

Preschool teachers need better training in science

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Are preschool teachers failing their students in science? A Michigan State University study examines. Credit: Michigan State University

Preschool instructors appear to lack the knowledge, skills and confidence to effectively teach their young students science - a problem

that is likely contributing to America's poor global performance in this crucially important subject.

A first-of-its-kind study by Michigan State University researchers found that [early childhood](#) educators' self-reported ability and enjoyment was high for literacy, but much lower for science and math.

Further, while 99 percent of preschool teachers engaged in literacy instruction three to four times a week, that figure fell to 75 percent in math and only 42 percent in science.

Only 38 percent of U.S. fourth-graders were proficient in science in 2015, according to a report from the National Assessment of Educational Progress.

"Providing quality early-childhood science education is one way to improve the very low science achievement of U.S. elementary school children," said lead author Hope Gerde, associate professor in MSU's Department of Human Development and Family Studies. "However, it seems the preschool teachers in our study were more confident of their ability in literacy than in science - likely creating a gap between children's literacy development and science skills."

The study, funded by the National Science Foundation, is published in the journal *Early Education and Development*.

Gerde and colleagues studied 67 Head Start classrooms for children ages 3-5. This early childhood period is a time when kids begin developing knowledge and skills for science, she said, adding that preschool children have the capacity to engage in and learn from scientific thinking.

The study is the first to examine preschool teachers' "self-efficacy" - or their belief in their ability and enjoyment for an academic area - in

literacy, math and science.

Gerde said preschool teachers may struggle with science due to lack of quality training, preparation or an aversion to science. Teachers may also feel pressure from policymakers and school administrators to focus on literacy - to the possible exclusion of science.

Importantly, the study found that only teachers with high knowledge and skills for science - not [literacy](#) or math - created quality scientific opportunities for students, such as providing science materials and engaging children in science experiences in the classroom.

"If we are to improve U.S. children's science learning," Gerde said, "we must provide quality opportunities, in [teacher](#) education programs and professional development offerings, for early childhood teachers to develop knowledge and skills in [science](#)."

Provided by Michigan State University

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