

Brain training does not improve early number skills, say researchers

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Psychologists at the University of Sheffield have identified that core thinking skills are crucial in developing early number skills, and why children might differ widely in their early maths ability.

Research from the University of Sheffield, funded by the Nuffield Foundation, investigated why [children](#) differ so much in their early maths skills, to try and identify how they can be best supported. The study concluded that using brain training exercises to improve core thinking skills does not in turn boost maths ability.

Instead, the researchers found that core thinking skills, including memory and attention, are key skills that support early maths learning.

The [research](#) is some of the first to identify what is causing an attainment gap in early maths skills by studying a sample of four-year-olds from socially [diverse backgrounds](#) on their core thinking skills and early maths skills. The findings showed that on average, the children from disadvantaged backgrounds had lower maths skills than their more advantaged peers.

The study showed one way to support children who may be struggling with early maths is to support these core thinking skills. The researchers tried an intervention technique to improve the children's cognitive skills directly to see if this had a knock-on effect on their maths ability.

The intervention involved simple brain training challenges which the children completed once a week. Although the children improved their performance on the brain training tasks, there was no improvement in their maths skills.

It is hoped the findings will inform new research to test different types of interventions in order to narrow the differences in early numeracy skills and help disadvantaged children who might be at risk of falling behind in maths. Interventions could include promoting teaching strategies which are less demanding on children's attention.

Dr. Emma Blakey, from the University of Sheffield's Department of

Psychology, said: "Our study has found that core thinking skills are crucial in the development of early numbers skills. For children who struggle with these skills, their memory and attention may get easily overloaded by the learning process.

"We found that trying to improve these thinking [skills](#) using [brain training](#) is not effective. The next stage of our research will be to see if a helpful approach for children who might be struggling may be to ease the load on their attention and memory while they are learning."

Provided by University of Sheffield

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