THE GROWING BRAIN

Episode 1: How the Growing Brain Works
Guest: Dr. Laura Vogel
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In this episode, we talk all about the brain. How are children's brains wired and developed over time? What should parents know about the growing brain? Learn this and more in the first episode of The Growing Brain.

Welcome to The Growing Brain, a social emotional health podcast. This podcast is produced by Momentous Institute, a nonprofit in Dallas, Texas, dedicated to social emotional health for kids, families, adults, and communities. This first season of The Growing Brain is dedicated to parents. We will explore the joys, challenges and mysteries of parenthood through the lens of social emotional health. In this series, we'll shed light on topics such as how kids' brains work and healthy discipline, all better equipping parents to grow healthy brains. I'm your host, Maureen Fernandez with Momentous Institute.

Maureen *Welcome to the first episode of The Growing Brain. I'm Maureen Fernandez and I'm the content director at Momentous Institute. At Momentous, we focus on social emotional health, which we define as the ability to understand and manage one's emotions, reactions, and relationships. As parents, one of our primary roles is focusing on helping build our children's social emotional health.*

And so what does that mean? To focus on social emotional health means we are being intentional about how we teach kids about their emotions and about their reactions and about their relationships. So in this podcast, we will explore different parenting themes through a social emotional health lens.

And today's first episode is all about the brain. Our first guest today is Dr. Laura Vogel. Laura is the director of therapeutic services at Momentous Institute, and she oversees the therapy programs and our direct work with children and families. Laura is a licensed psychologist and also a parent to two teenagers. Thank you so much for being here today, Laura.

Laura Thank you. Thank you for having me.

Maureen *And Laura and I are both parents, but we're on opposite ends of the parenting continuum. I have three kids under seven, and Laura's kids are… how old?*

Laura They're 16 and 19. So definitely adolescence… in the throws of that.

Maureen *So we, uh, have very different parenting experiences at home right now, I'm sure, but when I was thinking about this podcast, I was thinking, what are some topics that... parenting topics that affect all parents from newborn, all the way up to your 19 year old. And, um, one of the biggest ones I think is understanding the brain. And understanding the brain is just, we don't get a lot of attention on the brain. And it's so important to understand how the brain works and what's happening in our children's brains. And so I was hoping that you could help shed some light on that for us today. A lot of what I know about the brain comes from you, and, and once I… I can speak for myself… once I started understanding the brain, it definitely shifted how I showed up as a parent. And it helps me discipline better and also connect better with my kids. So I was hoping you could just give us a little bit of insight, just starting with the basics. What can you tell us about the brain of children?*

Laura Sure, sure. And I, I'm glad to hear you say that because I do think, as we develop a deeper understanding, just neurologically of what's going on inside our own brains and our children's brains, both for parents, for teachers, for mental health providers across… you know, just human beings, it definitely helps us show up differently, as you said.

Um, so of course the brain is a very complex, you know, mechanism. And so we're not going to get into all those granular, um, systems, but I think both for us as adults, as well as even for children to understand these components of their brain can be very powerful.

So I think about three really main components of the brain. And when we think about brain development, it starts from lower regions of the brain and develops from the bottom up. And from the interior of the brain to the exterior of the brain, that's just how development works. And so the very basic brainstem part of our brain, that's the part that controls, you know, those life necessary functions – heart rate, respiration, blood pressure, that sort of thing. It's part of the brain that develops first when we're pregnant and in utero. The next important part of the brain that we spend a lot of time thinking about is that mid part of the brain, the limbic system. Um, the amygdala is part of the limbic system and this middle part of the brain is what really controls our emotions. And, um, that's the emotional sort of, um, hub of the brain. When we think about specifically like the amygdala, that's the part of the brain that controls that fight flight or freeze reaction that we all will have. And that's, you know, a mechanism that keeps us safe. And it's one of those things that doesn't… we don't have to think through when a situation occurs that has a potential threat. If I'm driving to work and somebody cuts me off, I don't need to think through, oh gosh, somebody is in front of me. I should pick my foot up. I should put my foot on the brain… or not on the brain, on the brakes. Um, you know, I don't have to go through all those steps. I just slam on the brakes. And I know, and that keeps me safe.

That's that part of the brain, the amygdala, the limbic system that just reacts when a danger presents itself. And typically we will respond with, you know, one of those three sort of major categories. We either freeze, we fight back or we try to escape, you know, dangerous situations. And of course that's an overgeneralization, but, and we can talk more about that later. Like what that looks like in children, um, when they're faced with challenges and how we, as parents can respond to that.

And then of course, um, the most complex part of our brain is the prefrontal cortex. And that's that part of the brain that is at the very front and top of our head and our skull. And it is the part that we want access to most, you know, when we're trying to teach our kids different things. And it's the part of the brain that allows us to think, to plan, to think through consequences, to use focused attention, to learn, to remember.

We talk a lot too about the hippocampus. And so that's the part of the brain that stores memories, stores information. And so when everything's working right, and the hippocampus is functioning and developing well, we can retrieve that information that we've stored. When things aren't going well, or we're overwhelmed, the information is in there, but we can't retrieve it properly. It's sort of like a file cabinet where there's no alphabetical order. It's like it's in there somewhere, but I gotta dig through it. You know, when everything's in order, I can retrieve it quickly and use it effectively and efficiently.

So, you know, brainstem, mid part of the brain - limbic system, amygdala, hippocampus, thinking about our memory, and then of course the prefrontal cortex, um, are the, the major parts of the brain that we talk a lot about, and I think are important for parents to understand, and then for children, as well as they begin to get older and understand what, what do the different parts of my brain do and, and how does this affect my behavior and what I'm able to do and what help I need.

Maureen *I want to come back to what you're saying about helping children understand their brains. So I'm gonna come back to that, but you mentioned that the brain is developed over time and then starting with the brainstem. Um, can you talk a little bit more about, about that? What do you mean by developed over time?*

Laura Sure. And of course, you know, we all know that, you know, right after birth, there is this, this burst of development. So when we're infants, you know, lots of information is, um, being stored, lots of experiences are happening and the brain is developing. But if we back up even further and think about in utero, um, you know, of course brain is developing and growing, but we now know that mothers' experiences also begin to affect the baby's brain and how the baby's brain develops and grows in utero.

And we can talk a little bit more in a moment about, you know, what exactly is it play in that? So we think about in utero, right after birth from that most sort

of zero to age two, rapid changes are occurring. Children are learning to, you know, recognize voices. They're learning to sit up. They're learning to crawl and stand and walk and language and just massive, massive, massive changes are occurring and different experiences are being stored and utilized and lots of growth.

So that's a big burst of growth and development in that early infancy. And then it slows down a little bit. Of course, it's still growing, developing, changing, you know, throughout childhood, we get another significant period in that late elementary to middle school age time where big changes are occurring. So not just structurally are big changes are occurring. There's also changes occurring in our neuro-transmitters and, um, in what we think of as a, use-it-or-lose-it kind of experience in their brain. So I've kind of go through those, you know, each individually, but you think about when we think about middle school adolescents, there's this sense of like my goodness, these kids are making some really bad decisions and you know, it just suddenly like they lost their minds and everything's such a big deal and it's so emotional.

Well, there's a reason for that because what happens is in adolescents, the middle part of our brain, that limbic system – remember we talked about that emotion-focused part of the brain, that actually starts to grow and develop and expand at a faster rate than the prefrontal cortex. So it's like, it gets ahead of the thinking part of the brain.

And so massive amounts of activity is occurring in that region of the brain. So kids are more emotional and they're doing things that make no sense to us because that thinking part of their brain is still not caught up yet with that mid part of the brain. We also begin to see during adolescence, this, um, thing that's called pruning where, um, the brain starts to decide, okay, what, what experiences do I need to keep? What knowledge, what pathways need to still be there? And then those that are not used very much are sort of pruned off by the brain. And that's what allows us to become more efficient and more, um, think through things faster, make decisions faster. Um, we don't have to like go into that file cabinet, so to speak, we get rid of all the stuff we don't need, um, in many ways.

And so it does allow for… and that's why we see such creativity also in adolescents that there's this pruning and this, like, I can think about solutions very quickly and come up with ideas.

Um, one of the things I didn't talk about were some of the chemicals that are involved in the brain. I talked about the structure, but there's some key neurotransmitters that we think about the definitely play, especially in adolescents, you know, oxytocin, cortisol, and dopamine are three of the biggies that are important for us to understand. And so oxytocin is that feel good neurotransmitter. It's that thing that, um, we feel when we have a really positive experience and the classic example of is, you know, when you're

holding a newborn baby and that just luscious, you know, baby smell, like that, their little heads just, you know, all, all of us love that smell.

Maureen *I can almost picture, as you're saying, and I can feel that oxytocin…*

Laura Yeah so that's the thing that gets released and, and our bodies are designed to do that so that mothers will nurture their babies and want to hold their babies and want to be close to their babies because their body, you know, receives all this feel-good neurotransmitter.

Cortisol is another, um, neurotransmitter that happens in stressful situations. So that's what gets released when we're under short-term stress or long-term stress. And it activates that fight flight or freeze part of the brain. Dopamine is that neurotransmitter that is involved in a lot of different areas, so we think about movement and attention and learning and emotional experiences and reward system. Um, dopamine is definitely involved in that's why we see issues like with addiction, dopamine is often very connected or ADHD, dopamine is very connected. So the reason I bring these up is when we look at adolescents, we see changes in the brain around dopamine and that reward system, especially.

And so when you've got adolescents who are trying to make decisions about, well, I know maybe this consequences will happen if I, you know, sneak out of the house and go do some things with my friends, but that reward system is on high alert. And so the, the, the social connections, the rewards they get from taking some of those risks neurologically feel so good that it outweighs some of that logical decision-making. And so, you know, when we're making decisions about consequences and parenting and how am I going to respond to this, knowing that some of this really is neurologically their brains are kind of going haywire during adolescence. And that reward system is really being, um, sort of overstimulated.

So, yeah, so those are some of the big key areas. And then we think about adolescents actually extending into young adulthood. And we know now that you know, that development of the cortex really doesn't complete until my mid twenties. So still through college, yes, it's growing, it's developing, but, um, not until our mid twenties, do we really feel like, okay there's an integrated brain that all these parts can work well together and logical decisions can be made that really take into account long-term consequences, that sort of thing. It was a very long answer to your question.

Maureen *You just explained adolescence, it's a wonder any of us make it out of that alive… and parents!*

Laura Maybe that's why I spent so much time on adolescents because I'm like right in it.

Maureen *Um, no, that's really, uh, helpful. I think when I go back to what I was talking about at the beginning, that understanding the brain helps parents of all ages of kids, you know. I know when I understand the brain, it helps me when my two-year-old is throwing a tantrum because she doesn't want to leave the playground. Um, and then, you know, it helps parents when their 17 year old is like jumping off a roof into a pool, you know, and you're like, WHY would you jump off a roof into a pool? Um, so I would say the biggest learning for me as a parent is that piece about the amygdala reacting first. And, um, I've heard it explained by you and others about when the amygdala reacts, then really the prefrontal cortex almost goes offline. And that, that, um, that makes sense to me. And I see it. You can almost see it in your kids, you know, and thinking of a time, you know, all the times that my kids have, like, you know, somebody stole their toy and they're just, boom. They're totally fine and then their toy gets stolen and they're gone, you know, and they're not using their logical brain. Like, oh, maybe I could just ask for the toy back or I could go tell an adult that someone took my toy. I mean, they're just ripping the toy and they're fighting, you know? And so a really great book about this, that I know you reference a lot too is The Whole-Brain Child by Drs. Dan Siegel and Tina Payne Bryson and they have a strategy in there, um, for moments like this and they call it connect and redirect. I know you're familiar with it. Um, it's basically saying when the kid is reacting from their amygdala, you cannot start using logic and try and connect to their prefrontal cortex because it's offline and so instead you have to soothe them and calm them down and then you can use logic. So can you expand on that a little, tell us maybe how you've seen that strategy?*

Laura Sure. And I, and thank you for bringing that up, you know, cause you're right. Like when the lower regions of the brain, that's what I was talking about like when we think about bottom up and inside out. So when lower regions of the brain are not working well, higher regions don't work well. That's why, when we're sick, you know, in like respiratory, you know, our emotions are all out of whack. Our thinking is all out of whack. And so when we get this amygdala hijack, so I've had this reaction that, you know, I've been playing with my toy. My brother comes up and he snatches it out of my hand and suddenly I am melting down. And I just respond because I've had this threatening *quote unquote* experience. And oftentimes as parents and I am so guilty of this, you know, we want to go straight to using logic. We want to, you know, just, okay, well use your words, you know, did you tell him, or, you know, what did you do? What did you say? But a child, when their brain has been hijacked by their amygdala, remember, that thinking part of the brain when we're talking at them is not really working well. So we need to connect first in order to soothe that amygdala and soothe that you know, limbic system and help them learn to calm and regulate.

And so what we mean by connection might be: Wow. That was hard. I, that really upsets you when your brother took your toy, you weren't expecting that. It surprised you, it upsets you and it really makes you sad or it really makes you angry when, you know, he just takes that without warning. So it's… that's connection, you know, and hopefully there's this sense of like, yeah, yeah, you

get me, you know, like that is what happened. That is what I felt. And it was horrible. But that is helping the child number one feel felt so there's some connection there. And then it's beginning to help soothe that and regulate and calm that part of the brain down that mid part of the brain. So that then, okay, now I'm getting some access to that thinking part of the brain, the prefrontal cortex.

So then it's like, okay, you know, it really upsets you when your brother took your toy, really scared you, you weren't expecting that. And then I might actually just take a deep breath and let that first sink in, you know, and then it's like, okay, now what do you want to do? You could use your words. You could go over and tell him, instead of hitting him that you want your toy back, would you… or would you like for me to help you. So you can choose, do you want to try or do you want me to help you? And I, and I want to highlight when we talk about *you can choose*. Cause we do that a lot, we say you get a choice, but choosing involves the prefrontal cortex choosing, you know, involves me weighing what if I choose this? What will be the consequence of that? If I choose this, what will be the consequence of that? And so we do that a lot as parents, as we give choices, when the brain isn't actually ready to receive or make a choice, um, and so once I've connected and calmed a child, then I can redirect and maybe give a choice and then she might be able to say, yeah, I want you to help me. You know? And then you can apply that to brother who just snatched the toy away, same kind of process. You know, I know you really wanted to play with those Legos and you didn't want to wait and your sister didn't want to give them up. And that was hard to have to wait. PAUSE. And I'd say that, cause we need to not talk very much when we're trying to help kids regulate. And you can't just take the toy from her. You have to ask first. So would we like to do a do over? Would you like to practice? You know, let's do this together, but that's that first connecting and then redirecting. But typically as parents, we go straight to redirecting. And then it gets worse and then the tantrum gets bigger and kids have a big meltdown and then suddenly I'm yelling and they're yelling…

Maureen *Yeah. Sounds familiar. Definitely guilty of that.*

Laura Yeah. And so then both of our amygdalas are hijacked and they're just bouncing off of each other and no one's cortex is actually working the way it should.

Maureen *Right. Yeah, that sounds slightly familiar. Um, so earlier you said, uh, helping children understand how their own brains work. So what do you mean by that? Are you talking to kids about their brains and how does… how do those conversations look?*

Laura Sure. And then the older they get, I will just, um, throw this caveat in there that you'll still get some of those, like, oh, here she goes again. She's going to talk about the brain, you know? So I recommend starting much younger so that it becomes a natural part of your conversations with your children, you know?

And so for a young child, you know, like a three-year-old, it might be like, oh goodness, you're having a really big feeling right now. And your amygdala or your brain is having a really big feeling, right now. And so let's do some things that can help your brain feel better and feel calmer. And so it's, so it can be starting out just really basic like that, that my brain is in charge of my feelings and that in and of itself can also be helpful.

So if I'm saying to a child, your brain is having a really big feeling versus you need to calm down. You know, it, it feels much more personal when I'm saying you need to calm down, you know, your brain's having a really big feeling. Let's do some things that can help it feel calmer. Then as they get older, you know, we can talk about, you know, here's what the amygdala does and it keeps us safe.

Um, here's what the hippocampus does. And it helps us remember really important things. And, and here's what our prefrontal cortex does. And it's the thinking part of our brain. And it's the part of our brain that helps us learn. And so just developmentally, depending upon their age, um, you referenced Tina Payne Bryson, and Dan Siegel earlier, and they have a wonderful hand model of the brain, since we're just being audio recorded I can't really show people that, but I would definitely recommend folks even just Google Tina Payne Bryson and Dan Siegel hand model of the brain. But, um, essentially it allows us to have some signals too around, you know, oh, my brain has sort of flipped its lid. This is something they say a lot.

So that's that amygdala hijack that I'm having a big, strong emotion or a big, strong feeling, the middle part of my brain is taking over. And I flip that lid and I can't use my, um, thinking part of my brain. So just even having that visual for kids can be really powerful too. And again, if I can get a little distance from something, then I can think about how to solve it versus personalizing it as though I'm a bad person or, um, you know, I've done something wrong.

Maureen *So can you tell us some of the things that shape the brain and allow it to develop over time?*

Laura I think if we back up and understand, like what supports healthy brain development, then it also helps us understand what to do when there have been stressful experiences or some sort of traumatic experience. And so when we think about really early infancy, there's, there's a lot of things we naturally do to, um, help strong brain development. So we talk a lot about attachment and attunement and connection and safety and consistency. All of those things support really strong pathways. So you think about a newborn who cries when they're either, uh, you know, hungry or wet or just, you know, sensory overload or any of those things. So baby cries, mother comes in, or father comes in, grandparent, you know, consistent caregiver comes in, picks up the baby. May, you know, hold the baby close to them, rock them, soothe them, bounce them. Those are all things we do usually across cultures. And again, that's, those are regulating behaviors that we do, like bouncing, rocking, um, singing,

that stimulates lower parts of the brain that helps soothe and regulate and then allow, you know, higher regions of the brain to also begin to take in information.

And so those strong relationships that baby knows that when I have a need, an adult will connect and adult will meet those needs. And so then I learn, my brain learns over time, how to soothe itself. But originally I need another adult to help show me that and soothe it, what we talk about as co-regulate my brain with me. And then that's teaching my brain how to do it over time.

So some of those old adages of like, just let the baby cry it out. Like, oh gosh, you know, we have different understandings now that letting the baby cry it out when they're super young, probably, um, isn't teaching the brain to regulate and soothe the way we originally thought. So actually picking that baby up and soothing and holding is, you know, providing a skill and some development for that brain.

Maureen *So another big learning for me about the brain was being aware of my own brain and how my brain works when I react to my kids. And you mentioned this earlier, like the two amygdalas just battling it out. And I'm thinking of the other day, I was at the grocery store with my three kids under seven. And, uh, the it's one of those stores that has those little kids size carts. So you can really imagine how non-stressful it is to take three kids under seven with little kids-sized carts to the grocery store. And, um, one of my kids was kinda being a little wild with the cart, running and crashing into the aisles. And I had told him what felt like 50,000 times, you know, remember the rules of the cart and don't crash into things. And then at one point I turned around to grab something off the shelf and I look over and he had fallen. The cart had spilled, a carton of strawberries had spilled all over the thing and I could feel it in my body… I just started tensing up. My fists got tight. I was about to lose it. I was so frustrated because I had told him so many times be careful with the cart. And then he had just made a huge scene and he was crying and this really lovely store employee came over and got down to his level and said, oh, accidents happen, buddy, no problem, and helped him pick up the strawberries. And I was like, that guy is being very generous because, you know, I was about to lose it. And, um, because that employee came up and gave me a moment before I reacted, I know had that, had that employee not come, I know I would have gone over and said, I told you not to do that, right. I was in that place. My amygdala was reacting and instead, because I had that employee give me that two minutes of pause, I was able to breathe and I went over and I said, buddy, what happened? And he said, there's a crayon on the floor. It's like out of the comic books, like the banana peel, there was literally a rogue crayon in the middle of the aisle. And he had slipped on it and he had fallen and it wasn't his fault at all. And the fact that he had been wild earlier really had nothing to do with the fact that he fell here. So um, thanks to that employee, I did not react from my amygdala and I was able to connect with him and really I noticed what he was feeling was he was embarrassed and he was hurt because he fell and he had hurt his ankle and he was, really felt embarrassed.*

So had I gone to him and said, I told you not to do that, would have completely missed the mark. It would have just not been the right response at all.

Laura Yeah. And I think you got this lovely bystander that helped you, you know, get into that place of calm. Um, and you know, we think about practicing and doing things over and over with our kids and as parents, we have to do the same thing. And so the more we can be aware of, okay, what is it I need in order to be regulated and calm with my children. The more I can practice that and the more I'm more likely to be able to do, but of course, you know, even worst case, if you had gone over and I told you like, how many times do I have to tell you? Um, and, and likely there would have been big meltdown in the store and maybe you would have left and everyone would have been crying in the car and it would have been this big thing. The wonderful thing though, about our brains is this reparative process too. You know, this idea of, okay, how do I repair the relationship and for your son not to store that experience only as a negative and neurologically, it's only stored as a negative. So even if this horrible, like, you know, tantruming thing, it occurred, you could have gone back, you know, once you got home and you were calm and you were regulated and said, wow, I, my brain, you know, like I flipped my lid and you know, and that's where having that foundation of kids understanding the brain, like I flipped my lid. I didn't think through things. And I really said some things that I wish I had said differently. Here's what I wish I had said. I wish I had asked you, gosh, buddy what happened? So then your child's experiencing something completely different that still is somewhat connected now to that experience in the store, it's not just this, you know, sort of negative emotions. There's now this positive emotion with the repair. That you understanding your brain, he, him understanding what I flipped my lid is, you know, that helps to provide a pathway for a different experience. But we, as adults do have to really understand, like, what do I need in order to be soothed and regulated and some just need a minute. Some might need a lot more. And I think it's for all of us understanding our own individual differences.

Maureen *That makes a lot of sense. So when we're talking about older kids, I don't think we're using grocery store cart examples. I'm sure we have… in the adolescent brain, you mentioned earlier is so complex and it's dealing with emotions and all these chemicals. And so this conversation looks different with adolescents. So can you give us a little, an example of what it looks like with older kids when we're talking about these things?*

Laura Sure. You know, one of those common examples, and certainly I experienced this with my kids that I hear parents talk about is, you know, your seventh or eighth grader comes home and they have failed a test and you watched them the night before, not really study for that test and you watched them watch TV and play video games, and you're just, and you reminded them, like, have you studied? Have you studied? Yeah, I'm fine. I'm fine. I'm fine. And then, you know, they go take the test. They realize they failed it. They come home. There

are hysterical about it because, oh my gosh, this means I'm not going to get to play in the game on Friday night because now my grade's lower. And so all these consequences start to unravel and it's very easy, if we don't understand that right now in this moment, my child's prefrontal cortex is not online, we as parents want to go straight to that, like, well, that's what you get. That's what I told you. If you didn't study, this was going to happen. Like, you know, this is your fault. And you know, you can go right into that.

And those things are all true. And it's not going to be helpful right then, because right now in front of you is a brain that is totally flooded with emotion and is not using its cortex. And so that's where sometimes just listening, that connection piece, you know, I know I get it. Yeah. It sucks. It's hard. It's, you know, whatever verbiage you might use, um, and really just listening to… it will be hard not to play on Friday, and I know you're so disappointed and you've let your teammates down and et cetera. It might not be until the next day that you actually get back to, okay. Let's talk about how to change this, or let's talk about how to prevent this next time, you know, because their brains aren't ready to hear it yet, but it's so hard for us as parents to resist that temptation, to go right to what they need to do, because it's so clear to us because our brains are fully developed, hopefully. And, and so it's right there. It's so clear. It's right there in front of us. Can't they just see this, can't they see the connection and they can't, and, and if we go there right, then they won't learn it, you know, in that moment they will just, you know, become more emotional. It will get turned into this bigger thing, likely an argument. And then everything is just sort of unraveled. But if we can just listen and be in that moment with them around their feelings and then later come back to, okay…

Maureen *So how would you respond to a parent who hears what you're saying and says wouldn't saying, I understand that that's hard almost feel like an endorsement of the behavior…?*

Laura And of course, you know, and, and parents say that all the time, like this just feels like you're letting them off the hook. You know? Um, and we have to think about our role as parents is to grow up, you know, competent, you know, grounded, thoughtful, empathic adults. And so what's the best way to teach them to be these people. And so kind of unhooking from this idea, there has to be a punishment, but what's my role and how do I teach them the skill I want them to learn? In some ways, there's already a consequence for a child in that situation. You know, they failed the test, there's consequences to that. So they're going to learn some of it from that. Right. And then if you're able to come back to it later, then it's that teaching of what you want them to learn from this. And then they begin to see you as a partner. Like maybe I can go to mom or dad, and maybe I can talk with them if I'm struggling academically, or they're going to understand when something bigger occurs, because believe me, there will be bigger things than them failing their math test in eighth grade.

And so if we're laying that groundwork, you know, now they're much more likely to be able to come to us with the big things later, but the… the earlier we understand neurologically what's going on, the easier it is for us to respond and, and kind of problem-solve in the moment, then we're laying that foundation for what we want later on.

So I'm not letting them off the hook. But I'm trying to teach them something. And that's what we have to kind of the end game is what is it I want them to really learn from this experience rather than just being punished
And then keeping in mind that you're not learning anything when you're in an amygdala hijack anyway, so…

And that's, you're right, like that's the biggest part of it. Like, um, I could totally have that conversation and it's gonna just kinda not get stored in the way we want it so that they can actually utilize it later. Oh yeah, that thing happened before and I didn't study and this is what happened, I don't want that to happen again. They just don't even want to think about it later if it was this big emotional upset.

Maureen *That makes sense. So we're running out of time and I would say what you just talked about is sort of been consistent throughout everything we've talked about and that's this idea of how the amygdala works and, and its relationship to the prefrontal cortex. And I would say that has been my biggest learning when I understand the brain is kind of being able to recognize when the amygdala is running the show and when the prefrontal cortex is running the show, both of my children and also myself, you know, at the grocery store, my amygdala was running the show and I wasn't able to think clearly. And I see it in my kids too, you know, when they're, when they're coloring on the walls, which is a common occurrence in our house, unfortunately, I can see the amygdala is in charge and I need to respond accordingly. So that's been a really big learning for me about the brain. And I'm wondering from you, what would, what would you say is sort of the one thing that you wish parents knew about the brain?*

Laura And I would echo a lot of what you just said. And I think, you know, when I look back, cause my kids are older and I didn't know all these things when my kids were, you know, under seven and it was so easy to take a lot of those interactions personally, as though they are doing this to, you know, get under my skin or they are doing this to push my buttons and had I really understood, like this is a normal part of childhood development and a normal part of the brain growing, changing, um, and the different parts that are in charge at different moments, I think, you know, I *know* I would have responded to a lot of those things differently, and I would have done a better job of taking care of my own brain in those moments, too. But I think that takeaway of – this isn't personal, this is a neurological response. And usually that means there's a skill your child still needs to develop. And as we teach them to develop that, these sorts of things happen less and less.

Maureen *Yeah. Yeah, that makes a lot of sense. So I just want to thank you so much for this conversation. It's been so interesting learning and I've learned even new things today that we hadn't ever talked about before, so I appreciate that.*

Laura Thank you for having me.

Thank you for joining us for The Growing Brain podcast. We hope you have enjoyed this discussion. Please be sure to subscribe for future episodes and to learn more about us and access additional resources and content, please visit us online at momentousinstitute.org.