Assistant Professor of Mathematics Education Brings Black Joy to STEM

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Teachers can help middle school students recognize the joyful possibilities of STEM.

Michelle Frierson, assistant professor of mathematics education in the School of Teacher Education and Leadership (TEAL) in the Emma Eccles Jones College of Education and Human Services, has been incorporating Black Joy principles in her research to help Black and other BIPOC (Black, Indigenous, and Other People of Color) youth overcome the anxiety they feel toward science, technology, engineering, and math (STEM) coursework at school.

Black Joy is a relatively recent movement, dating to 2015, that focuses on celebrating positive Black experiences. The term itself is credited to Black Joy Project founder Kleaver Cruz, who defined the movement as “a digital and real-world effort to center Black Joy as a form of resistance.” It is an internal response in which Black people shift their view of past or present adversity toward a focus, either publicly or privately, on uplifting and life-affirming experiences instead. The hashtag #blackjoy was later popularized on social media platforms.

Black Joy wasn’t initially on Frierson’s radar when she was considering the direction for her research. “I hadn’t seen a lot of work done in that context, so I started thinking about how we can facilitate Black Joy in STEM spaces,” she explains. “That led me to my current research, which is thinking about how to best support students in feeling joy as they explore STEM in classrooms—and to be sure we’re not instilling math anxiety or making those experiences less joyful.”

Steven Camicia, department head and professor at TEAL, sees the inherent value in Frierson’s work. “Dr. Frierson’s research builds our understanding of how Black youth thrive in STEM spaces and how educators can support this thriving,” he says. “Her work is sure to positively impact Black youth and her own field of research.”

When applying Black Joy in a middle school classroom, Frierson sees it as helping Black students capitalize on their positive STEM experiences. “It’s feeling joy in a classroom where they don’t have anxiety with math,” she explains. “It’s using STEM skills in classrooms as they are applicable to things the students are interested in, such as baking and swimming.”

Michelle Frierson, assitant professor of mathematics education in the School of Teacher Education and Leadership

Having emphasized reading and language arts education in her undergraduate degree, Frierson recognizes that she came to higher education with an entirely different set of experiences than others. “A lot of people are actually STEM people who are sharing their scholarship,” she explains. “My perspective is a little different. I was terrified of STEM as a student. It wasn’t until I became a teacher that I realized that a lot of the math anxiety I had was going to be helpful in reaching young students who were also struggling.”

Frierson explains that a child’s aversion to STEM subjects isn’t apparent in the early childhood years. “We’ve found in research that students enjoy STEM when they’re young because we make it really fun for them,” she says. “They learn about how bubbles work and how sinking and floating works and how to do small additions. It’s a game and it’s fun. But at some point, it stops being fun in a lot of classrooms and then it becomes something they dread.”

The disconnect usually begins after elementary school. “The way we present STEM subjects in middle school makes it feel very distant to students. And then there’s

pressure that you have to do it a certain way because it will appear that way on a test or in the next course you have to take. A lot of the joy gets lost."

But Frierson recognizes that STEM doesn't need to be that way. Much of it is helping the students recognize that these skills are tools to use. "We want to be sure education gives children all the tools they need," she explains. "We don't want to ignore some of the tools or have them scared of using them."

In the research for her dissertation, Frierson focused on helping young students recognize that math and the sciences are often an integral part of their interests. She visited middle school classrooms with primarily Black students and talked with them about how they can find joy in STEM. They also made collages that illustrated their hobbies. "It was special to see Black children think about how the skills they're learning in classrooms are applicable to things they're interested in, and that they can take that knowledge anywhere."

She adds, "When they were making their collages, I did brief interviews with them. I wanted to know why they chose different symbols to represent STEM and to understand the joy they feel doing some of those activities." Once students recognize that STEM can be part of what makes them happy, their anxiety naturally eases.

At USU, in addition to research, Frierson teaches elementary mathematics methods, a course for students seeking to become elementary teachers. Jessica Shumway, associate professor and program director for mathematics education, says, "Dr. Frierson's research has important implications for the preservice teachers in our elementary education program. Many of them come to our courses with math anxiety or bad mathematics experiences. When your teacher doesn't find joy in mathematics, it influences young students' perceptions of mathematics. Dr. Frierson models the joyful possibilities of mathematics."

Ultimately, Frierson recognizes that the classroom is where much of the impact will be made. "There are small things teachers can do, like presenting things in certain ways, that can bring in joy. Even that small amount of effort makes a big difference."