maybe trying to back away also, when you're thinking about kids in these scenarios, as overly pathologizing them, these are skills, they're a different set of skills.

Dr. Dan Berry (44:53):

They're not skills that we necessarily want to see in kids. We don't want anxious kids. We don't want hyper-vigilant kids, but nonetheless, that's a really adaptive way of being in the world if you have an

unpredictable or unsafe environment. So I guess what I'm trying to say is, you know, thinking about adaptation and as opposed to kind of pathology as we think about how kids develop, I think that's an important thing to think about because it means that these are not just broken systems. These are systems that are internally consistent. And that's one of the reasons why it's it's, you know, intervening is, can be difficult, because they have adapted. So we need to kind of think about what led to this particular organization, as we try to tailor kind of the way we intervene with kids or interact with kids in these scenarios.

Kris Johnson (45:45):

Yeah. That's really helpful information. And just throughout our talk today, I feel like the themes or the bottom lines that you've given us are that that infancy and early childhood are incredibly important. And that the experiences that children have in that time are critical for the lifetime, but also flexible and adaptable as time goes on. And that we really need to think of that child in terms of their system that this isn't just a child, you know, if a child's exhibiting a behavior or something that draws our attention, look bigger, look at their system around them, both for what happened to them. And also where are the solutions or the situations that might help address and manage that situation and help improve the situation for all of them? Any final words?

Dr. Dan Berry (46:48):

No. Well, I will say at first, I mean, that's a great summary. Thank you for that, Kris. That's exactly right. And no, I mean, I think it's the kind of thing I had. I could talk about this all day. So, but, I appreciate you, the interview and the chance to talk about today.

Kris Johnson (47:06):

Well, great. Thank you so much for being here. I know that I've gotten a lot out of it too, and a lot of insights. So, thank you.

Dr. Dan Berry (47:14):

Thank you.

Stacy Gehringer (47:19):

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