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How do children learn to read silently? Study at FCRR uses eye-tracking technology to chart oral-to-silent reading transition

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TALLAHASSEE, Fla. — When a beginning reader reads aloud, her progress is apparent: Hunched over a book, little index finger blazing the way, she moves intently from sound to sound, word to word.

*I do not like green eggs and ham!
I do not like them, Sam-I-am!*

But when that same child reads silently, it's much harder to measure how much she is reading – or understanding. Yet as she advances through school, teachers will expect her to learn increasingly through silent rather than oral reading.

Researchers at the Florida Center for Reading Research (FCRR) at Florida State University will tackle that paradox over the next four years. Funded by a \$1.6 million grant from the Institute of Education Sciences (IES), the research arm of the U.S. Department of Education, a team headed by FCRR researcher Young-Suk Kim will examine a poorly understood area of literacy: the relationship between oral and silent reading, and how those skills, in turn, relate to reading comprehension.

"One of the reasons why silent reading has not been paid attention to sufficiently is that it is difficult to measure," said Kim, also an assistant professor in Florida State's College of Education. "The other piece is, people may just assume that, if you read well orally, then you'll also read well silently."

However, studies show that's not the case for all students, said Kim. Some may pretend to read, read inefficiently, or struggle over the bridge from oral to silent reading. That crucial transition will be the focus of the new project.

Kim and her team will follow 400 Leon County (Fla.) students from first to third grade, testing them three times a year to measure when and how they develop accurate oral reading and advance from oral to fluent silent reading.

"Initially, kids sound out each letter, then put all the sounds together, and then make a word," explained Kim, a former classroom teacher. "As their reading develops further, they will be able to do that in their minds. But initially, it's not going to be as efficient or fast."

Beginning silent readers often sound words out in their heads, a cumbersome process called subvocalization.

"What we ultimately want is instantaneous recognition without subvocalization because that's faster," Kim said. "But we don't know how that process happens."



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Until recently, measuring silent reading was difficult: After all, you can't hear the child's progress. But researchers can now see this progress, with the help of advanced eye-tracking technologies that follow students' eye movements as they read text on a computer screen.

"It's very fascinating how precisely we can measure this," Kim said. "We can even determine exactly which letter a student is focusing on."

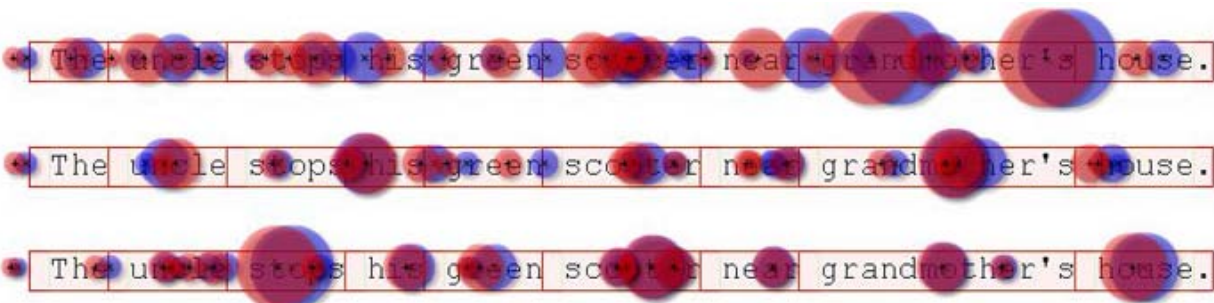
Kim and her team will also examine instructional strategies for promoting reading fluency, and hope that this new grant will be followed by a second one in which they will test these approaches. The ultimate goal is to help students read faster and better, a skill critical to their success throughout their years in school.

"Because children read faster in silent mode, we want to really promote that," Kim said. "But because we don't know how children transition there, it's still one big question." (To hear Kim talk more about her research, listen to this 3-minute radio story broadcast on WFSU.

Several other Florida State faculty members have key roles on the project. Yaacov Petscher, FCRR research associate, is co-principal investigator. Working as co-investigators are Carol Connor, FCRR researcher and associate professor in the Department of Psychology; Christian Vorstius, FCRR research associate; and Richard Wagner, Robert O. Lawton Distinguished Professor of Psychology and associate director at the FCRR.

"IES grants are extremely competitive," said FCRR Director Barbara Foorman, "and we at the Florida Center for Reading Research are very proud that one of our new assistant professor stars, Dr. Young-Suk Kim, has won this award."

Eye-Tracking Maps



These eye-tracking maps show how students at three different grades from a cross-sectional study (first grade at the top, third grade in the middle, fifth grade at the bottom) read the sentence, "The uncle stops his green scooter near grandmother's house." The larger the colored dots (blue for the left eye and red for the right), the longer the child lingered over those letters as she or he read the text. Although these are not from a longitudinal sample, it is clear that the child in first grade makes more frequent fixations at the letter level compared to the children in grades three and five.



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About FCRR

The Florida Center for Reading Research (FCRR) is the nation's premier research organization devoted to literacy. The center's faculty boasts the broadest and deepest collection of reading experts in the world. Established in 2002 by the Florida Legislature, FCRR is jointly administered at Florida State University by the Learning Systems Institute and the College of Arts and Sciences.