

No math gene: Learning mathematics takes practice

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New research at the Norwegian University of Science and Technology (NTNU) in Trondheim could have an effect on how math is taught.

If you want to be really good at all types of math, you need to practice them all. You can't trust your innate natural talent to do most of the job for you.

This might seem obvious to some, but it goes against the traditional view that if you are good at math, it is a skill that you are simply born with.

Professor Hermundur Sigmundsson at Department of Psychology is one of three researchers involved in the project. The results have been published in *Psychological Reports*.

The numbers

The researchers tested the math skills of 70 Norwegian fifth graders, aged 10.5 years on average. Their results suggest that it is important to practice every single kind of math subject to be good at all of them, and that these skills aren't something you are born with.

"We found support for a task specificity hypothesis. You become good at exactly what you practice," Sigmundsson says.

Nine types of math tasks were tested, from normal addition and

subtraction, both orally and in writing, to oral multiplication and understanding the clock and the calendar.

"Our study shows little correlation between (being good at) the nine different mathematical skills, Sigmundsson said. "For instance there is little correlation between being able to solve a normal addition in the form of ' $23 + 67$ ' and addition in the form of a word problem."

This example might raise a few eyebrows. Perhaps basic math is not a problem for the student, but the reading itself is. Up to 20 per cent of Norwegian boys in secondary school have problems with reading.

Sigmundsson also finds support in everyday examples.

"Some students will be good at geometry, but not so good at algebra," he says.

If that is the case they have to practice more algebra, which is the area where most students in [secondary school](#) have problems.

"At the same time this means there is hope for some students. Some just can't be good at all types of math, but at least they can be good at geometry, for example," he says.

It is this finding that might in the end help change the way [math](#) is taught.

Support in neurology

The fact that you are good at precisely what you practice is probably due to the fact that different kinds of practice activate different neural connections.

The results can also be transferred to other areas. The football player who practices hitting the goal from 25 yards with a perfectly placed shot will become good at exactly this. But she is not necessarily good at tackling or reading the game.

"This is also supported by new insights in neurology. With practice you develop specific neural connections," says Sigmundsson.

More information: H. Sigmundsson, R. C. J. Polman, and H. Lorås (2013) EXPLORING INDIVIDUAL DIFFERENCES IN CHILDREN'S MATHEMATICAL SKILLS: A CORRELATIONAL AND DIMENSIONAL APPROACH1. Psychological Reports: Volume 113, Issue, pp. 23-30. [DOI: 10.2466/04.10.PR0.113x12z2](https://doi.org/10.2466/04.10.PR0.113x12z2)

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