

Another Advance In

STEM Education



Iowa State University informing decision-makers about research in Science–Technology–Engineering–Mathematics Education

Connecting community to math curriculum

Within the communities in which we live, the businesses in which we work, and the schools in which our children learn, math is a universal tool and concept. Corey Drake, assistant professor of mathematics education at Iowa State University, aims to make that concept more apparent to students and teachers alike.

Drake is working with three Iowa school districts to enhance the teaching and development of math programs for teachers of grades K-5. The five-year project, now in its first year, is funded by the National Science Foundation (NSF). Describing her work on the project, Drake said, “I focus on helping teachers see the wide range of resources available to them. I go into the classroom, observe how they use the materials, and coach them on ways to use the resources. In the process, the teachers themselves learn more about math.”

At the same time, through her elementary mathematics methods course, Drake is bringing schools, families, and communities together to offer non-traditional resources for teaching math to diverse bodies of students, such as visiting companies that use math in everyday ways or observing how math concepts can be applied to daily matters.

“The more schools are part of communities, the better,” Drake said. “If we don’t have elementary teachers preparing their students to succeed in math, they may not take the advanced math classes that prepare

them to meet the needs of Iowa business and industry. Often, kids don’t get a realistic idea of what math skills are needed to work in certain careers, and this is a way to teach that.”

Over the past 10 to 20 years, there has been a shift in the way schools prepare teachers for instructing math, Drake said. Now, teachers think about children as problem solvers who can develop their own solution strategies. The next step, she said, is taking the idea of children as problem solvers and connecting math to their daily activities. It’s a process that takes math out of the classroom and into everyday life.

“The biggest challenge we face is keeping the math rigorous and not watering down the content. We want students to achieve at the highest level. That is the most important thing,” said Drake.

As work on the project continues, Drake hopes to see longitudinal changes in pre-service teachers and their teaching strategies. Through observations, interviews, analyses of class discussions, and pre-service teacher work, data will measure changes in teachers’ practices. Ultimately, the goal is to follow the teachers into their teaching careers to learn whether the pedagogical lessons taught in methods courses are being used in elementary classrooms.

For more information

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