Dr. Heidi Sabnani (00:00):

Coaching is the opportunity to provide that just-in-time kind of professional development for teachers, if we go at it in a slightly different way.

Dan Meyer (00:10):

Hey folks, welcome back to Math Teacher Lounge. I'm your host, Dan Meyer.

Bethany Lockhart Johnson (00:14):

And I'm Bethany Lockhart Johnson.

Dan Meyer (00:16):

Bethany, how are you doing, and how are you feeling about our current trajectory through this exploration of math anxiety?

Bethany Lockhart Johnson (00:24):

Dan, I gotta tell you — let me make it about me for a second. <laugh>.

Dan Meyer (00:29):

Go. Do it.

Bethany Lockhart Johnson (00:30):

If only I had known that so many other people experienced math anxiety, and I wasn't the only one. I mean, I've said it before, but you know, I hope that this series so far is helping to reframe math anxiety for folks who maybe have a narrow definition of it ... and I guess expand, reframe. And also, for those folks who are working with students who have math anxiety, or who they themselves have experienced math anxiety, I hope they've found some tools, some resources. Right? Like, "Yes!"

Dan Meyer (01:04):

Yes! Same.

New Speaker (01:06):

And what about you? How are you feeling?

Dan Meyer (01:08):

Yeah, I hope this has been cathartic for all of our listeners who have experienced math anxiety, and not re-traumatizing, that there are lots of people who feel this way about math in particular. And that it's so well-experienced, so broadly experienced, that people have decided to study it a whole bunch. Which is great. And now we're moving into our kind of solutioning. You know, in my relationships, I'm sometimes told that I rush too quickly to solutions before trying to understand what's going on. So I've loved our episodes that have been about what is going on. And now, with Dr. Truglio last episode and our guest today, we're moving more into some solutions, which I'm excited about.

Bethany Lockhart Johnson (01:49):

I don't know, Dan, I think next time I see you I'm gonna bring a list of some concerns or worries I have, and I would love if you just get right to the solution. I'm actually OK with that.

Dan Meyer (02:01):

All right. Good to know. Good to know. I'll say I am coming off of a day where I was feeling some teacher anxiety today, because I taught really real students. So just to let you know where I'm coming from here. I taught some seventh grade students at Montera Middle, here in Oakland Unified School District. Taught 'em a lesson outta the Desmos curriculum. And it was one of those lessons where some thorny stuff comes up. I'm talking students who are wrong for smart reasons, who are right for the wrong reasons, and their minds are working so hard trying to figure out inequalities. And I'm like trying to just step into that process as an educator with some curriculum and help shape those ideas. But it's just ... I don't know, you want it to be as easy as like, "let me just show you how it's done a few times, and now you got it." But whew, some of these ideas, they take a long time to form up and they're really easily reshaped by lots of stuff going on. So that's where I'm at, anxiety-wise, right now. The teacher anxiety stuff.

Bethany Lockhart Johnson (03:04):

I think there's probably plenty of teachers who do kind of just say, this is how you do it. And so, from what I have seen of your teaching and what I know of the Desmos curriculum, it is such an opportunity to think hard about the things that we are assuming about our students, assuming about what we know about the math itself. And yeah, that requires some thought.

Dan Meyer (03:30):

Yeah, for sure. I came in ready, like, "When you multiply both sides of an inequality by a negative, this sign flips around." And I could just say that to kids and say, "Hey, remember that! Write that down!" And a lot of them would do it really well, you know, provided the assessment problems looked like ones we've gone over in class. And they're also learning — in addition to that math, they're learning that math is a giant sack of tricks they gotta memorize, right? So there's just these pros and cons. And at the end of the one period I'm gonna teach this week, I was like, "Well, your teacher's gonna go over that tomorrow, when they're with you instead of me." So it felt a bit like I copped out on that one. And I'm just in in my feelings about that right now. And I'm gonna try to come on down here and be present in the math-anxiety world.

Bethany Lockhart Johnson (04:25):

I appreciate you sharing that, Dan. And I think ... I have a feeling that you could write a pretty catchy rhyme to allow the students to flip and <starting to rap> "multiply by negative. and dit-dit-dit-dit." Can you feel it? You picking up that beat?

Dan Meyer (04:40):

Ooh, yeah. A nice little beat. Uh-huh. Yup.

Bethany Lockhart Johnson (04:41):

Yeah. You know, you could come up with something pretty clever, and yet you did not lean on your wordsmithing skills. You said, "No, let us dive in." So what are you gonna do with this lesson, by the way? What happens now? You popped in for one period, and then what happens?

Dan Meyer (05:03):

Yeah. So this is gonna be a blast. I hope you folks tune in. We're gonna actually release the footage of me teaching this lesson live. You know, it'll be replayed live. And on top of that, a couple of my favorite teacher coaches and just smart people about teaching are going to be giving commentary. They are gonna be giving the director's commentary, the sports announcers' commentary on what they're seeing. I beg for their generosity in their commentary. But I think it'll be a lot of fun. I've never seen anything like this before, a commentary track on top of a teaching lesson, in this way. So I'm just gonna gonna be excited to see what they noticed that I didn't, what they might have done, the thoughts they might have. Maybe I'll do a post-game interview, you know.

Bethany Lockhart Johnson (05:50):

Ooh, yes!

Dan Meyer (05:50):

With my towel around my neck, <laugh> looking all sweaty.

Bethany Lockhart Johnson (05:54):

Ready, set, grow!

Dan Meyer (05:55):

Like, "Yup, we gave it all out there, you know, just a real team effort." You know, that kind of thing. We'll see how that goes.

Bethany Lockhart Johnson (06:02):

I actually love that idea. I love that it's not just this one random lesson that just kind of floats out there, and it's about, you walk away with whatever feelings you have, and the students obviously walk away, but that this is gonna help other educators.

Dan Meyer (06:17):

Yeah. Yeah. We'll multiply my anxiety and make it more people's anxiety. We'll see how that goes. So stay tuned on the Math Teacher Lounge feed for that. All right?

Bethany Lockhart Johnson (06:25):

All right! And speaking of anxiety, Dan Meyer, we gotta get to today's show. You know, last time we had some amazing strategies for helping students from Dr. Truglio from Sesame Workshop. I gotta tell you, I sent that episode to so many of my friends, like, "Listen to these ideas!" and have had some interesting follow-up conversations. And we would love to hear what you think about this season so far, at MTLShow on Twitter or in our Facebook group, Math Teacher Lounge. So today, we're gonna focus on strategies for supporting teachers.

Dan Meyer (07:00):

Yes. Which is why we're so excited to bring to you folks Heidi Sabnani, who — we've had researchers. We've had Sesame Workshoppers. And Heidi Sabnani has been a classroom teacher; she's teacher-consultant; newly minted doctoral degree holder. We're so pumped to bring to you folks: Heidi Sabnani.

Bethany Lockhart Johnson (07:25):

Dr. Sabnani, thank you for being here. Can we call you Dr. Heidi? What would you. ...

Dr. Heidi Sabnani (07:31):

You can just call me Heidi. Yeah. Heidi is good.

Dan Meyer (07:36):

Right on.

Bethany Lockhart Johnson (07:36):

OK. Heidi, thank you for joining us in the Lounge. We're so excited to talk with you.

Dr. Heidi Sabnani (07:41):

I am super-honored to be here. It's really exciting and I just really appreciate the opportunity.

Bethany Lockhart Johnson (07:47):

I will say I don't have a PhD, although the two people I'm talking with right now, both do, and you're both like holding up your degrees as we speak and saying, "Wah-wah." But I imagine that if I did, I'd wanna throw that doctor in more frequently, so.

Dr. Heidi Sabnani (08:02):

Well—

Bethany Lockhart Johnson (08:03):

If I sneak in a "Doctor," Heidi, it's only out of respect.

Dr. Heidi Sabnani (08:05):

OK. I appreciate it.

Bethany Lockhart Johnson (08:07):

Dan makes me call him Dr. Meyer all the time.

Dan Meyer (08:10):

You don't call me Dr. Dan or Dr. Meyer, ever. So—

Bethany Lockhart Johnson (08:13):

I will now!

Dan Meyer (08:14):

—this respect only goes towards Dr. Heidi, it seems. But yeah, we'll take that off the air.

Bethany Lockhart Johnson (08:19):

Well, we are going to delve into your research on math anxiety soon, because I actually — speaking of becoming a doctor, a new doctor, I have some questions. We have questions about your research, but on a personal level, I really appreciated the way that you share that you yourself experienced math anxiety as a student. So I'm wondering if you could tell us a bit about your own math anxiety, your <laugh> journey through math.

Dr. Heidi Sabnani (08:50):

Yeah, so much like the people in the research that I did, and with the research that I read by others, many of us can tie the beginnings — or like the evil villain origin story of math anxiety — to a particular event, or series of events. And my series of events started, the big blow-up, I guess, in fourth grade. And I had had some struggles in school — I have mild dyslexia and dyscalculia. And so I had always been in the special group of kids who got some extra attention <laugh> from the teacher, or from an aide, or whoever happened to be in the room. But in fourth grade — at that time, they taught multiplication and division facts in fourth grade. Many, many moons ago. And I struggled greatly with just understanding what was happening and why we were moving so quickly. And, my teacher was probably not the best person to be entrusted with my learning at the time. Like, her style may have been OK for others, but it was obvious that she felt like kind of wasting her time with some people in the classroom. And I happened to be one of those people.

Bethany Lockhart Johnson (10:26):

Mmm. You said that really diplomatically, though. <Laugh>

Dr. Heidi Sabnani (10:30):

Well, you know, you look back at things from the perspective of many years. And having made lots of mistakes myself in the classroom as a teacher, I try to give some grace to things that happened, and how you remember them. Yeah, that's my story, but maybe she had a different one, right?

Bethany Lockhart Johnson (10:55):

Yeah. But fourth grade Heidi was still, you know, still experiencing that. Yeah.

Dr. Heidi Sabnani (11:01):

Yeah. Fourth-grade Heidi didn't like being in the "dumb group" and didn't like being told that she would probably not graduate from high school. So that was kind of the general environment. And I got further and further behind in math. The dyslexia was less and less of an issue the older I got, because I had great comprehension. And so I could figure out the fluency thing just by the pattern of language, because mine is mild in comparison to so many who struggle with that. But math was not working in that same way. And I got more and more behind and to the point where I was having to stay in every day at recess. And I had had it after like a month. Like, I'm not staying in at recess anymore to do this math that I don't understand, by myself. Like, not doing it. So I—

Bethany Lockhart Johnson (11:53):

Which, by the way, if there's one way to make you hate it, <laugh> like, to engender, to endear you to a subject, could it be, "Let's have you stay in at recess"?

Dr. Heidi Sabnani (12:07):

Right. And so one day I just stormed out of the classroom, I was like, "I'm not coming. I'm not staying, I'm not doing this anymore. I'm done." And I can remember her standing up at the top of the hill screaming at me to come back, and I was like, "No way. Not doing it. Done with this." I went to a parochial school, though, and my dad is a pastor. So that whole little incident blew up in the greater community in a way that I didn't really anticipate as a fourth grader. And my parents had no idea that this was going on. And so they were shocked and dismayed that their — up until that point — oldest child, rule-follower, had done this. But then even more upset when they found out what was happening with my math understanding, or lack thereof. And they did what they knew best at the time. So my mom was a great memorizer. She has a brain like an elephant. And my dad grew up in the British system in India and Singapore, and it was at that time very much based on memorization. And so they were like, "We are gonna just work really hard. We're gonna buckle down and do this thing <laugh>." And so that's what we did, and that's where all of it began. It was not — it was just about "We're gonna learn the facts. We're not gonna ask questions; we're not gonna think about it, because it's just the rules. And if you can figure out the rules or the system or what the teacher wants, and mimic what the teacher is doing, then you'll be successful." And it was really successful for me, once I figured that out all the way through. My whole goal in high school when I took high school math was to take enough math courses with a high-enough GPA that when I got my BA in college, that I would never have to take math again. And I succeeded in that and got an English degree and a Master's in world lit. And I was in no way doing math ever again.

Bethany Lockhart Johnson (14:31):

But little did you know that Future You was going to be researching math anxiety. How did you wind up researching it then? How did you wind up researching math anxiety?

Dr. Heidi Sabnani (14:43):

So I took a job in school improvement when I was working in Ohio, after a number of years teaching high school English in Southern California and Guatemala and Michigan, all over the place. And I took a job in school improvement with a co-consultant who was gonna be doing the math end, and I was gonna be doing the literacy end, and we were just gonna go in, and I was gonna make kids love reading, and she was gonna make kids love math, and it was gonna be so fun. And then she decided she didn't like working with adults and they couldn't find anyone else. And my boss said, "So you're just gonna do both for the rest of the year." After that year, I got requested to go back and, and do this again. I said, "Well, if I'm gonna do this, I'm going to go back and reteach myself the math in ways that I wish that fourth-grade Heidi had learned it, and fourth-grade-and-up Heidi had learned it." And so that was like the, the beginning of the switch. And so now equal amounts of time in my career have been spent in both. But when I started, when I continued working, when I left the classroom to continue working with teachers, and when I transitioned more into an elementary setting, I began to notice the same behaviors that I had in high school of avoiding math, and avoiding teaching math, were happening in the classrooms that I was supporting. And so I would have teachers come and say, "Oh, can we talk about this literacy thing?" And even if it was like a math meeting, or we were supposed to split the time evenly, and ohhh, for some reason the literacy time talk would just like move over <laugh>. And then there was no time to talk about math at the end. And "Oh, that's just too bad." Like, we're just gonna move on to this next thing. Funny how that happens, right?

Bethany Lockhart Johnson (16:32):

Yeah. <laugh>.

Dr. Heidi Sabnani (16:34):

And noticing teachers' behaviors around going to and or avoiding math professional development that I was giving. Or getting sick. Or like having to leave the room for a long period of time. And so I began to notice these behaviors. And initially I thought I wanted to look at math anxiety in children, which is one branch of the research that I started with. But as I got into things more, the people that I have the most influence in are adults right now.

Dan Meyer (17:09):

Right.

Dr. Heidi Sabnani (17:09):

And so as I started looking at the research that had already been done, I feel like we do a really nice job of admiring the problem of math anxiety, and we do less in the "what to do about" phase. And so I was like, "Well, if I'm going to continue to be in this career and in this profession, then I need to be doing something in the space of 'what are we gonna do about it?'" And so that's how I switched to looking at "what do we do to help teachers?" Particularly elementary school teachers, because that's the area of greatest need, based on previous research that we could at least do something to help.

Dan Meyer (17:51):

Yeah. A previous guest mentioned that a lot of research is better understood as me-search, especially in this kind of arena, where we're going back in to try to understand what it was that happened for us and how to prevent it for future generations. And I have nothing but respect for that motivation right there. And your point is well-put, that it is very possible to spend a ton of time examining math anxiety from every angle, every facet, you know, put it up there on a mounted board and admire it ... and there's a lot of value there, but I appreciate that you're moving into, "So, now what?"

Dr. Heidi Sabnani (18:27):

Yep.

Dan Meyer (18:28):

And so I'd love if you'd share with us and our listeners the broad details of your study, and what you ultimately found. Like, if there are any large takeaways here, what were they?

Dr. Heidi Sabnani (18:40):

Yeah. So a couple of things to kind of just lay a little bit of the groundwork. One out of four teachers say that they have math anxiety. Those numbers increase rapidly, the younger of the grades that the teachers teach. So if we think about preK to two, it's about 88%, based on other people's research. So I was like, "Well that's a lot of people <laugh>!" And so, that's the scope of the problem. And so I was thinking, "OK, what do we do in these moments?" Because other researchers had said they're spending — when they don't like it, they're spending less time teaching math and avoiding it, or relying on methods that were done to us. Just out of fear of trying something different, at many times. And so one thing that has become more prominent in math education since I transitioned 16 years ago into this has been the role of coaches in school systems. And so one of the questions I wanted to think about was, "What can coaches or math specialists who work with adults as well do to help the teachers that they work with?" So that was kind of the lens that I was looking at. Like, let's think about the systems that we

currently have in place. Is there something that we could be doing that would help teachers, that wouldn't be so huge or so monumental that with little shifts in our own behavior as coaches or professional development providers that we could make that would make a difference? So that being said, this was a qualitative study, so a small group of people in very intense settings. So I kind of always wanna preface that, because in academic world, you know, there's <laugh> all sorts of thoughts about that. So I had asked teachers from districts that I work with who self-identified as having math anxiety if they would be interested in the study. So, this is what we're thinking of, this is what it would look like, and the scope of the support they would have.

Bethany Lockhart Johnson (20:50):

So basically you're tracking these four teachers who self-identified as math anxious. And were you serving as their coach and kind of seeing what was working?

Dr. Heidi Sabnani (21:00):

I was serving as their coach. Yeah. I was serving as their coach during that time period. And some fairly recent research that had been done was in the idea of "Can we do some reflective conversations or reflective writing around where your math anxiety started, and how that makes you feel both as a teacher of mathematics now, because you are teaching math, and how that affects your identity as a mathematician?" And so that was the first starting point. And that was a really critical moment that I'm glad that I had stumbled across the research on, because it turned out that having someone hear and acknowledge that what happened to them was both wrong and inappropriate, in many cases, and in a couple instances, was traumatic and also abusive — that that mattered. That it was OK to feel anger and hurt and frustration based on what happened to you in the past. And then have that moment to reflect on, "OK, so what do you want the classroom environment that you're building as a teacher to feel like for your students?" So it was turning that moment of how they felt to thinking about, then, what kind of environment do we wanna make within the math classroom? And what steps can we take to ensure that happens? So that was like, Step One is just thinking about what that looks like. What kind of math identities then do you want to create for your students? Because all of the teachers were very concerned with not continuing the cyclical nature that often happens with math anxiety, from teacher to student and back again.

Bethany Lockhart Johnson (22:54):

Well, and even that validation, right? Like, how many of them hadn't even had, like you said, had that? We had another, when in our first episode, Dr. Gerardo Ramirez talked about that validation and how key.

Dr. Heidi Sabnani (23:09):

Yeah. That was the first thing. The next step of it, which very different from what I often do — I don't generally go in and model for teachers — just me, taking over your classroom. I really like to co-plan with teachers and co-teach with teachers and have it not feel like they're losing control over what's happening in that moment. And that's generally the way that I go in when I'm doing professional development in a classroom, right? Like, I'm working with the teacher and we're a team; we're doing this together. But in these four cases, these teachers were very, very resistant <laughs> to co-teaching. And so I said, "OK, well, let's throw everything out. Let's try whatever it happens to be." So the modeling aspect turned out to be really important, in part when three out of the four cases, because they were like, "Oh, I can do that." <laugh> like, Well, yeah, I know you can! Like, it was that having a moment to

sit back and see someone else doing it — which is harder to do when you're co-teaching, right? It's harder to be reflective in the moment when you're still thinking about the teaching choices you're making, because you're both co-teaching.

Bethany Lockhart Johnson (24:24):

Right. Or sometimes you see, like in co-teaching, it falls into "one teach, one manage," you know, or something like that.

Dr. Heidi Sabnani (24:31):

Yes.

Bethany Lockhart Johnson (24:31):

I have definitely fallen into that. But you, by modeling ... it was almost, I don't know, it feels like you're kind of holding their hand. Like, "I'll show you!" And not that it has to exactly look like that, right? But you found if a coach is coming in and the teacher gets to sit back and basically watch their students learn, they're probably gettinga ton of information about their students, and they're really learning some teaching strategies for mathematics that they can then like dip their toe in. I think? <Laugh> Am I kind of thinking of this? I'm trying to picture this and it feels rich and rife with possibilities <laugh>.

Dr. Heidi Sabnani (25:16):

Well, and it, it turned it from ... I think sometimes, when I go into a classroom, I learn so much from watching teachers and being able to sit and listen to students, that you don't always have the luxury of when you're the teacher. <Laugh> Right? It's so much harder to be like, "OK, I'm gonna be watching what a kid does, because I'm hoping someone uses this strategy, so I can connect it to this other person's strategy, so that we can take that apart and look at it and really have immediate discussion around it." Those are all so many things that are happening in the moment as a teacher. You don't get to sit back and look at it from a researcher kind of lens. Or look, you know, from the up-above lens. And when I had these conversations with teachers, I was like, "That's what I want you to do. I want you to be able to sit back and look at all the things that are happening." Because then you begin to notice not only the moves that the teacher — in this case, me — who was modeling for them was doing, but also the student conversations. And it was almost like having a case study within that moment, where they got to sit back and just experience, versus thinking about all the decisions that they would make at the moment. So that was something that was really surprising to me.

Dan Meyer (26:33):

Yeah. And I love the idea that they're seeing the pedagogical moves, but they're also experiencing perhaps a sense of math that's de-stressed. You know, they are allowing themselves to sit next to students and feel as though they are a student, in ways that if you're co-teaching, you are still like enmeshed in the gears of the whole lesson. I wonder if that's a part of this too. So I'm hearing from you that we're taking these teachers who have all admitted to some math anxiety, and that one of the interventions, or one of the findings, was that modeling worked really well for, again, this set of teachers. But you modeling lessons that highlighted mathematics, that was less anxious, that helped the teachers see that students were engaging in really productive un-anxious ways, brave ways. Were there other kinds of takeaways that you experienced there?

Dr. Heidi Sabnani (27:24):

Yeah. So in addition to that, we had to think about and start at Step One. 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 seen it taught. And so in her situation, she had had one course in her teacher preparation program, that was on fractions.

Bethany Lockhart Johnson (27:54):

That's often the case, right? One math methods course! Help, we have to get it all in in this semester! <Laugh>

Dr. Heidi Sabnani (28:01):

<Laugh> Yes. And so she came in and said, "I feel like I have to start at the beginning." And so there was no question that was inappropriate, or that we weren't going to explore or think about. And so that was, I think, the starting place with that particular teacher. And then one other, who was kind of in her same age range, where we had to start thinking about, "OK, how did you learn as a learner? What ways are you seeing your students learn as learners? And then let's focus on those first as the areas that you wanna explore in your teaching." And so a lot of that ended up being much more visual and hands-on ways of exploring. And so those were some of the changes in, I think, pedagogy that were the most significant. In a couple of cases, these are early elementary teachers who had had one experience with manipulatives in their whole teaching career up until that point. And so one teacher brought me a bucket of Cuisenaire rods and said, "These are in my room. I don't know what they are. <Laugh> Are we building things with them? Are they blocks that are just small? <Laugh> Like what are they for?"

Bethany Lockhart Johnson (29:20):

Yes!

Dr. Heidi Sabnani (29:21):

And so, <laugh> it was that idea of, "OK, let's, let's explore all the different ways that we can use these, and that we can think about how your students might learn best with this particular tool that you have in your room."

Bethany Lockhart Johnson (29:34):

So hearing you talk about this research — which by the way, I know, you're like, for our listeners, it's all, "Quick, boil down your years and hours of research and synthesize it for us."

Dan Meyer (29:50):

Your life's work.

Bethany Lockhart Johnson (29:50):

In a little tiny neat package. But really though, even though I know there's so many layers to your research, and your work with these teachers, I wanna flag for our listeners that even the things that you've identified for us, you were giving teachers space — as coach, giving teachers space, and validating their experience as a mathematician, as you know, as a young student, right? Making space for that experience and validating "Yeah, that was really lousy and your math anxiety is real." Like, Step One is already powerful. And then you're creating space where they get to be in their classroom as a

learner, right? And have a lesson modeled. And then you're creating more <laugh> space for them to learn and ask questions. And I have absolutely seen teachers like, "I don't know what to do with these," and kind of shove aside the district-provided tools or the curriculum-provided tools. And so even those things, Heidi — Dr. Heidi <laugh> — you know, even if ... I don't know, for me, I am listening to you and just holding those points in mind and feeling like that, alone, if a coach did even just that ... I know there's so much more to it, but what a powerful opportunity for reclaiming math as an educator, right? That's what I'm feeling.

Dr. Heidi Sabnani (31:25):

Well, and I was hoping that there wouldn't be ... I mean, OK, it's a double-sided hope. If there was something like so novel and so fantastic that was so different from the things that we have already at our disposal, that would've made a much better book or dissertation. <Laugh> But the reality is, there are things that we already know work. And we don't often take the time or, or are given the time to be able to explore those things. Right? So even as coaches, you have district initiatives or things like, "this is what we're working on this year," and that's fantastic, right? We keep those things moving forward. But if we're thinking about coaching teachers with math anxiety, no teacher with math anxiety is going to be coming to NCTM.

Dan Meyer (32:16):

Right. Right. Or the training.

Dr. Heidi Sabnani (32:19):

Or the training. They're like, "Oh, PD day? Literacy! Yes, please! Bye!" You know, it's that piece of it. So when we have these moments, the coaching is the opportunity to provide that just-in-time kind of professional development for teachers, if we go at it in a slightly different way. It does not have to be huge. It can be things like, they feel that they're stronger in literacy. Well, then, let's explore some of the ideas around math, anxiety and math identity and examples of people who've overcome either those things or other barriers in their life. And how can those things help form not only your students' math identity, but your math identity. And it gives entry points in ways that you have access to if you're a person's coach.

Dan Meyer (33:18):

So in that sense, I'd love to know from you, if someone came to you at a coach's meeting at NCSM and asked you, "What is something I can do right now to support the teachers at my site and my district, who are commonly experiencing math anxiety?" What is something that you would offer them in that brief moment you had with that coach?

Dr. Heidi Sabnani (33:40):

So it is hearing their story first. That's the big one. And then, can you, in your coaching, provide opportunities to slow down? We all have these pacing guides in some form or another, that drive the things that are coming. Is there a way that you can set up meetings a month or more in advance of the content that those teachers are going to teach? Can we explore a month in advance, that content? And ways to teach it and understand it? There's the ways to teach it, but there's also like, "What is this math and how do kids experience this math?" What kind of experiences do we want to have ourselves as learners and then have as kids? If we can create cycles like that, that then don't feel so rushed. It's so hard when we're like, "Oh, we have a planning meeting and we're meeting with our coach!" And you're

teaching this lesson tomorrow. "Learn all this stuff about adding and subtracting on a number line. Go!" It's so fast. And so if we had those opportunities to build in cycles, where we could slow down that process, it would make a huge difference in the lives of so many teachers. And it's finding that time and the willingness. If you listen to teachers, they will work with you. If you validate what happens to them, and acknowledge that sometimes that still happens to us. I mean, I still have experiences like that. Sometimes I'll walk into a classroom and I'm like, "Oh, I forgot how to do that!" You know, like, "I've not reached that far in my remaking of my own education!"

Bethany Lockhart Johnson (35:24):

Yehhhh, heh heh heh.

Dr. Heidi Sabnani (35:25):

<laugh>. And you think, "I don't wanna look like an idiot. I'm the math consultant who's here to duh duh duh." All of those things still come up. Yeah. And stopping and saying like, "OK, everybody, this is what's happening to me right now." <laugh> The vulnerability you have, you have to think about that. Even if you don't have experiences of math anxiety in your own life. Let's say you always rocked out in math, and you're now a math specialist and you love it. You think it's the most spectacular thing. There's some other element in your life where you face some anxiety. All of us do. So it's about thinking about, "OK, this is where I experience anxiety. Can I find that in the teachers that I work with? And then, can my teachers find that in the students they work with?" You know, the teachers, as they begin to reflect on their own experiences, began noticing which students always went to the nurse during math time, always asked to go to the bathroom during math time, always couldn't find a pencil, or whatever it happened to be. And they began to be more aware of their students' behaviors as well, and could then say, "Hey, let's sit and talk about how you feel in math class. Like, I've been noticing that when it's time for math, like your stomach hurts. Can we talk about like why that might be?" Because those teachers with math are more attuned, often, to those students. And so it just ... the time factor, I guess is, is the bottom line.

Bethany Lockhart Johnson (36:59):

I just wanna say, it's so great to have you in the Lounge. Because I think you're really bringing this perspective that we haven't talked about, which ... we are not expecting coaches to walk in and know it all. That's actually the exact opposite. You are allowed to be vulnerable. We are not saying, "Come," quote-unquote, "Fix this." It's like, "Hey, how can you facilitate and make space?" And I feel like you have given us just a taste of like how that might be possible. And you know, I think even if it's just a chance for teachers to reflect on their own experience in math, even that would probably be kind of revolutionary for — and I don't say that word lightly — for some PD spaces, especially if they have another peer in their team that is like quote-unquote, "a whiz," or like, "Oh, I don't feel like I can be vulnerable in my math anxiety because this teacher seems to know it all." But you're creating space where it's like, "Hey, we all have strengths. We all have areas where we could support each other." And I love that invitation for coaches. I love that invitation for teachers. And ... yeah. I'm just, I'm so glad we get a snapshot of your research. Again, I know, I respect that this is not the whole thing!

Dan Meyer (38:22):

Can we find ... is there a link to your dissertation in the show notes, for those of us who peruse dissertations? Can we add something here? Think about —

Dr. Heidi Sabnani (38:29):

Oh, I have no idea!

Dan Meyer (38:30):

Just think about it. Just think about it. But —

Dr. Heidi Sabnani (38:34):

It's somewhere on ProQuest. It did get some. ...

Dan Meyer (38:36):

Right on.

Bethany Lockhart Johnson (38:36):

Is that a thing, Dan? Could I go, like, Google your dissertation?

Dan Meyer (38:39):

You definitely could. Yeah, for sure. It's around. Yeah, same way. Well, that's awesome. And I think it's so helpful for those who write those enormous unwieldy essays to, you know, distill it in different ways. I hope it's been ... we've enjoyed so much, hearing you carve up a huge project into pieces that were really helpful for us to think about here in the Lounge. Thank you so much for coming on and hanging out with us. Dr. Sabnani, it's been a pleasure.

Dr. Heidi Sabnani (39:06):

Hey, I'm happy to do it any time. Always the biggest joy in the work that I do is little changes in a positive direction.

Dan Meyer (39:18):

Right on.

Dr. Heidi Sabnani (39:19):

That's all that this is about. Right? Whether it's kids, whether it's teachers, whether it's administration. The work that we all do is so valuable, and it is more and more difficult over time. And just giving ourselves a little bit of space to think about and acknowledge that, I think, is really important. So I appreciate you all making space as well. And thinking about this idea. Because <laugh> we're math people! And we don't have math anxiety! Right?

Bethany Lockhart Johnson (39:51):

<laugh>

Dan Meyer (39:51):

So people would assume

Dr. Heidi Sabnani (39:54):

<laugh>. Yeah.

Bethany Lockhart Johnson (39:54):

Thank you so much. You're welcome back in the Lounge anytime. <laugh> Thanks so much for listening to our conversation with Dr. Heidi Sabnani, consultant and co-host of the show "Math for All." I can't get enough about talking about math anxiety!

Dan Meyer (40:13):

Especially from people who are working with teachers so closely.

Bethany Lockhart Johnson (40:18):

Yes, totally. I loved that lens of, "Hey, look at what happens if we actually focus on the teacher's experience and help them kind of reclaim this comfort, this sense of identity, relationship with math that's positive. How does that impact their teaching?" I loved talking about it, and I'm really interested in how that work continues to evolve. So thank you so much Dr. Sabnani, for your time. And you know, listeners, please keep in touch with us on our Facebook, in our discussion group, Math Teacher Lounge Community, or you can find us on Twitter at MTL show.

Dan Meyer (40:58):

If you haven't already, please subscribe to Math Teacher Lounge, wherever you get podcasts. Also, if you like what you're hearing, please rate us and leave us a review. It will help more listeners find the show. And it just makes me and Bethany feel good about ourselves, too. You can find more information on all of Amplify's shows at our new podcast hub. Go to Amplify.com/hub.

Bethany Lockhart Johnson (41:20):

You know, Dan, I also always like to say, I find most of my podcasts through recommendations from other listeners, friends, folks. So if you like what you're hearing, share it in your teacher lounge. Just, like, on break, turn it up and start vibing and having the conversation right there.

Dan Meyer (41:40):

Yep. Yep. I got a better idea. Take the link to this podcast and then copy it and find the longest — the thread in your inbox with the most people on it. One of those ones that's like, someone accidentally cc'd like 500 people, everyone at your school. Press "reply." This is crucial. Not "reply," but "reply all." Paste that link in. Press "send." Watch what happens.

Bethany Lockhart Johnson (42:04):

Nothing but good —

Dan Meyer (42:04):

Good fortune will be yours.

Bethany Lockhart Johnson (42:06):

Nothing but good things can happen when you send this to 500 people in the next 10 minutes. Next time on Math Teacher Lounge, we're gonna be joined by Dr. Marjorie Schaeffer of St. Mary's College for a conversation about math anxiety, and specifically Dan, how parents and caregivers, how their disposition influences the way their kiddos feel about math.

Dr. Marjorie Schaeffer (42:29):

I think the most important thing we know from literature right now is that high-math-anxious parents, when they interact with their children, their children learn less math over the course of the school year.

Bethany Lockhart Johnson (42:40):

And get this, she's gonna talk to us about an app that just might be something worth, you know, heading over to the app store for.

Dan Meyer (42:49):

I've used some apps, I have opinions, and I can't wait. We just share recommendations on apps with Dr. Schaeffer.

Bethany Lockhart Johnson (42:56):

That's next time on Math Teacher Lounge. Thanks so much for listening.