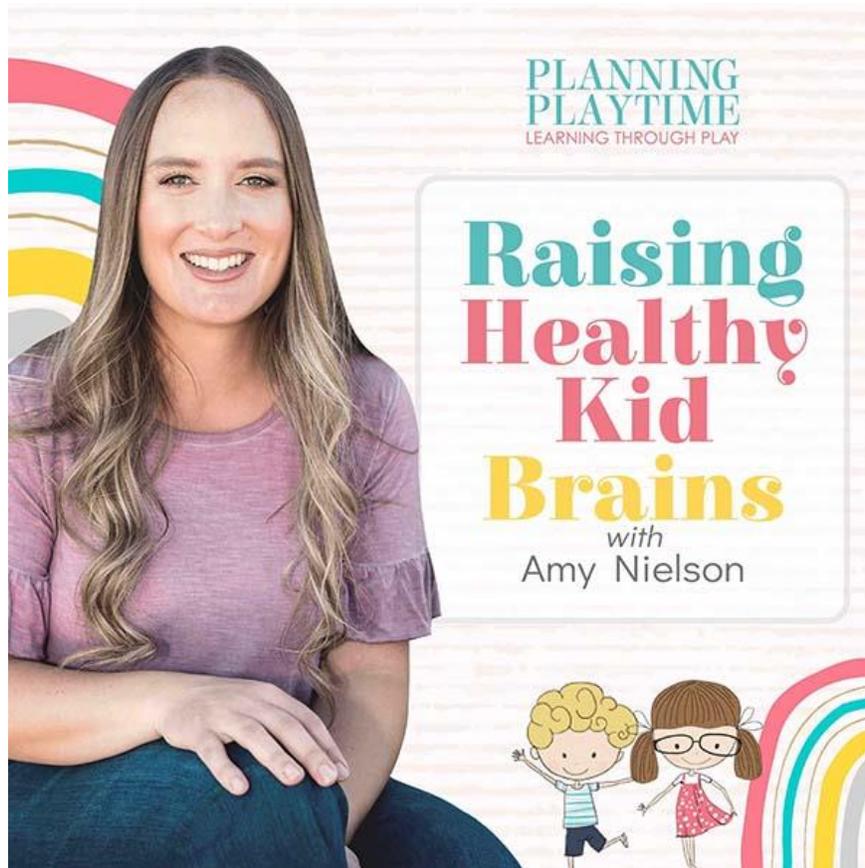


## Ep #3: The Neuroscience of Creativity with Dr. Julie Fratantoni



### Full Episode Transcript

With Your Host

**Amy Nielson**

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Welcome to the Raising Healthy Kid Brains podcast where moms and teachers come to learn all about kids' brains, how they work, how they learn, how they grow and simple tips and tricks for raising the most resilient, kind, smart, compassionate kids we can. All while having lots of grace and compassion for ourselves because you know what? We all really need and deserve that too. I am your host, Amy Nielson. Let's get ready to start the show.

How important is creativity for our children? And what role does boredom play in increasing and encouraging creativity? Today I'm talking to Dr. Julie Fratantoni who is a cognitive neuroscientist at the Center for Brain Health. And she's also the Head of Operations for the Brain Health Project. In our conversation we talk about the importance of downtime and daydreaming. She will talk about the importance of creating space for failure and how creativity is important for more than just artists.

There are so many great little nuggets in this episode so we'll get started with Dr. Fratantoni now.

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Amy: Alright, I am here with Dr. Julie Fratantoni and we are going to talk today about creativity. Dr. Fratantoni, welcome to the show.

Julie: Hi. Thanks for having me.

Amy: I'm so excited to have this conversation because I feel like creativity is so important. And you have some really good tips for us today on how to encourage it and not stifle it. And so let's talk about that. Before we get into it, tell me a little bit about how you got into neuroscience? That's kind of a fun field.

Julie: Sure. I've always grown up really fascinated, well, just loving learning and just being curious. And both my parents are psychologists and so kind of grew up around ideas of thinking about the mind, different ways to help if things go wrong. And so I actually started out in speech language pathology, clinically all speech and language is in the brain and language is actually kind of this side door into cognition, the way you can't really assess cognition without using speech or language or reading or writing.

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And so yeah, I got really interested in wanting to better understand just how the brain works, decided to get a PhD in cognitive neuroscience. Fell in love with this idea of high performance or really just science communication, educating people around how the brain works so that they can use it better really so that we're not working against our biology. But rather using it to our advantage because the brain is incredible. And so that's kind of a quick way of how I landed in this field and then how that's evolved into what I get to do now is a whole other story.

Amy: That is so fun, I love that. It is, it's so fascinating. I've been finding myself more and more interested and a little tempted to go back to school to even study it more because it's so fun. But this is so great to get to talk to you. And we have been talking in a conversation previously about creativity. And one of the things that you mentioned to me was about creating opportunities and how that was so important. What do you mean by that and how do we do it?

Julie: Yeah. I think one of the things that we don't realize is how important breaks, rest, downtime, time to just daydream, that all those things really foster imagination and creativity. And so when we are constantly booked back, to back, to back not only is that stressful and tiring but it really stifles creativity because it doesn't give the brain a chance to get into, activate a network called the default mode network. So the default mode network it is sometimes called the imagination network.

But what happens when you're not actively thinking, you're not actually engaging in solving a problem or doing a task but just sort of letting your mind wander like if you're taking a walk or taking a bath. Or just kind of really letting your mind be. And it's in those moments when the default mode network is active that actually allows different pieces of information to combine in new ways. And so that's largely what creativity and innovation is about. It's putting things together that we didn't think would go together but that can come up with kind of a novel solution.

So when we talk about creating opportunities it's about creating that space so being intentional to schedule in things like breaks or time that is unstructured so

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that in this case, children in particular have opportunities to really tap into that network.

Amy: I love that. So when kids are bored it's not necessarily a bad thing. We don't feel like we have to entertain them all the time?

Julie: Yes, boredom is actually a really good thing because it forces, there are a couple of different studies looking at how that actually helps foster new ideas. It helps increase creativity and it really is almost motivating because you're like, "I don't want to be bored." And so then your brain kind of comes up with things to do, the creation of new ideas.

Amy: Is there a way if you have a child that maybe is not practiced at this yet, is there a way to encourage them to problem solve through that boredom and get to that space where creativity is happening? Or does it just kind of happen by default?

Julie: That's a good question. My guess would be because each child is so different, kind of playing around and seeing what that looks like. It's amazing though, how many people, Christmas is around the corner. You give them a gift and it's like they play with the box. It's like they kind of just naturally do this. Creativity and imagination is something that children just have. And I would say it's something that we sort of end up kind of getting stifled out of us as we grow older.

And so I know I mentioned this Picasso quote of every child is born an artist, it's whether they can stay one or not. And so kind of we get these narratives in our head. We think we're not creative, or we think we're not artistic, or we tell ourselves, I'm not a good artist or I'm not a good drawer. I can't paint. I can't make music. I can't dance, whatever it is. And those narratives are really strong and they stick with us our whole lives and it really ends up being kind of these self-limiting beliefs which is interesting.

But in terms of just what does it look like to foster that with children? I mean like I said, a cardboard box, a blank piece of paper and some crayons, there's so much that they can do with that when there are no limits. Interestingly research

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has shown that people are actually more creative when there are certain boundaries to it. So it can be helpful, sometimes it's too much of a blank slate. And so if you kind of can give certain prompts of maybe it's like, how many different types of hats can you draw for this cat?

Kind of giving them, how many different ways can we build a house with these blocks? How many different types of, you know, I'm just kind of spit-balling here. But I think you can give prompts in a way that are very open ended. I'm sure you've talked a lot about kind of open ended questions. And so rather than saying, "Build a this." Instead it's like, "It looks like you've built whatever. How many different ways could you do this or what's another way?" And kind of just pushing them. So sort of building off of what they're already doing I think would be really helpful.

But yeah, I think I mean I'm just always amazed and impressed when I work with children or just even younger adults, or teens, or college students. And they just have so many ideas and so it's really about how do you encourage those? And I think another thing that goes with that is really this idea of there's no wrong answers. I think what sort of stifles creativity out of us is feeling like I don't want to get it wrong. And so part of that is just largely the way that school systems are set up is that there is one right answer. And you have to get the one right answer on the test.

And so I think if we can teach children especially through play or at a young age and continue that, that there are many right answers a lot of times. There's a lot of different ways to do things and it may just be good or better or they may both be equally good. And so kind of helping reframe some of that fear into feeling really safe and feeling open, and the ability to explore.

Amy: I love that so much. I love to do this in carpool, so I drive carpool. And we did a thing recently where I asked them, I said, "Hey, if you could build a school without any kind of rules and you could just do whatever you wanted in the school, what would you do?" And then I usually try to give an example of something kind of outrageous so that they feel like it's okay to be outrageous and we're just letting go of it being logical immediately.

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So I was saying something like, “If you are able to build some kind of motorized scooter or a cool vehicle or something then you should be allowed to drive down the hallway of our school.” And they thought that was so silly. And so then immediately their brain started going, what could we do? So we were going to have an art room where it’s just white walls and you could go in and paint or draw on the floors and the walls, whatever you wanted. And I mean they came up with all kinds of fun ideas.

And so I loved that when we were talking about that earlier, that idea of setting it up so they don’t feel like it’s a failure to come up with something unique and different and just include that in our conversations. And I think being ridiculous sometimes helps with that because then they realize it doesn’t have to be right, or logical, or reasonable, would you agree with that?

Julie: Yeah, absolutely. I mean the brain is so conditioned to be hyperalert to fear or danger. And when you’re largely safe and you’re not running from a predator the fear can be as real as just being wrong and not wanting to be embarrassed. So I think the more that we can foster that and kind of the brain mechanisms behind that is when we do feel afraid our brain naturally is going to shut down options for us to make it really easy. So it’s fight, or flight, or freeze.

And so that’s your anterior singular cortex, the part of your brain that’s just saying, “Hey, we’re just going to narrow it down so you’ve just got these three things and we’re going to prepare your body to do those.” And so it leads to really kind of even your field of vision actually narrows. Everything you’re thinking, all of it just really hones in on this is survival. When we’re safe we are actually able to be out of survival mode, we’re more active in our parasympathetic nervous system, that’s kind of this rest and digest system, or when we feel safe and calm, and relaxed.

And that’s when you have more of this free flow of ideas because you don’t have to be in that narrow, just these few options, it’s like sky’s the limit, we can then expand and we can think about different things because we’re not in danger. So I think making sure that there’s a lot of safety around, there’s no dumb questions, there’s no bad ideas, anything goes. I’ve heard different

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creativity exercises or even kind of problem solving things where it's just like, or maybe this is something Einstein did I think.

It was his seven solutions, it was you had to come up with seven different answers or seven different ways to solve the problem. So that way just forces you to – it may be outrageous but it just gets you in that habit of let's just keep coming up with things, even if they're ridiculous but you just don't know how that might end up kind of feeding together. So I do think, anyway, back to your original point of really creating those safe environments. It has a lot to do with I think just our language to ourselves, how we talk about our own things.

And then how you would talk about that with children so that they know that, hey, all answers are safe here and this is about fun. And this is about just getting to explore. And really enjoying it, I think having a sense of delight in that actually really helps foster more creativity.

Amy: I love that. Seven ways you have to solve it, that is amazing. I love that so much. I might use that with my kids.

Julie: Yeah, because we're so quick to just be like, "Okay, we solved it, we'll do it that way. "Because we're pressed for time and we just need to fix it and solve it and you know what I mean and move on. And we don't give ourselves time to think, well, what else? And so I think it's like kind of this fun game of can you think of one more? Okay, have another one. And right when you think you're tapped out, you're like, "I've thought of all that I possibly can." And then it's like, no, your brain can actually generate even more. It really is limitless.

Amy: That's so good. I love it. Okay, we talked about flexible thinking and that creativity was flexible thinking. Talk to me about that and why creativity is actually important. Is it important only for artists? Why does it matter? Why do we care if our kids are creative?

Julie: So I think that there is a quote that I love and I'll just have to send it to you because it's a little bit longer and I can't quote it directly. But it's just this idea that people lump creativity in with the arts and just think that it's only if I'm creative I must be a dancer, or a singer, or a writer, or a poet. And it's like, no,

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creativity is a way of thinking. Creativity is about thinking flexibly, it's about being able to look at things from multiple perspectives. It's about being able to imagine what it's like to be in a different scenario.

It involves all these different kind of cognitive aspects that may have nothing to do with drawing or painting but having to do with like I said, problem solving, or just even innovation. What does it look like to invent new things or to evolve and create solutions? And from, like I said, from a young age, these early narratives or even sadly it's sometimes teachers, or even classmates. People make one comment and then you're like, "I'm not a good artist, I'm not whoever."

And somehow we use that to then generalize to just I'm not creative at all. And really it's like, okay, maybe, yeah, maybe you're not great at drawing a dog but that doesn't mean you're not creative. And drawing is really more of a skill that can be taught anyway. So as an aside, but yeah, I think really understanding that it's about encouraging people to think of okay, what would someone else, you know, this is how I see the world. How would this other person maybe see the world? So kind of a little bit of that theory of mind of how does my mom see the world?

How does my dad see the world? How does my teacher? What are these different perspectives, how do those come in? And being able to imagine that and some of that comes into even just even in conversations. I love how you're kind of just it's in the car, the ways, the topics that you talk about and kind of pushing people to see that. And I think that's flexing the same muscles that are involved in creativity.

I will also say there is a book called Sparks of Genius but he basically writes about these Nobel Prize winners and how nearly all of them, whether they won a Nobel prize in physics, mathematics, chemistry. They all were actually extremely talented artists as well. And so they weren't just in the science camp or the math camp but they also had this creative side to them because really you want both sides of the brain working together. And so I think that's a misnomer and this is a myth that I love to bust actually.

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It's just the left brain, right brain thing. And so thinking that left brain is analytical, and logical, and reasoning. And right brain is the creative artistic. And sure we might lean more towards one or the other but usually it's because maybe we were better at that early on and then we just kept practicing that thing because we got positive reinforcement for it and we're good at it. So we kept, we're like, "Okay, well, I'm good at that so I'll keep doing that." And then the other side just becomes weak and it doesn't happen like that.

The brain is networks and it's all very intertwined. But I think that we can tend to lean on our strengths and then they get even stronger because we use them more. So I think just also knowing that it really takes both sides of the brain. It takes the scientific fields that seem more logical and analytical, actually require a tremendous amount of creativity to be successful or to be able to innovate because you have to see how things go together in new ways. That's what it is.

And even in, I use science since that's the field I'm in but it's all about asking questions. And it's all about, every time you do another study it's okay, well, what are the next questions or what's the next study I would do? What is the next curiosity I would have? And I think curiosity and creativity have a lot of overlap in terms of that. But yeah, I think where we get kind of crusty, or stale, or where adults sort of lose their creativity is sort of just being satisfied with status quo and just being it is what it is.

And we kind of just, we always do it this way and so that kind of rigid or just kind of narrow thinking. And so I think this attitude of what children are so great at reminding us of is this attitude of everything is play, everything is new, everything, we just get routines are good, so I'm not advocating against that. But I'm saying within routines, how can we keep newness because that's what fuels, that actually also fuels creativity is having other more rich experiences.

Amy: I love that. So within schedules, creating time for new ideas, new thinking, new newness and also space, space to think, space to be bored, space to be [crosstalk].

Julie: Yeah. So it sounds like a lot but I think it's small things and it's short amounts of time. So you don't need to be bored for hours on end. But having

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what is age appropriate I think. And for adults that's a five minute break is helpful to foster those aha moments. That's when you walk the dog real quick or you just get a shower. You have five minutes to yourself or whatever. And then you think of all these ideas. Or maybe it's right before you're about to go to sleep and you have the notepad by your bed, or you jot it down.

And for kids I don't know what the research would say in terms of time that they need. But I do think, yeah, just making sure, like you said, that their days are not scheduled out to the minute. So creating space for those breaks and having routine is so important but within that structure having the space for we're going to try it a different way today [inaudible].

Amy: Yes. And just doing a little different. And it's kind of fun and they get kind of excited and it just seems to pique their interest as well. I wanted to come back and just ask you one more question. When you were talking about stifling creativity and this self-talk that I'm not creative. It reminded me of when I was a teenager and I came home one day and told my dad that I thought maybe I wanted to be an architect when I grew up. And he said, "Oh, Amy, you have to be creative for that." I was like, "Oh, I guess I'm not creative."

And that was kind of the message in my head. I love my dad by the way. But it took a minute to get through that. And now that's actually one of the things I'm known for in my field and here at Planning Playtime is my creativity and what we bring to learning with that. And so I'm wondering, what is language that we can use maybe both with ourselves, so our children don't hear us saying, "I'm not creative like that", so what language do we use for ourselves?

And maybe what language we can use and model for them to help them see themselves as creative even if maybe they're not really good at drawing dogs?

Julie: Yeah. I think language for yourself could be, I'm going to push myself to try to do this more ways. Or I'm going to push myself to – I don't know if we want to say think more creatively, whatever the example or the situation is. So it's like if you feel like it's an area that you're not strong in, I think also being vulnerable too of it's a little bit scary for me to try this new thing. Or it's something that I'm

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not comfortable with it but I'm going to try. And I think giving your kids that example would be really wonderful. And then I think for them the same thing.

They can kind of say the same thing of, "I haven't done this before or I don't know if I can but I'll try." Kind of just fostering this idea of being open and also knowing kind of like we talked about earlier of it's safe to fail and maybe not even using the word 'fail'. But it's safe to make mistakes, it's okay to try a bunch of different ways. And really celebrating like wow, maybe they didn't get to the right answer but it's like, whoa, you came up with four different ways to do it.

It's kind of celebrating the process or the work and the method rather than just kind of honing on did you get it right. And it's like, whoa, you showed your work over here and you did these different and I'm using homework as an example. But for ones even younger than that it's like, you tried all these different ways and to celebrate that rather than just, did you put the pieces of the puzzle together right? It's like, whoa, you tried it upside down and you tried it this way. They're really thinking out of the box. So yeah, I think just celebrating every attempt.

And then also I know at least I was this way with projects or even fun things to put together and you're focused on the outcome rather than kind of the thought process. So I think just really celebrating all the little bits along the way rather than like and it doesn't really matter if you actually put the thing together or it's kind of it was just the creative process which is big. One other thing I want to add from earlier, I touched on this idea of novelty and how important that is. And so the nice thing with children is that nearly everything is new.

So I think for adults we're like, novelty, I need to travel to a new country or we're bored so easily, or we just take things for granted. So I think knowing that something new is getting to do bubbles in the sink or just it can be just stuff you have around the house. But it's like we're going to take this bowl that we always use for this and we're going to use it as a hat instead. Or just kind of an everyday object and it's like how can we use this differently than the way we normally do?

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I know those in different research studies is they'll show people an item and they'll say, "How many different ways can you think of to use this item?" So anyway so I think just it doesn't even have to be a new object or you don't have to go buy anything new. But it's, can we use it in a new way? And so that's sort of a fun exercise to get those juices flowing.

Amy: I love that so much. We use that in a lot of our curriculum and our activities that we do is taking a cup or taking a plastic spoon and turning it into something completely different and using it for learning. And so I love that, it's so good to hear that because I think that's what we're doing, it's so great. And we have teachers and moms using that all over the world. So it's been such a good conversation. Thank you so much for coming to talk to us about creativity and sharing your wisdom. And tell everybody where they can find you and find more of your work.

Julie: Sure. So you can connect with me on Instagram or TikTok. My handle is the same on both it's @drjulieftratantoni. I also have a website that's just [www.drjulieftratantoni.com](http://www.drjulieftratantoni.com). And I have a kind of weekly newsletter that I send out so you could get on my waiting list and I basically just share kind of brain health tips and some of the science that goes with it. So that's the way to connect. And then I will also be coming soon. I have my own podcast called Better Brain that we'll be probably launching in the new year some time so you can check out more there.

Amy: That is going to be so exciting. Thank you so much and we will include links for that in our show notes as well so people can find those really easily. So thank you so much and I can't wait for your podcast to come out next year, that's going to be amazing.

Julie: Awesome. Thanks for having me.

Amy: Thanks.

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Thank you so much for spending some time with me today and listening to this episode of the Raising Healthy Kid Brains podcast. We are a brand new podcast

[Raising Healthy Kid Brains](#) with Amy Nielson of Planning Playtime

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which means we are harder to find than the perfect LEGO in a big box full of LEGO. And we need your help so that we can reach more moms, and parents, and teachers with this information about their children's brains. So how can you help? You can follow this podcast wherever you listen to podcasts and leave us a rating and a review. That would mean the absolute world to us.

And hey, we want to make it fun because at Planning Playtime we are all about fun. We made a very special gift for you and your kiddo. And your follows, ratings and reviews are going to unlock different parts of that gift over the next few weeks. It's going to be so much fun so after you follow, rate and review the podcast, head over to [planningplaytime.com/podcastlaunch](http://planningplaytime.com/podcastlaunch) to find out where we are and how much of that gift you can go and get for your child right now. Thanks a million and I will see you on the next episode of the Raising Healthy Kid Brains podcast.