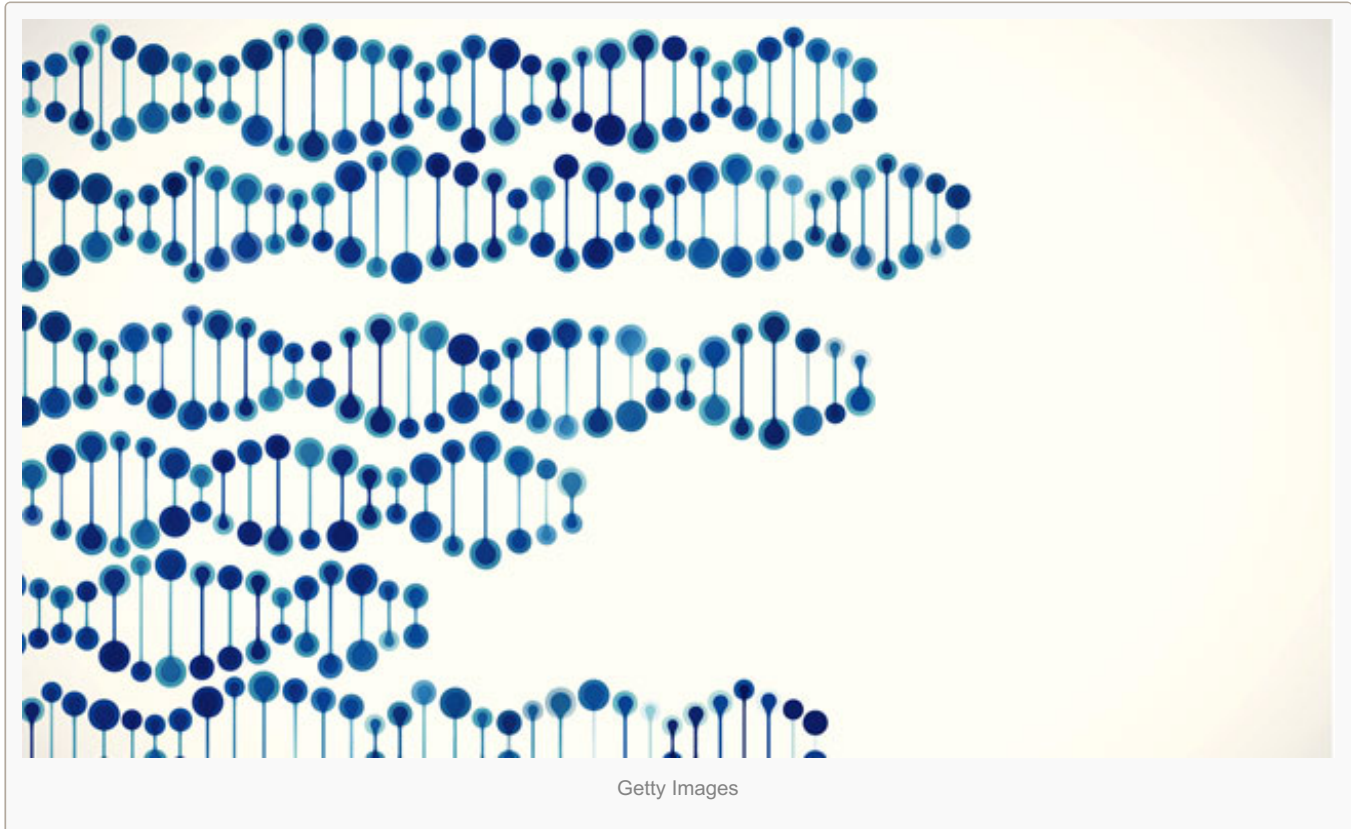


Could the Same Genes Shape Math Skills As Reading Ability?

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MindShift



By [Maanvi Singh](#), NPR

Many of us tend to align ourselves with either numbers or words. We're either math brains or we're reading brains.

In college, my fellow English majors joked about how none of us could long-divide to save our lives, while our friends in engineering groaned about the fact that Lit 101 was a graduation requirement.

But it turns out that about half the genes that influence a child's math ability also seem to influence reading ability, according to a [study](#) published in the journal *Nature Communications*.

"People who are good at reading, you can bet, are pretty good at math too."

"You'd think that cognitively what's going on with math and reading is very different," says [Robert Plomin](#), a behavioral geneticist at Kings College London, and one of the authors of the study. "Actually, people who are good at reading, you can bet, are pretty good at math too."

The researchers looked at 2,800 pairs of 12-year-old British twins who were part of the larger [Twins Early Development Study](#). Some pairs were very nearly genetically identical; the other pairs were fraternal twins, meaning they are the same age and shared a quite similar early environment, but are no more genetically

similar than other siblings.

The scientists assessed each child's math and reading skills based on standardized tests. To gauge how genes influenced the students' aptitude, the researchers compared the test results of twin siblings as well as the results of unrelated children.

The researchers also analyzed the participants' DNA, in hopes of turning up a particular gene or set of genes shared by people with high math or reading ability — genes that were, perhaps, missing in people with low abilities. (Some earlier, smaller studies had suggested such highly influential gene variants might exist). But no particular gene or sets of genes emerged. That may be because a lot — maybe thousands — of genes may be involved in helping to shape these abilities, Plomin says.

What the study did find was that children's reading ability and math ability seem to be related — and much of that relationship can be explained by genetics.

The research also showed that genes can't explain everything about our abilities, Plomin says. "These genetic propensities are like little nudges," he says. Slight variations in your genes may nudge you to read more for pleasure. "And that can snowball," Plomin says.

These kids who like reading may spend more time at the library or may ask their parents to buy them more books — and all of that practice reading will push their skills even further.

Other kids may find reading to be a bit harder due to genetics, Plomin says. "It's not that the child just isn't motivated, or that he's just not trying hard enough." But with some extra encouragement and support, these children can become good readers as well.

Environmental factors may also explain why, among genetically identical twins, one may prefer math while the other prefers reading, Plomin says. One twin may end up with a really good math teacher, while the other doesn't. Or one may fall ill, and that may set her back.

Right now, we don't have all the answers, Plomin says. "I wish I knew what some of the genes are," he says. That would allow scientists to learn more about how we each learn best.

"What's going to be needed is very large samples of people to be able to isolate these genes," says [Douglas Detterman](#), an emeritus professor of psychology at Case Western Reserve University and editor of the journal *Intelligence*. Detterman, who wasn't involved in this study, says scientists would likely have to look at the DNA of millions of people in order to start figuring out which genes affect our academic aptitudes.

It's a daunting task, he says, "but I think it'll happen faster than we expect." As we learn more about the influence of genetics on learning, we'll be able to more easily figure out which learning environment works best for each child.

Here, teachers are a bit like farmers, Detterman says. And children are a bit like corn. "You have corn plants that do well in certain environments, and don't in others. And the farmer's job is to get the corn plants into the right soil."

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