

Poor quality teachers may prevent children from reaching reading potential, study finds

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When it comes to early reading, a bad teacher can prevent children from reaching their full potential.

That's the finding of a new Florida State University study published in the April 23 issue of the journal *Science*. The study, "[Teacher Quality Moderates the Genetic Effects on Early Reading](#)," may put an end to a longstanding scholarly debate about the amount of influence teachers have on students' reading achievement.

"Teachers have an effect on student reading achievement," said psychology Associate Professor Jeanette Taylor, the study's lead author. "Better teachers provide an environment that allows children to reach their potential."

Scholars know that genetics play the biggest role in a child's reading achievement, while the environment — including the classroom experience — plays a smaller role. This study is significant because it shows for the first time that teachers have a direct influence on the [genetic variability](#) among children.

"When children receive more effective instruction, they will tend to develop at their optimal trajectory," Taylor said. "When instruction is less effective, then children's learning potential is not optimized and [genetic differences](#) are left unrealized."

As state and national policy increasingly focuses on teacher quality, the

effect that teachers have on the genetic foundation of reading is an important question. Taylor and her four co-authors, all Florida State researchers, addressed the question by examining data from identical and fraternal twins taking part in the Florida Twin Project on Reading.

[Identical twins](#) share all of their genes while fraternal twins share, on average, half of their genes, so comparing them gives researchers a way to infer how much of the variability in reading achievement is because of genetic versus environmental influences.

The researchers studied 280 identical and 526 fraternal [twin pairs](#) in the first and second grades from Florida schools representing diverse environments. Using the scores of the twins' Oral Reading Fluency (ORF) test, which assesses reading skill, they estimated how much of the variability in reading was due to genetic factors. Then they used the test scores of the twins' classmates to create a measure of teacher quality.

If the end-of-the-year test scores showed the entire classroom of students made gains in reading achievement beyond expectations based on their scores at the beginning of the year, the researchers attributed the gain to a high-quality teacher. Conversely, the researchers assumed classrooms with lower gains had poor quality teachers. They did not include the twins in these calculations so that their teachers' quality scores were independent of the twins' achievement.

"We can essentially rank teachers in terms of the benefit to students' learning from being in a particular teacher's classroom in comparison to the average amount of gain seen in a particular grade," said Alysia Roehrig, an assistant professor in the College of Education and one of the study's co-authors.

The authors cautioned that other factors, such as classmates, resources and the physical classroom itself, might also influence the level of reading achievement among young students. However, this study clearly

underscores the importance of teachers.

"Putting high quality teachers in the classroom will not eliminate variability among students nor guarantee equally high achievement from all children, but ignoring teachers as a salient contributor to the classroom environment represents a missed opportunity to promote children's potential in school and their success in life," the researchers concluded.

Provided by Florida State University

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