

Nicole Joseph (00:00):

I understand the challenges of having 150 students when you are teaching in middle school and high school. But, you still need to do your best to try to know who your kids are! You gotta get to know your students!

Dan Meyer (00:14):

Welcome back to Math Teacher Lounge. I'm one of your co-hosts, Dan Meyer.

Bethany Lockhart Johnson (00:18):

And I am Bethany Lockhart Johnson. Hello, Dan!

Dan Meyer (00:21):

Hey, Bethany! How are you doing right now? What's your current status?

Bethany Lockhart Johnson (00:25):

I love to read. And, I have to say that, the fact that we get to speak with authors ... you don't understand! As a child, if I could have talked to Ann M. Martin about the Babysitters Club, and asked her all the questions that I had, that would've been, like ... I can't even describe! But, I did write her a letter. And, she wrote me back. Unfortunately, it was a form letter. But, I still have it. But, you know what? My dreams of talking to authors now get to be realized in the form of inviting them to come hang out in the Lounge, Dan.

Dan Meyer (01:01):

Can you believe it? Can you believe it?

Bethany Lockhart Johnson (01:02):

I actually think that this is kind of true, in general. I've had authors tell me, like, on Twitter or something, "Oh, reach out! Ask me a question!" I think, sometimes we put up this wall for them, saying, "Oh, they might not wanna be bothered." And all the authors I've spoken with, you know — not counting Ann M. Martin, who wrote me a form letter — have said, "I wrote this, because I wanted you to ask me about it. Let's talk about it!" I'm really honored that Dr. Joseph ... I'm getting ahead of myself, Dan! But, I'm just so excited she's here today! But, I should ask you. Sorry. Etiquette. How are you, Dan?

Dan Meyer (01:37):

Let's go into this part of how I'm doing <laugh>. I'm excited too. We're taking a break out of our current season around developing fluency — though there will be some applications here, and some crossover appeal between the theme of the season and our interview with Dr. Joseph. But I'm excited too! My experience of writing authors to engage with them has been pretty poor. Like, I wrote The Hardy Boys mystery author, Franklin Dixon, about all the plot holes in some of the books.

Bethany Lockhart Johnson (02:07):

I'm sure that went over really well.

Dan Meyer (02:08):

It was weird that I didn't get at least, like, a thank you back. I feel like had that been considered, sincerely, it would've improved future Hardy Boy novels. But, not every author is as generous as Dr. Joseph is here today <laugh>. Let's jump into this! I'll set it up by saying that I was at a conference room event, in Seattle, a few months ago. And Dr. Joseph gave a talk, in which, she shared the percentages of math attainment for Black girls. Specifically, the number of doctorates that had been awarded to Black women, throughout various years. And we all just kind of marveled in the room at how low that number was compared to the percentage of Black women in the U.S. That represents systematic obstacles to the achievement of Black women. We're all sitting there in the audience wondering, "What can we do about this? We are LOSING people! And their mathematical brilliance! We NEED them, and their contributions to our knowledge about math. We're denying them privileges and access." We're just lucky that Dr. Joseph was able to be here, and has studied those exact same questions, at quite a lot of length. And can share with us the answers that she's been thinking about and developing so far. I'd love to just bring on, Dr. Joseph. Dr. Nicole Joseph is an associate professor, with tenure, of mathematics education in the department of Teaching and Learning at Vanderbilt University. She's also the associate dean for equity, diversity, and inclusion at Peabody College at Vanderbilt University. She has a new book out with Harvard Education Press entitled, "Making Black Girls Count in Math Education: A Black Feminist Vision for Transformative Teaching." Please, a warm Math Teacher Lounge welcome to Dr. Joseph. Dr. Joseph, thank you for joining us here today!

Nicole Joseph (03:55):

Thank you for having me!

Bethany Lockhart Johnson (03:56):

Thank you for being here!

Dan Meyer (03:57):

Wonderful to have you here. Before we dive in more fully here, could you tell us the story of how this book came to be? Why was it so important for you to do it?

Nicole Joseph (04:06):

Thank you for that question! I have spent the last, I don't know, six, seven years basically doing my own empirical research. As well as gathering and reading the other small body of research around Black girls. I just wanted it to all be in one place. From what I have learned thus far. And, what is really interesting, I think, is that I've tried to think about large contexts. For example, there's a chapter on curriculum and instruction. There's a chapter on pedagogies. There's a chapter on assessment. There's a chapter that is about speaking to math teachers. I tried to take up a lot of space using Black girls' voices to sort of speak through these different types of contexts. And we didn't have a text where we could learn, as a field, what was actually happening with many Black girls in our schools.

Dan Meyer (05:16):

Is it safe to say that what you saw was more of a scattered body of research? And, also one that needed these kinds of lenses that you brought to it? Curriculum, pedagogy, and the like? Was that a large motivation for you, in this project?

Nicole Joseph (05:33):

Yeah! And to be able to speak to those different contexts. Because those are generally the context that folks care about. And so, again, being able to try to better understand those contexts through Black girls specificity was a big motivation for putting it all together in one text.

Dan Meyer (05:55):

Yeah. Great! I'll ask a question that needs to be answered by a book, and not by a one-answer-in-a-podcast-episode. Obviously it's too large for that. But you've showed us all these statistics of attainment of different kinds of groups of people, including Black women. And I'd just love to dig below ... the work that you have done that feels so significant here is the interview processes, the ethnographic research, the survey data, all of this to figure out, like, "Why?" Can you say a few things about what you found as to the typical experience for Black girls in this country's schools and math classes?

Nicole Joseph (06:31):

Yeah, that answer is complex. There are, I would say, multiple levels. I'll start with macro sort of factors. We can begin with the math teacher education system that we have. That, first of all, doesn't provide opportunities for generally African American students, Black girls in particular, to have access to high-quality mathematics teachers. Teachers that understand Black girlhood. Which kind of goes into another reason around what I'm seeing. That Black girls in society face these stereotypes that are around adultification, around criminalization. And these things are making their ways into math classrooms. The Harvard article that I wrote, called, "Normalizing Black Girls' Humanity in Mathematics Classrooms," goes a little bit deeper around the dehumanization that they experience in society, in schools, and now some of my work showing that in actual math classrooms. There are a variety of reasons why those numbers are low. But, what I will say is that it is NOT because they're not brilliant. It is NOT because their families do not care about education. It is NOT because they don't know how to do math. There's A LOT of factors that they are facing. The macro ones, for sure, that are getting in the way. And then, we can talk about the ways in which individual Black girls have internalized, if you will, these messages across time that they are NOT good enough. That they do NOT belong. Those are more of the micro-level factors. Where if they're internalizing these things, then it's sort of the self-fulfilling prophecy, if you will. It's like you believe it, you internalize it, and then you start operating out of those beliefs. But patriarchy, anti-Blackness, gendered anti-Blackness, those are systems of oppression that are definitely shaping Black girls' experiences in mathematics context.

Bethany Lockhart Johnson (09:07):

Something that I love is, in your book, you really helped set the scene for how invisibilized Black girls are, right? They're either, like you said, adultified or they're not welcome in the space. Or they're not seen as belonging in the space. And I felt like so often when somebody says, like, "Oh, they're invisibilized," it's like, "Well, what does that actually look like?" Can you talk a little bit about the way that you kind of set that up? Because you gotta open with that, right? Of like before we even do this deep dive into how we create these spaces, we first have to say, "Wait, there's not even a space for them here." I felt like you built the space, throughout the course of the book. You built the space and started weaving in more and more voices of Black girls. But you first set the scene by saying, "The space isn't here."

Nicole Joseph (10:05):

Thank you, Bethany. Yeah. Let me just say that we've always been here. At the same time, when you think about whose knowledge, whose perspectives get elevated in school mathematics, that's white, middle-class, mainstream perspectives, right? And so the invisibility happens when Black girls do not get

to bring their full humanities into these classrooms. Because their full humanities may or may not look like the scripts or the understandings that a lot of math teachers are looking for. Let me give you an example. Black girls have told me over and over and over again, "We wanna have humor. And to be in a more relaxed and social environment while we are engaging in learning math and doing math problems, or whatever. We also want to have a connection with our math teacher." I kind of have called this, like, they wanna vibe with their math teachers.

Bethany Lockhart Johnson (11:23):

And you emphasized it was authentic. Authentic.

Nicole Joseph (11:26):

Authentic, yes! They've said, "I wanna be able to talk to my math teacher about what's happening with me," and it may not have anything to do with math content, right? We know that in a lot of math classes, I don't care what state you are in, generally you're gonna go in and what you will observe and see is, like, you have to be on task. You'll have to be probably in rows. A lot of memorization, procedures. There's no laughter and joy in these spaces. We have a lot of math education professors now trying to unpack this idea of joy. And I think this is just an intersectionality asset that a lot of Black girls just bring to the table. If there's not room in your math class for that to come about, then your amazingness becomes invisible, right? And people can't see who you are in these spaces. Or what you can do.

Dan Meyer (12:30):

It's interesting to me. You're describing all these ways that society sends downstream ideas about Blackness and about girls that then get reproduced in the classroom, right? Whether that classroom is a math classroom, or an ELA classroom, or any classroom. But, I wonder if it's true that math has a particularly hard time cultivating joy, because we have constructed math in such a way that it's about brute logic. It's this step leads to that one. And there's this procedure to follow. It just seems like it gives math teachers an extra challenge that to create spaces that are hospitable to Black girls, they've also gotta change their conception of math to accommodate opinions and ideas that don't fit into a neat two-column proof, or the box for the answer, for instance. Do you have ideas for how math teachers can engage in that kind of restructuring process around math, or around the way they interact with Black girls?

Nicole Joseph (13:28):

First, let me say, I just gave a talk at the Association for Women in Mathematics. And, as part of that, I try my best to engage in the conference and not just go when it's my turn. I listened to Dr. Pierce, who's a tenured math professor at Duke University. I believe she's at Duke. I wasn't able to follow along with everything that she talked about, but I began to write down words that I heard her using as she was explaining this new proof method that she called Method of Moments, that she was sharing with the audience. And she would say things like, "I've worked on this problem for 15 years and most of it was failure. I've had lots of conversations with colleagues, reading other colleagues' paper, asking them questions about this and about that," because, of course, she's trying to build upon other people's work. She would say things like, "And then I began to get curious about ..."; she's even said, "and I got tickled about..." X, right? I'm just writing down these words, because these words are making me know that this is what a practicing mathematician does. And it looks nothing, and doesn't sound like anything, that we do in K-12, right? First of all, y'all know that mistakes are not welcomed in class. And, just being inspired

from her just helped me. And we actually had a conversation afterwards about her experience in working on this proof. I wanted to just say that, because what we're doing in K–12, it is not in alignment with what I am learning that practicing mathematicians do when they work. Math is hard. And a lot of it is failure. And a lot of it we do need to ask questions. In terms of what teachers can actually do, I have a framework that's in one of the chapters, the Black Feminist Mathematics Pedagogy. There's four components. The first one is ambitious instruction. People are like, "Oh, well, isn't instruction for Black girls just the same? Isn't it just good teaching?" And I tell people, "Good teaching is when Black girls actually get to experience ambitious instruction." Let's just start there, OK? Let's get rid of the worksheets. Let's engage in problem-posing, modeling, using technology. All of the wonderful things that you all know we need to be doing in order to dive deeper into conceptual learning. Interesting math problems. Let's just start there. But, in my mind, that's good teaching. If you wanna make it and turn it into TRANSFORMATIVE teaching for Black girls, then you need to add those other three components. Which are critical consciousness, humor and academic and social integration, and math identities. If you want to just do good teaching, just start teaching in more ambitious ways. Black girls will benefit to a certain extent from that, for sure. But, if you wanna take it to another level, then think about these other things. For example, projects around different math ideas, particularly that Black girls might have that are interesting to them, can help elevate things like critical consciousness. How do you take the math and develop some ideas and projects around that? Back in the day, when I was in the classroom, there wasn't a lot of that. But, today, there's a lot more curriculum and things that people can use to help us think about these important ideas. And sometimes you don't even have to go outside of your school. Let's just start in your school. Let's take some data, collect some data around how many Black girls are at this school? How many of these Black girls, and you can even do girls of color, are in the advanced math courses. Let's do some focus groups. Some informal, little 10-minute interviews. There are ways that you can engage in mathematical thinking that can raise the level of critical consciousness, really for all kids, but for Black girls. And then, social and academic integration and humor. I mean, allow that! Allow a more relaxed environment in your class! Now, I'm not telling people to be willy-nilly. You gotta have a courageous conversation with your students about the pivoting of what you might wanna start trying. Something different. And you have to get buy-in from the students. But I can guarantee you that when you have those conversations, and the students' voices are elevated in those things, it will more than likely turn out to work in your favor. And definitely the students' favor.

Bethany Lockhart Johnson (18:41):

I circled and starred and highlighted. You said, "Play. Beauty. Truth. Justice. And love. Connecting math to our deepest human desires." And I just thought, like, even that, the fact that the essence of what brings us joy makes us our whole selves, right? Can all those pieces exist? Can we bring all those pieces of ourself to the mathematics classroom? And you, as you were sharing, and as you shared from so many stories of young Black girls and Black women, too often they were asked to leave parts of ourself at the door. And I wanna share. We talked about our math stories, a couple seasons ago. And I had a teacher who told me, "You don't belong here." This is what he said to me. He said, "You don't belong here." And, this was in high school. And, I remember going home and talking about it with my family. And my auntie said, she's like, "Well, they don't want us there, right?" And I said, "Oh! I don't even think he saw" — 'cause I'm mixed, I'm biracial — I said, "I don't even think he saw me as Black. I wouldn't be surprised if it was about that ... but I don't know that he even read me as Black." And she goes, "It doesn't matter." She said, "What do you do in class?" And through the course of the conversation, it just became so clear that particularly the women in my family knew that they were not seen and wanted in mathematics spaces. And my grandmother told me, very clearly, she said, "You love to talk. You love to ask questions. You love to share your ideas. But, a lot of times you're gonna be in spaces they don't

wanna hear it." And the voices of Black girls and Black women in particular are really seen as challenging a teacher's authority, right? And seen as speaking back to this perceived like, "I'M the one who holds this space." It really resonated with me, the way that you gave voice to so many women in the book, women and girls in the book. And I wanna spend a little time thinking about what could healing and productive discourse in a classroom look? Where it would be safe to raise your hand? Where it'd be safe to push back on ideas? That idea of play, of joy, but also of, like you said, that ambitious teaching, where I'm showing up as my whole self. It means I wanna be in dialogue. I wanna be in communication. I wanna make sense of it in a way that's meaningful to me.

Nicole Joseph (21:36):

Yeah! Wow! I'm really sorry that teacher said that to you. Unfortunately, you're not an anomaly. Which is very hard to say. But that's what's real. I think for A LOT of women, Black women in particular.

Bethany Lockhart Johnson (21:57):

It's just not often said out loud <laugh>. So overtly, right?

Nicole Joseph (22:01):

Exactly <laugh>. First I wanna just acknowledge Francis Su, that's Francis' framework that I got inspiration from. The play, the joy, the beauty, and the love. And I think what healing can look like is, first of all, teachers have to understand who Black girls are. In my talks, I say, "Listen, you're not gonna learn about Black girlhood by reading math ed. articles. You're just not. One of the ways that you can learn about it IS by reading more things from Black girlhood studies. You can actually just talk to your Black girls that are in your class, and listen to their stories." Part of what we need to do is we need to engage in more truth-telling, and more vulnerability. It is really important to me, because I've been learning about the disproportionality of Black girls in math. And I wanna do something to change that. Well, I've been learning that part of that is I need to get to know who my Black girls are. I wanna do that. And guess what? I wanna invite you all in to help me figure out how to do that. Do you know what I mean? Bring their voices into the problem-solving process! So that you're not guessing. A teacher is not guessing. They're going to get direct information from the girls. I think there has to be a level of humility and vulnerability by teachers. And a release of power, if you will, to bring Black girls into the space to have them tell us what would it look like for you to THRIVE in this class, right? I think I have ideas. But, that might not be in alignment with what you think. That's definitely an important way is to bring their voices into the space. To help us think more about what it should look like. What does healing actually look like for you?

Dan Meyer (24:17):

I think it's really interesting what a generational project math education is. And in general education. You talked about self-fulfilling prophecies in this space. And it's like a lot of teachers were students in spaces of segregation. Where they don't have experiences with ethnic and racialized folks. And then they go off and teach in cities, for instance. And what a challenge that is. And I guess, I don't know, the one hope, like one idea, that I get excited about here is what you're describing. Personal transformation and classroom transformation going hand-in-hand. That the person you're describing, who has the humility and vulnerability to ask the question, already in some form, is working towards an answer. That vulnerability and humility feels like part of what the answer is. And I love that about teaching! That it offers so many of us the opportunity to enact the professional, and the personal at the same time, if we're willing to stare in the mirror and through the window simultaneously. I am curious, we have

teachers listening who are very curious what they can do. And I love the frameworks that you've offered there. And some initial steps around curriculum and pedagogy. And involving students in the process of transforming their classroom space. I'm wondering if you have thoughts for caregivers, who might be listening in, who are attempting to undo the damage that is done to their Black girls in the classroom space. Like, trying to remedy that, even as they hope for a transformed classroom space for their kids.

Nicole Joseph (25:49):

During COVID, I did a couple of workshops for parents. And I put together a little old-school packet, if you will <laugh>, with ideas. And, a big part of that is integrate your girls into what you do daily that has to do with math. Everything from, I don't know, budgeting, to shopping, to cooking, to planning a party, to remodeling the house. Whatever you do on a daily basis. That's an easy place to start is to just integrate the girls into how you use math. I think another thing, and this could be a teacher thing as well, is have your kids interview family members about their math experiences. If granny is still alive, interview granny about her math experiences. What did she love about math? What did she not love about math? How was she treated by the teacher? I think interviews of family members are very powerful, because it is allowing the girl to go wider, but still within her own community, to get a better understanding of what the math experiences have been. And I think that opens up new conversations, for family members to do that. The other thing that I would say is that if there are math summer programs around STEM, broadly, get your kids involved in those things! Because it's exposure. A lot of the women that I speak to that are in STEM talk about early exposure to a variety of things around STEM broadly that oftentimes requires you to have some math skills, right? The other thing that I really loved, that I did when I was a teacher, was we did math autobiographies. I gave my students prompts. I said, "When was the last time you enjoyed math? Please tell me about it. What were you doing? What was the math that you were learning?" And then I say, "And then tell me what happened. Like a mystery."

Bethany Lockhart Johnson (28:21):

I love that! I love that!

Nicole Joseph (28:22):

"What happened? Was it middle school?" You know what I mean? I wanna know where did the breakdown come from. Because that gives me a better understanding of what is happening with them. And it just lets them know that I'm connected. That I care about their math experiences. The other thing is we use journals. I am a journal queen! We wrote about math; but we also wrote about, like, our feelings in math. What was hard about today's lesson? What would you change if you could? What was exciting about today's lesson? Now I'm gonna tell you, I did all this way before a Ph.D. or a master's degree. I didn't know anything about culturally responsive teaching, but what I did know was that the intuitiveness of knowing my students. I don't know how many times I have to say that, but you gotta get to know your students! I understand the challenges of having 150 students when you are teaching in middle school and high school. But, you still need to do your best to try to know who your kids are! Because it makes a difference. And it really makes a difference for Black girls, because they want that vibe with their math teachers. And they have shared that when they have that vibe, they take more risks. They ask more questions. They wanna please the teacher. A 16-year-old wants to please their math teacher when they see that that math teacher cares deeply about their learning. I could go on and on, but I'm gonna stop there <laugh>.

Bethany Lockhart Johnson (30:05):

<laugh> It's really beautiful. And I think sometimes when we talk about the macro, and we talk about the systems, and you talked about curriculum development or adoption processes, and sometimes we can be involved in those decisions that are gonna be impacting us on that large scale. But a lot of times, I think when we zoom in, like you're inviting us to do, to get to know your students, to let Black girls be the experts in their own lives, and bring their whole selves, while simultaneously you doing the work for yourself as the teacher, as the administrator, as the pre-service teacher. I feel like, in so many ways, it's an invitation to not get stuck at that macro level. All that matters. But, we can zoom in. And, like you said, "On Monday, what could you do on Monday?" <laugh> That could invite us to create a classroom where girls, particularly Black girls, are able to be safe. Be vulnerable. Take risks. And have those elements of play and joy in mathematics. And we just really, really appreciate the vision you have helped create for that. And the way you're holding space, and inviting others to challenge themselves and what these limitations on what math could look like. So, thank you. Thank you, thank you, thank you for your time and your wisdom!

Nicole Joseph (31:31):

You're welcome. You're welcome.

Bethany Lockhart Johnson (31:32):

I just wanna make sure, before we go, any final thoughts you wanna leave with our listeners?

Nicole Joseph (31:37):

I think the thing that you mentioned about how the system is so big, it's discouraging. But, then here are these micro things that you can actually do in the classroom is a really important piece. You gotta understand this stuff. Because that's gonna inform how you design your curriculum. How you design your pedagogy. The power is in that classroom! I would tell students, "I can't change a lot of stuff that's happening." I've taught homeless kids. This is why no one will ever be able to tell me that Black children can't learn math, right? Because I've had some extenuating circumstances with students, and they were still held to the highest level of expectations, but with differentiation and supports, right? Because that's what we need to be doing, regardless. But, people will make excuses, like you said, because it feels so big. But there are things that you can do daily, and we talked about some of those, inside of your classroom. So that you can feel the power. And I'm sorry, but the proof is in the pudding with the kids. That's the other thing. You need to collect feedback from your Black girls. To ask, "Is this making a difference?" None of us have time to sit up and guess. Why not just directly ask them, "Is this working? But not just, is it working? How do you know it's working for you?" Right? That's bringing in accountability from the kids to give us feedback as educators and teachers. What do we need to get rid of? What do we need to continue doing? What's a new thing that we might wanna try? I guarantee you that if you start doing those things, you're gonna see a difference in Black girls engagement, perspectives and feelings of belonging, and just wanting to try more, and take more risks in math. Which, you know, it's like if you don't have the right answer in three seconds, then you're dumb, you know? That's how we make people feel in math.

Dan Meyer (34:04):

Glad we asked for more there on that one.

Bethany Lockhart Johnson (34:06):

I know! Me too!

Dan Meyer (34:06):

Because that was a meal right there! Yeah!

Bethany Lockhart Johnson (34:08):

Thank you!

Dan Meyer (34:09):

Thank you again, so much, for being here with us today in the Lounge.

Nicole Joseph (34:13):

Thank y'all!

Bethany Lockhart Johnson (34:17):

Thanks so much for listening to our conversation with Dr. Nicole Joseph, associate professor, with tenure, of mathematics education in the department of teaching and learning at Vanderbilt University. And please check out the show notes for a link to her book, "Making Black Girls Count in Math Education: A Black Feminist Vision for Transformative Teaching." And let us know what you thought of this special episode on X at MTL Show, or in our Facebook discussion group, Math Teacher Lounge: The Community. Thank you again, Dr. Joseph. Now, Dan, next time, next episode, we're getting back to fluency.

Dan Meyer (34:56):

Getting back to the old us.

Bethany Lockhart Johnson (34:58):

The old us <laugh>. I mean, but it's all connected, right?

Dan Meyer (35:02):

Right!

Bethany Lockhart Johnson (35:03):

There's so many things she was sharing about that I was like, "Yes! Yeah!" It's all connected.

Dan Meyer (35:07):

Fluency's gotta be one of the top areas of a math class where kids feel like there is no vibe with the teacher. There's not a lot of room for joy. And so, I see this special episode really linking up very nicely with our main episodes of the season.

Bethany Lockhart Johnson (35:23):

Actually, next time we are going to talk to Lauren Carr, a classroom teacher. Actively teaching in the classroom. The day we recorded the interview, she had been on a field trip with her kids. We were like, "Oh my goodness! And you still hung out with us in the Lounge!"

Dan Meyer (35:40):

This is so real.

Bethany Lockhart Johnson (35:42):

<laugh> Here's a quick preview of that episode.

Lauren Carr (35:45):

I think by making space for joy, and having fun, and having a positive math identity, I think students will build fluency.

Dan Meyer (35:54):

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Bethany Lockhart Johnson (36:13):

Thanks!