Dr. Rosemarie Truglio (00:00):

Children don't come with this math anxiety. Math anxiety is learned.

Bethany Lockhart Johnson (00:07):

Welcome back to Math Teacher Lounge. I'm Bethany Lockhart Johnson.

Dan Meyer (00:11):

And I'm Dan Meyer.

Bethany Lockhart Johnson (00:12):

Hello, Dan Meyer.

Dan Meyer (00:14):

Great to see you, Bethany. We are on episode three. Can you believe it?

Bethany Lockhart Johnson (00:18):

So, I feel like we've just started scratching the surface about math anxiety. We've talked to two amazing researchers. We've talked about what math anxiety is, how it's often screened for some of the causes, some of the consequences ... I mean, we've had some good conversations. Dan, what do you think?

Dan Meyer (00:38):

Definitely, I think that the consequences have only grown more dire in my head. I'm not sure how you feel about the consequences. But, you know, it is enough for me that we ask students to take mathematics for much of their childhoods, to worry about their anxiety, taking that. But to hear about from these researchers about all the different things that correlate with math achievement and math anxiety—talking about future careers, certainly, but even some other, more serious lifelong concerns? That gives me a lot of motivation to continue this study of math anxiety here with you on the show.

Bethany Lockhart Johnson (01:14):

It is really widespread. It has a big impact, not only on students, but on parents, on educators. You know, it's—

Dan Meyer (01:23):

Multi-generational.

Bethany Lockhart Johnson (01:25):

Yes. And you know, so often when folks think of math anxiety, what I hear them say is, "Oh, yeah, in high school is when math really ramps up. That's when anxiety starts." But we know that it starts in our youngest learners. And our research has already backed that up. We know it. I've seen it in my classroom. You may have seen it with some students you work with. And let me tell you, it starts young.

Dan Meyer (01:52):

It does start early. Right now, I have a son that's just started kindergarten, and he seems relatively math-positive, but we've known from our interviews on this show and other kinds of experiences that

oftentimes, that feeling —that math is for me, and I am for math, and we are all friends — can turn on a single moment. It seems like one teacher says a thing that changes a student's perception of themselves as a mathematician or of math itself. So I keep waiting with bated breath, hoping not to find that one moment that changes our current open posture towards mathematics. So now it's time to really dive into some strategies for combating math anxiety.

Bethany Lockhart Johnson (02:34):

To help us out, we've called on a pretty exciting guest. I am so excited, Dan Meyer! We are being joined by Dr. Rosemarie Truglio. She is Senior Vice President of Curriculum and Content at Sesame Workshop. Sesame Workshop! As in, "Tell me how to get to Sesame Street." Dan, I have to tell you, I spent many, many hours of my childhood watching Sesame Street. I have to ask, do you have happy Sesame Street memories? Is this part of your formation, Dan Meyer?

Dan Meyer (03:08):

At this point? In my advancing years, and the brain cells that I have left, Sesame Street is really kind of just a vibe in my head. But that vibe is such a pleasant one. One in which like nothing bad could happen. One in which learning is common and normalized and fun. And you just kind of feel at home, constantly.

Bethany Lockhart Johnson (03:33):

I don't know about the "just the vibe" part, because for me, it is visceral. I'm there. I am actually ... I mean, I might still be there.

Dan Meyer (03:42):

You could reenact some of the skits?

Bethany Lockhart Johnson (03:44):

<Laugh>. You didn't watch Sesame Street with your kiddos when they were younger?

Dan Meyer (03:49):

We watched a lot of Elmo. A lot of Elmo. Yeah.

Bethany Lockhart Johnson (03:52):

Next-generation Sesame Street. Well, I think it's so perfect that we're gonna be talking about what Sesame Workshop does to help combat math anxiety and create a positive connection and relationship with mathematics. So I'm really excited to hear what Dr. Truglio and her team have been working on. And here's our conversation with Dr. Truglio.

Dan Meyer (04:15):

Welcome to the show, Dr. Truglio. It is an honor.

Dr. Rosemarie Truglio (04:18):

Great to be here. Thank you for inviting me.

Dan Meyer (04:20):

You are Senior Vice President of Curriculum and Content at Sesame Workshop, which definitely sounds like the coolest job in the world to both four-year-old me and also Now me. Would you just help us help us with some backstory of how you ended up here, and what you do at Sesame Workshop?

Dr. Rosemarie Truglio (04:38):

Sure. It is a pretty cool job. And I am very fortunate that I've been in this position for the past 26 years. So, I am a developmental psychologist, and my job is to help Sesame Workshop identify curriculum needs, so that we could address them in the content that we create on the show and across our various platforms. So, Sesame Street is currently in its 53rd season. And we just, wrapped production for the 54th season, which we'll debut next fall. And Sesame Street began with an experiment: Can television actually teach children school readiness skills, to have them better prepared for school? Especially those children who did not have access to formal education during the preschool years? And it is what we call a whole-child curriculum, because we're dealing with all of the school readiness needs. So that that includes the academic needs, their social-emotional needs, and their health needs, as well as what we call these cognitive processing skills—how children learn content. Right? So it's not just content skills, but how you approach learning and how you actually learn content. So as a grad student, I was fortunate to work at the Center for Research on the Influences of Television on Children. Very special center. It was at the University of Kansas. And my advisors, developmental psychologists, they studied the effects of television on children, both the positive effects and the negative effects. And so part of their research was to actually look at the longterm educational effects of Sesame Street. So I was working with Sesame Street content as a grad student, and then came to New York City. My first job was Assistant Professor at Teachers College, Columbia University. And when this position became available, Director of Research at the time, it was called, I took that job. And so my job was to oversee both the curriculum and the implementation of the curriculum, as well as the research. Because what we know, our co-founder, Joan Ganz Cooney has always said, for Sesame Street to be a successful educational program, production has to work closely with early childhood educators. They are the ones who know the curriculum and, and develop the curriculum goals, as well as the developmental psychologists who actually study how children are paying attention to the content. But more importantly, what are they comprehending from the content? And we all have to work together. Because even though we are the experts, the real experts are the children themselves. So nothing is deemed final until we actually show the children and see what they are learning from the content that we are producing.

Dan Meyer (07:54):

Are you referring to like, test audiences of kids then?

Dr. Rosemarie Truglio (07:57):

Yeah, I guess you could call it test audiences. I mean, I don't. I don't like to call it that because I see them as co-collaborators. I don't see them as a test audience. Because, as I said, they're the experts. It's a collaboration. I mean, they're the experts. And so I wanna know—

Dan Meyer (08:12):

As collaborators. I got it now. Yeah.

Dr. Rosemarie Truglio (08:14):

They help us. So that's exactly what we tell the children too. So it's called formative research. You know, we, we do what we call, um, storybook testing, an animated version of a storybook to have some little

movement and see are they finding the story engaging, but more importantly, are they picking up on the intended educational lesson that we're trying to teach in the story. So they are co-collaborators. they're the ones who are helping us get the story just right for them.

Dan Meyer (08:46):

That's really exciting, and makes me think about what classes might be like if students were regarded in that kind of lens as well. I just wanna say that my four-year-old self is on this interview as well, and is re-contextualizing all the stuff I saw as a kid. And it just felt like, at the time, you folks turned the camera on and went down to the street and we just had this real natural time. And it's great to hear about all the intense preparation and co-construction at work and work that went into that time. Yeah,

Dr. Rosemarie Truglio (09:12):

It's about a year preparation from start to finish. From the start of identifying, "What is the educational need? Is it an academic need? Is it a social-emotional need? Is it a health need? Is it a cognitive-processing need?" And then once we have the need identified, we have what we call a curriculum seminar. We bring in the experts who are studying this topic with preschoolers, because we wanna get it, we wanna get it right.

Bethany Lockhart Johnson (09:41):

Which, by the way, little behind the scenes: How often do you get to go to set?

Dr. Rosemarie Truglio (09:46):

So we're in a production probably about six weeks out of the year. Covid really messed things up. 'Cause we have to be really—we have very strict Covid protocols, but there is someone on my team—and sometimes we have to, you know, rotate for availability—but there's always an educator on set.

Bethany Lockhart Johnson (10:06):

Awesome.

Dr. Rosemarie Truglio (10:07):

Because even though you stick to the script, questions arise; they wanna make changes; sometimes they have to cut; things are running too long and they have to cut and we gotta figure out where to cut. So there's always an educator on set.

Bethany Lockhart Johnson (10:19):

But sometimes you go and have lunch, like—.

Dr. Rosemarie Truglio (10:21):

Oh, I go, yes. Sometimes I go—

Bethany Lockhart Johnson (10:23):

And just hang out with Big Bird, right?

Dr. Rosemarie Truglio (10:24):

Sometimes I go hang out with Big Bird. No, those are my friends!

Bethany Lockhart Johnson (10:27):

They are!

Dr. Rosemarie Truglio (10:28):

No, no, I go hang out with them. They're my friends. Yes. <laugh>

Bethany Lockhart Johnson (10:32):

When I think about Sesame Street and I think about ... like, I can't help but smile. Because I think I have such fond memories of the characters. I mean, we invited them, my mom invited them, into our home, right? And, you know, now I have a two-year-old and there's no doubt that I'm gonna introduce him to Sesame Street. And I see how it really does feel like the folks who are doing this work, you and your team, you have a deep respect for children. So it makes sense that you call your test collaborators "collaborators," right? They're a part of it. And you know, I love that. And Sesame Street makes me smile. However, <laugh> I'm like, we're talking about math anxiety. And it's so interesting, because as Dan and I were talking about our memories of Sesame Street ... you know, it's like Sesame Street feels like there's not much anxiety. I mean, there are problems, and there's problem solving, and it's not like everything is perfect. But we figure it out. And it's OK to make mistakes and it's OK to try again. And a lot of times, we don't see that in the math classroom—or at least, how folks talk about math. So, how do you all think about anxiety, about how to prevent it? Like, when you're doing your work, you know that math anxiety is a real thing. But then that's not translated in these experiences and the relationships with math that you're building with your viewers.

Dr. Rosemarie Truglio (12:07):

Yeah, that's a really good question, because it's really easy, because our core audience are two- to four-year-olds and they love math. And what's not to love, right? Because they are figuring the world out as they're exploring the world. So you said something really interesting, that when you turn on the TV—when you turned on the TV when you were a child, and now you're a mom of a two-year-old, we wanna make sure that the show represents content that is relevant and meaningful to our target audience. And that comes through with the characters. So all of our characters have very specific personalities, as all children do. And our characters represent all children, in terms of not only personality, but interest and learning styles, 'cause we wanna see—we wanna make sure that children see themselves in these characters. And we have a character who actually loves math. And he's The Count.

Bethany Lockhart Johnson (13:12):

I'm like, "I know! I know who it is!" <Laugh> I will save you my impression. Although I have done it for my child. But I'll save our listeners <laugh>.

Dr. Rosemarie Truglio (13:20):

And you know, he's an adult character. Some of our characters are preschoolers, like Elmo and Abby—they're preschoolers—and Zoe. But The Count is an adult. He lives in the castle and he just loves numbers. But what's really important is while we have The Count to explain—not explain to, but to portray to children, cause we don't explain anything; we show children that math is more than number, right? Math is a pretty wide concept. Which is what I love about math. And the other thing about math is math language. The language of math. 'Cause when we're teaching children vocabulary words, we're

also teaching children the concept. Be it a math concept or a science concept or a social-emotional concept. So children don't come with this math anxiety. Math anxiety is learned and it's unfortunate. It's picked up by their observations of the adults in their lives, who sometimes say out loud, "I don't like math," or "Math is hard," or even worse, "I'm not good at math." Or may even label it as math anxiety. That word won't mean anything to a young child. But it then provides a, whaddya call it, like a negative valence for something that they never felt negative about. Because as they're growing and interacting with the world, math is all around them. And there's that sense of awe and wonder and joy, especially as they're learning and they're figuring it out. So I think we have to reframe math. Instead of saying "math anxiety," we have to talk about the joy of math and all the wonderful joys that come with the exploration of these math concepts. Number is great. We know kids love numbers. We know that they love to count and use a big word here: enumerate <laugh>. Because so many parents don't make this distinction. They'll say, "Oh, my child is counting!" Well, there's rote counting, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, which is important. But then it's like there's an item for each number. So it's one Cheerio, two Cheerios. And then as you point to each number, you are then figuring out what the set is, of the number of objects that you have. And then you get at what I love to call the meaningfulness of math. Right? Number has meaning. And as I said, it's all part of your everyday activities. It's part of—it's in your kitchen; you're following recipes; you're measuring; you're weighing. It's at bath time, right? You could have the sorting of nested cups and you could, you know, and once again, the math language: big, bigger, biggest. These are relational concepts. You could then count what sinks and what floats, if you're doing science. And then you could put them in two different buckets, and count. These are the items that sunk and these are the items that float. So math and bath time could be a lot of fun. And then there's math and music. Music is so rich with math, as you talk about rhythm and tempo and dynamics and pitch and duration. That's all math.

Bethany Lockhart Johnson (16:57):

The way that you talk about it, it is so rich, right? It is so multi-layered. And you know, I've shared on the podcast before: I've actually had parents in parent-teacher conferences say that, "Well, I wasn't good at math either," or "Math's really not my thing." And it's really—it is, it's rooted in that fear. And so I do see the way that you're talking about it; I see that come through in Sesame Street. That, in a lot of ways, it's reeducating parents, right? Because we hope that our caregivers are sitting next to their kiddo and enjoying it together and having conversations about it later. And there's a way that parents then are also getting their own sense of what math can be, expanded. And I think there's such a beauty in that. And I love the way that you talk about that, that you really are looking at, "Well, we wanna celebrate counting and the joyfulness of that. And let's use math talk, you know, and let's use these words and try out these ideas." And it's not because you're trying to check some list. But you're really exploring it and having fun together.

Dr. Rosemarie Truglio (18:03):

And you're embracing it. And you mentioned the word "mistake." So often when it comes to math, if you make a mistake—you make a mistake in counting or, you know, we're not doing a lot of math equations on Sesame Street, but that's when people feel like they can't do math. 'Cause they made a mistake. And that's something that we are trying to address on Sesame Street, that it's OK to make mistakes and you learn through mistakes. But you have to have—and I'm gonna come up with this other phrase now—you have to have what we call a growth mindset. What that means is that I may not be able to do this yet. Like, it's called "the power of yet." So we know that learning any concept, it takes time and practice. And how do we have children embrace the process, right? So often we focus on right and wrong. Now, there is right and wrong with math, of course. You know, there's a right answer and

there's a wrong answer. But how do we focus, not on the end product, but the process through which you are engaging in? So let's talk about measurement. Let's talk about measuring the length and the width or the height of something. You might make some mistakes along the way, but you're processing it. My son used to make all of these little structures for all his little play animals. Well, you know, he would measure and think he got it right. And then when he put the animals in, of course, you know, either the animal was too wide or it was too tall. And he would have to redo it. But you're not redoing it from scratch, you're redoing it now from experience. "I realize that if I'm gonna put the giraffe in with the elephant, I'm gonna need something wide as well as high." Right? For the length, tall. And that's process. And then, for children, when they figure it out, that "oops" and "aha"—the "aha" was like, "I did it!" And it's so empowering, you know, giving them agency—not swooping in and saying, "All right, I'll fix it for you. You know, we got the wide elephant and the tall giraffe and I'll you know...". NO! Having them do it. And another fun activity is in what we call informal measurement. And that's like getting something of an equal size. It could be paper clips or it could be same-size blocks, and then measuring how long something is. So if it's measured by blocks versus paperclips, you're gonna have a lot more paperclips than you are blocks. And that kind of comparison is so fascinating for children. And so that's measurement. And now we have counting. Like, how many paperclips long is something versus how many blocks long is something.

Dan Meyer (21:02):

So checking my understanding here, you've talked about how caregivers and other adults can transmit math anxiety by naming it and claiming it for themselves. And you've talked about, some really exciting ways that adults can involve students and kids in different kinds of math. I'd love to go upstream with you a little bit and wonder out loud, where does this anxiety come from initially? It's gotta be more than adult one to kid two talking about anxiety, and transmitting it from human to human. What is the original spring from which all this anxiety flows?

Dr. Rosemarie Truglio (21:36):

Yeah. I do think it does—a lot of it does come from the adults in their lives. It's unfortunate, because there is a lot of math talk about it, right? I can't do math; I'm not good at math. Even when you're at a restaurant and you get the bill and someone's figuring out the tip, I can't tell you how often it's like, "Pass the bill, because I can't do math." Or if you actually then bring gender into it, you know, "Oh, girls aren't good at math," and that's not true. There's no evidence of that whatsoever, right? So in the younger grades, there's no gender difference in terms of math ability. What's also interesting about even socioeconomic status differences, you don't see a lot of differences between low-income and middle-income children when it comes to math skills. Where you see differences is children's ability to talk about their mathematical thinking. So if a child doing a math problem is asked, "How did you solve the problem?", low-income children don't often have the language to explain their thinking. So that's something that we did on Sesame Street, where we focused a lot on what we call math talk. So, not just show number and show doing math, but actually narrate and giving the language. Because math literacy is one of the predictors of overall school achievement. So there's that. They're getting it from the adults in their lives. They're getting it, unfortunately, sometimes from their teachers. But I think the anxiety comes from the fear of making mistakes. Because math, there is right and wrong, and always wanting to get the right answer. So that's why this whole idea of reframing, and saying, "But really, it's in the process." So, you know, my son, math is not his strong suit. And I've been doing a lot of growth mindset with him as well. And there was a teacher that he had—I think in like 10th or 11th grade—who said, "In a test, I don't wanna—I'm not even gonna look at the answer. I wanna see the process through which you GOT to this answer. And I'm going to grade the process. So the process could yield a right answer; it

could yield a wrong answer. But you're gonna get graded on the process. Because I wanna see how you are approaching the problem and how you're thinking it through." And I think that is a great example of, maybe, to try to reduce math anxiety. Because if you can get people excited about the process through which you're learning—and that applies to all subjects, it's not just math!

Bethany Lockhart Johnson (24:36):

I'm like, that applies to life! Right? <laugh>

Dr. Rosemarie Truglio (24:38):

That applies to life!

Bethany Lockhart Johnson (24:39):

That's so spot on. Wow. Yeah.

Dr. Rosemarie Truglio (24:41):

But I think that there's so much focus on right and wrong, and not really understanding the value of the process. So on Sesame, we've been doing a lot of "oops" and "ahas." You know, we're gonna make mistakes, but what's important is what do you DO when you make a mistake? So there's a great episode with The Count. A couple of years ago. The Count was counting. Something he does every day. A lot of time, every day, 'cause he's obsessed with counting and numbers. And he was counting an array of items.

Gladys the Cow (25:17):

I need 10 sandwiches all together.

The Count (25:22):

Well, of course.

Dr. Rosemarie Truglio (25:23):

And he made a mistake.

Elmo (25:25):

The Count?

The Count (25:25):

Hmm?

The Count (25:25):

Elmo thinks The Count made a little mistake.

The Count (25:31):

No mistake.

The Count (25:32):

Mm-hmm. Yeah.

Dr. Rosemarie Truglio (25:33):

And first time ever, did he make a mistake. And he fell apart.

The Count (25:38):

I must make sure that that never happens again. So I shall never count again.

Dr. Rosemarie Truglio (25:46):

And that's an example of showing that, you know, you could get upset when you make a mistake, but what's important is you gotta come back and you gotta come back to doing what you love. In his case, is counting and letting him know that it was an "oops." But you learn that mistakes are OK. It's OK to make a mistake and continue to do what you love.

The Count (26:13):

I must keep trying and you should, too.

Elmo (26:17):

Yeah!

The Count (26:17):

So come, let's count the carrots together!

Elmo (26:18):

Oh, cool!

Bethany Lockhart Johnson (26:19):

And what a beautiful gift to show kiddos. Show that to kiddos, right? And to the adults. I wanna, you know, really acknowledge it, and say, "Hey look this, it's OK." And again, you're giving them that language. That's such a gift.

Dr. Rosemarie Truglio (26:34):

Thank you.

Dan Meyer (26:34):

We spend a lot of time wondering why other subjects don't seem to suffer from this negative perception. And I think you've unlocked a lot of that. You've mentioned that there are issues that cut across different subject areas, but I think from my own experience and research and interviews, it seems that in ELA and the social sciences, there's this aspect where you need to come up with a claim and "how are you seeing this?" And there are multiple defensible claims. And I love how you imported that generous pedagogy over into math with this example of a teacher who says, "You know what? It's about the process here." Disassociating answer and process.

Dr. Rosemarie Truglio (27:09):

And I think the other thing is like, when children are engaged in a project, for parents to point out: "You're doing math!" <Laugh> Because they don't realize that they're doing math. Once again, math is so often equated solely with numbers and mathematical computations. So it was really interesting—the same is true for science. You know, when we're talking to parents about the use of everyday—like, going to the supermarket or making dinner or bath time, there's so much math and science in the everyday. And then when you point it out to them—"you're doing math"—it's like, "I'm doing math!" Like, you're setting the table for a family of six: you're doing math. That's called one one-to-one correspondence. "I'm doing math: I'm setting the table." Yeah, but you're <laugh> doing math. You can't set the table because you have to know how many people are gonna be sitting at the table for dinner. You can't follow a recipe without doing math. You can't go shopping without doing math. There's quantity; you gotta figure out how many peppers you gotta buy, or pounds. "I gotta get a bunch of potatoes and I gotta put 'em in the scale. And I have to get two pounds of potatoes."

Bethany Lockhart Johnson (28:29):

So your book Ready for School: A Parent's Guide to Playful Learning for Children Ages Two to Five. First, as a parent of a young toddler, I gotta say it's such a tool; it's such a resource. It's very conversational. And I think about these ideas a lot, both in my work and, you know, just for fun. And yet, even if this wasn't my chosen field, I still feel like it's just so accessible. And I wanna flag something.

Dr. Rosemarie Truglio (29:01):

Thank you.

Bethany Lockhart Johnson (29:01):

Yeah, no. Thank YOU. <Laugh>. I wanna flag something that you said in the math chapter You were talking about the joy of math, and you said when it comes to our children, caregivers: "take pleasure in reading stories together, especially at bedtime, which in many households is a regular part of a child's routine. But somehow the notion of introducing math concepts to our children seems daunting. In fact, some studies have shown that parents harbor a strong belief that while it's important and pleasurable to support their child's reading skills, it's the responsibility of the schools to take care of teaching math." And that quote, I highlighted it, I starred <laugh> it! And I would love for you to say a little more about that, because you have given us already, like, a bounty of ideas that as caregivers we can do with our kiddos or the kiddos in our lives. And we've seen that even what they're learning in school, it may not be the freeing, joyful math language that we hope our kiddos have access to.

Dr. Rosemarie Truglio (30:05):

Yeah, I'm glad you brought that up. Because a lot of our focus is on how children learn through playful experiences, and how they learn through play in particular. And there are so many playing, either a game or even playing ideas—like we talked about building, you know, a house for animals or building a fort. It's just so filled with math. And I wish I could narrate for every young parent <laugh> how I would hope that they would talk as they are co-engaged in this activity. And I think ... we asked about, with the anxiety, the adults have to find the joy in math first. They have to see the math. That's the problem. That's why I hope that my book provides that. I want you to know that you are doing math and I want you to know that your child is what we call a mathematician—or in the science chapter, is a STEMist. Your child is already doing science, technology, engineering, and math. STEM is so integrated. So to acknowledge them—because babies are doing math! Babies know, they can distinguish between a small quantity and something that is a of a larger quantity and want the larger. Right? So, it's natural for them.

And they are taking it all in. I mean, the joy of watching a child just early counting: you know, one, two. And trying to then figure out the meaningfulness of two. It's not three objects. There are actually two. And for a parent to see the joy in that I think is step one. And then to see the richness and how expansive math is, and that power of, oops, "I made a mistake, don't freak out," and then [not] say, "See, I'm not good at math," but say, "Let me try again. I know I could figure this out." Right? It's all of that supportive language and supportive experiences that builds this mindset, a positive mindset. So that you hope that when you get into the higher grades, they're not walking in and saying, "I can't, I can't do math."

Dan Meyer (32:26):

Yeah. Super helpful. I think you point at one of the grownups—great powers in the world of kids, which is to label. To name things. And you know, you've talked about how grownups should ideally downplay some of their negative experiences with mathematics for the sake of the kid, but also to play up the positive stuff that they're doing as mathematics. Like that right there, that's math. I would love to know ... you have an extremely loud megaphone to communicate messages about math and the world and everything through Sesame Street. One of the biggest that there is—and I just wonder if you could step out and imagine you had a magic wand to wave over the world in which students grow up, play and learn—what would you do like to help students have better associations or less math anxiety? And, you know, learn more about math itself?

Dr. Rosemarie Truglio (33:19):

If I had a magic wand, I would give everyone what we call a growth mindset that nothing is fixed and everything can be changed if you put the time and effort into the process, and enjoy the process. The joy of learning. I think, you know, it's really sad. I don't wanna be sad on your show. But when we were getting ready for the 50th anniversary, I was wondering, "What is gonna be the curriculum focus?" You know, we just came off of literacy and math literacy and social-emotional development. And we talked about the power of play. Playful learning. And building careers. Give children sophisticated play scenarios so that they could explore what they may wanna be when they grow up. Because there's a concept: If I can see it, I can play it, I can be it. Right? So where are those portrayals? And it's like, "What are we gonna do for the 50th?" And I had a convening of experts across all disciplines, and brought them into a room. And I said, you know, "What keeps you up at night? Like, what are you worried about?" Sort of like the State of the Union of Child Development. And this is where the sad part is. They talked about how that sense of joy, that sense of wonder, that sense of curiosity, that sense of flexible thinking and creative thinking, was disappearing in early childhood. Wow. If it's disappearing in early childhood, we are in big, big trouble <laugh>. 'Cause I could see it disappearing later on, you know, as you advance in grade. But what do you mean, it's disappearing in childhood? And then they talked about the fear of making mistakes. And that goes against—it's the opposite of a growth mindset. And so we have to bring back that sense of joy, wonder, asking those why questions and embracing them. So it's another problem parents have. They're fine with the "why" questions until the "whys" become so difficult they don't have the answers. And then they don't want the "why" questions, because now they feel like they're not smart enough to answer their child's "why" questions. How do I flip that around to be much more positive and say, "You know, I don't know! But let's find out together. Let's explore together; let's experiment together." That's what I mean about the shift in the mindset, that growth mindset. We should not know all of the answers, but where's the joy of, "Wow, I don't know, let's go find out together"? And that applies to math too. But you have to have that open mindset. You have to—you, as yourself, have to have that growth mindset.

Bethany Lockhart Johnson (36:20):

I love that magic wand. I want that magic wand! <Laugh> And I think what—like Dan said about this megaphone, this opportunity to reach so many young people, so many caregivers—what a gift! And I'm so grateful that you took time to be in the lounge with us, and that you have shared these ideas. Because truly, I think, like you said, it's really our youngest learners, right? How can we create and cultivate these opportunities for our youngest learners to find the joy in mathematics and just in learning, right?

Dr. Rosemarie Truglio (36:54):

Yeah.

Bethany Lockhart Johnson (36:55):

So thank you. Thank you so much, Dr. Truglio. We are deeply grateful for your insight and for all the work you do. And we continue to invite the world of Sesame Street into our homes.

Dr. Rosemarie Truglio (37:08):

Thank you. Thank you for allowing us to come into your home, and for you to re-learn with your child as you're watching Sesame Street. Because it's very much a parenting show, as it is for a child-directed show, because we are blessed to have these wonderful human cast members who are the stand-ins for parents. And so we are often giving you the language for how to talk about and how to problem-solve together. So thank you.

Dan Meyer (37:43):

Thanks so much for listening to our conversation with Dr. Rosemarie Truglio, Senior Vice President of Curriculum and Content at Sesame Workshop.

Bethany Lockhart Johnson (37:51):

Dr. Truglio is also the author of Sesame Street Ready for School, A Parents Guide to Playful Learning for Children Ages Two to Five, and we're gonna make sure we put a link to that in the show notes because it is really, really a rich resource. I'm diving in. I have so many ideas bookmarked that I wanna try out with my kiddo.

Dan Meyer (38:09):

Yeah, it's really exciting to see—like, for a classroom educator, I just kinda assumed that a lot of math learning happens in the classroom context. That's my lens. So yeah, I loved reading the book and seeing all the different opportunities for parents for just out there in the world, in front of your house, at the supermarket. All the different opportunities there are for mathematical thinking, and then to think about how to bring that into some of those routines and ideas into the classroom, into formal schooling.

Bethany Lockhart Johnson (38:35):

Exactly. Exactly. Like Dr. Truglio said, the caregivers's disposition about mathematics matters so deeply. Your teachers' dispositions about mathematics, their beliefs, the way that you hear people talking about math, that impacts our learners. That impacts—like, as a student, that impacts what you think is possible for yourself. So I love this, re-educating ourselves about what math can look like out in the

world, in everyday conversations. I don't know. I really, really appreciated this conversation with Dr. Truglio.

Dan Meyer (39:12):

Same. Yeah. We'd love to hear what you folks think about the work. the book, her ideas. Definitely get in touch with us. Subscribe to Math Teacher Lounge, wherever you get podcasts. And keep in touch with us on Facebook at Math Teacher Lounge Community, and on Twitter at MTL show.

Bethany Lockhart Johnson (39:27):

Also, if you haven't already, please subscribe to Math Teacher Lounge wherever you get your podcast. And if you like what you're hearing, please leave us a rating and a review. It'll help more listeners find the show. And while you're at it, let a friend know about this episode, because you enjoyed it; they might enjoy it. On our next episode, we're gonna be chatting with Dr. Heidi Sabnani and taking a closer look at best practices for coaching teachers to reduce their own math anxiety.

Dr. Heidi Sabnani (39:56):

One of the teachers that I worked with had done her student teaching with a teacher who had math anxiety and who never taught math. And so she entered her teaching career never having taught math before or seeing it taught.

Dan Meyer (40:10):

Thanks again for listening, folks.

Bethany Lockhart Johnson (40:12):

Bye.