I remember it so well — the feeling that I did not belong in a math class. I can still picture the classroom, the desks, the teacher. I can still remember the thought that came to me as I watched my classmates working away at the math problems the teacher had put on the overhead projector. I could not do the work. I remember feeling like everyone in that room with me must have attended a secret class that I was not included in. They all seemed to grasp the concepts immediately while I had no idea where to start.

This concept of myself as someone who could not do math stuck with me. Twenty years later, when I enrolled in college to pursue my degree in Early Care and Education, I was terrified at the prospect of having to take a math class. I crossed my fingers and hoped my advisor would tell me that the Math for Elementary Teachers would be the class to meet my math requisite. After all, maybe I could at least manage elementary school math. I panicked when she told me I would have to take a college algebra course instead. Dreading it, I waited until my very last semester to take the course.

I am not alone in this math story. I have heard many teachers in early childhood programs joke about their math anxiety. I have heard stories of students in early childhood degree programs who do not finish their degrees because of the math requirement. I hear teachers wonder, “Why do I even need to know math? Kids can only count from 1 to 10, anyway.” This should be cause for concern for our field.

Why Teacher Attitudes about Math Matter

Early childhood teachers have a vital role to play in laying a good foundation for children’s future success in math. If we are confident in their ability to build this foundation, we can prevent future generations from experiencing this math anxiety and provide the meaningful math experiences young children need today. If our teachers are paralyzed by past failure (or perceived failure), they will be unable to provide these outcomes for the children in their care.

Early childhood teachers’ memories of their own math learning can have a negative impact on their work with children even when those teachers have received training in developmentally appropriate practice. Even if these teachers attended early childhood programs where they experienced appropriate math instruction, it is highly unlikely that they will remember those experiences. It is more likely that they will remember their later elementary, middle, and secondary school math experiences.

These recollections tend to contribute more to our ideas about math instruction in early childhood settings than training we receive as adults in our teacher preparation or in-service workshops. This reality requires that we help teachers reflect on their own math experiences in order to be sure we are basing expectations, environments, and planned activities on how young children learn and which math concepts are appropriate for infants, toddlers, and preschool children. Planning for appropriate, meaningful math instruction requires an awareness of how our own experiences impact us, how those experiences might manifest themselves in our work with young children, and what we can do to be intentional about providing the everyday experiences and interactions that young children need.
“They Have More Math Than They Know”

A friend and colleague who teaches early childhood courses at a community college reminds her students, “You have more math than you know.” Directors and adult educators in early childhood programs have opportunities every day to help teachers with math anxiety or the negative associations with math instruction they already have. Our first step in moving teachers forward should be to find ways to help teachers recognize how their interactions, environments, and language are already contributing to the development of math concepts in the children with whom they work.

The first step is to find ways to establish math concepts that are developmentally appropriate for young children to learn and experience. These concepts are:

- **Number and Operations:** Understanding the concepts of number and quantity; ways of representing numbers; one-to-one correspondence; and counting.

- **Shapes and Spatial Relationships:** Recognizing, naming, comparing and contrasting objects based on geometric characteristics; understanding the directional and positional relationships between objects in the environment.

- **Measurement:** Determining size, weight, quantity, and volume; practicing using tools for measuring.

- **Patterns and Relationships:** Recognizing patterns and/or creating repetitions of objects, colors, textures, or sounds.

- **Collecting and Organizing Data:** Gathering, sorting, classifying, and analyzing information to help make sense of events and trends in the environment.

How can we make developmentally appropriate math concepts visible and accessible to early childhood teachers? How can we establish a common language beyond just talking about ‘math’ with them?

- Be sure you are using rich, appropriate math language when you talk to teachers.

- Find ways to display the concepts around your center and in classrooms. Hold a poster contest with teaching teams working together to create visual displays of each concept.

- Once displays are created and visible in the center, ask families to bring in items from home that fit into the categories included in the displays.

- Find a way to acknowledge teachers’ use of math concept language.

  - Create adult sticker charts for the break room.

  - Ask children to applaud when they hear rich math language.

  - Offer a high five or handshake when you hear children use the math vocabulary you’ve been modeling.

- In a staff meeting or workshop, play a math concepts version of the game I Spy: “I spy with my little eye… a basket of colorful items that could be used for sorting and classifying” or “I spy with my little eye… a way children can visualize the passage of time each day.”

- Send teachers on a scavenger hunt of classrooms and playgrounds to find opportunities for children to experience concepts. For example:

  - Where can they see numbers represented?

  - How can they practice one-to-one correspondence?

  - What shapes do you see?

  - What tools are available for measuring?

  - Do you see any charts or graphs that represent information children have gathered?
Hang flip chart pages in classrooms and ask teachers to write down math language they hear children or colleagues use throughout the day.

As you continue to find ways to develop common language and to make developmentally appropriate math concepts visible, teachers will become more confident in the math knowledge they have, the skills they possess to present that knowledge to young children, and the need for intentionality in their daily practice.

**Strength-Based Articulation**

Strength-based articulation is a valuable coaching tool that can build on teachers’ developing recognition of the importance of intentionality in math instruction. In their book *Coaching with Powerful Interactions*, authors Judy Jablon, Amy Laura Dombro, and Shaun Johnsen (2014) discuss the value of recognizing teachers’ ‘moments of effectiveness’ and articulating for them the impact that moment has on children’s learning. This can be a powerful method of moving teachers forward toward math confidence. Jablon and her colleagues imagine the coach as a yellow highlighter in the classroom, highlighting what the teacher is doing well so she can repeat it over and over again. What a wonderful way to support a teacher who is working past math anxiety or negativity!

- “When you asked Jaden to help you sort the laundry by color, you provided him with practice in sorting and classifying. Those are important data analysis skills.”

- “This morning I heard you giving Nola verbal directions to find the shelf where the puppets belong. Did you know that you were giving her practice with geometry? You helped her develop her ideas of spatial relationships.”

- “Amelia really loved the game of ‘So Big!’ you played with her while she was in her high chair. Using words like ‘big’ and ‘small’ will help her be ready for measuring when she gets older.”

- “I watched you help calm Tristan when he was crying for his mommy. When you took him to the photo schedule and talked about the parts of the day we were already through and the parts that would happen before his mom got here, he got to practice thinking about time and patterns.”

- “I love that you modeled counting blocks to determine why one block road was longer than the other! That really gave Alex and Jontae some good practice with number concepts and data collection.”

- “When Mason noticed your fingernail designs, he noticed that there was a pattern: red, blue, red, blue. I heard you ask him to guess what color the next nail was. What a great way to develop his awareness of patterning.”

- “I noticed that when Malia wanted to make a snowman and needed circles to trace, you went with her to the dramatic play area. She was able to recognize circles and compare their sizes because you helped her.”

When we use this technique consistently with teachers, strength-based articulation can become part of that teacher’s self-talk and increase her intentionality.

**Farewell, Math Anxiety**

We can move our field forward in the area of developmentally appropriate math instruction by helping teachers reflect on how their own math experiences affect their thinking and work with young children. As they become aware of how their own memories inform their practice, they can identify ways in which negative thoughts may have become a hindrance to their offering rich, positive math experiences and interactions for the children in their care. Helping teachers to recognize and celebrate the ways they are already, often unconsciously, building math concepts in their classroom inspires confidence and dispels myths they have created about themselves and about math because of school memories and previous anxiety. Together we can create better math futures for a generation of young children.

**References**


