**Kindergarten math skills key to later success, researchers say**

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It’s one of the biggest debates going on among early childhood development experts: Is it more important for kindergartners to focus on academics and learn their ABC’s and numbers? Or spend more time on social and emotional issues, like how to play nice and pay attention?

Recent research by a [**UC Irvine education professor**](http://www.gse.uci.edu/faculty/profilebridge.php?faculty_id=5614) shows that math skills among kindergartners turn out to be a key predictor for future academic success.

Professor Greg Duncan and his colleagues [**analyzed studies**](http://www.gse.uci.edu/research/achieve_attent_behave.php) conducted with close to 20,000 kindergartners, assessing their knowledge of math, literacy and other skills, including their ability to stay on task and make friends. The studies followed the kindergartners for several years through elementary school, testing them in reading and math.

Even after accounting for differences in IQ and family income, Duncan found that those who learned the most math in kindergarten tended to have the highest math and reading scores years later.

“It was very surprising,” said Duncan, whose research appears in a [**new book**](http://www.spencer.org/content.cfm/russell_sage_whither_opportunity). “Everyone says reading is most important, and if a child can read by third grade, the chance of dropping out of school is so much lower. But it was math that stood out as serving the kids best in promoting later achievement. Reading was next most important, and then attention skills were third most important.”

Social skills, including the ability to self-regulate and control one’s temper, also are important. But Duncan found that they weren’t as closely linked to future academic success as math and reading. Students who exhibit antisocial behavior through elementary and middle school tend to drop out of high school at higher rates, Duncan found, but again, those with persistently low math scores also dropped out at higher rates.

He said his research shows that kindergarten teachers ought to devote more time to math instruction. It can be simple things, he said, like learning shapes and numbers and the concept of smaller and bigger numbers along a number line.

“If you show kindergartners a line with zero at one end and 10 at the other, and ask them, ‘Where’s the 8?’, they tend to put the 8 in the middle,” Duncan said. “They don’t know that there’s this cardinal pattern. And unless you show them a number line and they understand where numbers are in relation to each other, it’ll be hard for them to get addition and subtraction later on.”

But some question whether children are ready for certain math concepts in kindergarten. As kindergarten has grown more academically oriented in the past decade, there’s been an increasing emphasis on teaching more advanced material to younger children.

“Kindergartners are learning what used to be learned in the first grade,” said Jill Cannon, a researcher who has [**written about kindergarten**](http://www.ppic.org/main/publication.asp?i=792) for the [**Public Policy Institute of California**](http://www.ppic.org/main/home.asp). “Some people even argue that preschool is becoming too academic.”

Some childhood advocates warn that instructional time is edging out playtime and putting unnecessary pressure and stress on kids. In its [**report [PDF]**](http://www.allianceforchildhood.org/sites/allianceforchildhood.org/files/file/kindergarten_report.pdf) “Crisis in the Kindergarten,” the nonprofit [**Alliance for Childhood**](http://allianceforchildhood.org/) argues that children were being taught to master material beyond their developmental level while being deprived of playtime to help them cope with the stress.

“Some kindergartners are being taught to count to 100 by 1’s and by 10’s,” said Edward Miller, a senior researcher for the Alliance for Childhood. “But it’s very clear from the research that 5-year-olds are not capable of really understanding that kind of large number. So they’re being taught to repeat something that’s meaningless. And if they don’t, they get labeled as failures.”

Duncan said kindergartners are ready for a variety of math concepts that can be taught in fun and playful ways.

“I’m not implying that there needs to be flashcards and drill-and-kill exercises,” Duncan said. He suggests teachers use math lessons that let kids explore and manipulate numbers. For parents, he recommends they point out shapes to their kids and play cards and board games to help them get comfortable with counting.