

# Not a math person? You can still help your kids succeed in math. There's an app for it.

Sian Beilock, Opinion contributor Published 6:00 a.m. ET Dec. 7, 2018 | Updated 12:59 p.m. ET Dec. 7, 2018

*Our research shows an interactive math app boosts achievement by children in 'math anxious' families even as their parents remain, well, anxious.*



(Photo: Andrew Wardlow/News Herald via AP)

Over the course of your life, how many times have you heard someone declare they're "not a math person"?

Probably too many to count (no pun intended).

Whenever I hear someone say this, I immediately harken back to an old nursery rhyme, one dating to the 16th century (<http://www.rhymes.org.uk/a61-multiplication.htm>), that suggests being "not a math person" is by no means a new phenomenon:

Multiplication is vexation,  
 Division is as bad;  
 The Rule of Three doth puzzle me,  
 And practice drives me mad.

You never hear someone say, "I'm not a reading person." But math is somehow different. For many adults, even simple math, such as calculating the tip on a dinner bill or helping their children with their homework, can send them into a panic.

When men and women fret about math, their fear and anxiety is passed on to their daughters and sons. Children who witness the unease their parents experience perform worse in math and are more anxious about it.

## Parents get anxious about even simple math

As a cognitive scientist, I've spent years studying how people react to stress, and the relationship between parents' math anxiety and their children's academic success was what sparked my most recent research. Was there a way to assuage a parent's math anxiety and impact a child's math performance for the better?

It's not uncommon for adults to feel apprehension performing even the most basic math. And, it turns out, the brains of those affected by math anxiety process even the easiest equations ( $3+5=8$ ) differently (<https://barnard.edu/news/beilock-publishes-groundbreaking-research-first-year-barnard-president>) than those who feel at ease around numbers.

Just knowing that you are going to do math can send the brains of math-anxious people into a panic — brain areas such as the posterior insula, associated with visceral threat detection and often the experience of pain itself, go on high alert the more fearful of math a person is. For some, even the anticipation of math can be painful (<https://cpb-us-w2.wpmucdn.com/voices.uchicago.edu/dist/8/1250/files/2018/07/Lyons-Beilock-2012PLoS1-When-Math-Hurts-Math-Anxiety-Predicts-Pain-Network-Activation-in-Anticipation-of-Doing-Math-2cyzxp8.pdf>).

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Unfortunately, this anxiety can directly and adversely impact our children. When these math-fearful parents help their sons or daughters with their math homework, their children learn less math and have more anxiety about solving math over the course of a [school year](https://cpb-us-w2.wpmucdn.com/voices.uchicago.edu/dist/8/1250/files/2018/07/Maloney-et-al-2015-Intergenerational-effects-1cd5v8b.pdf) (<https://cpb-us-w2.wpmucdn.com/voices.uchicago.edu/dist/8/1250/files/2018/07/Maloney-et-al-2015-Intergenerational-effects-1cd5v8b.pdf>).

My colleague Susan Levine and I decided to stage an intervention. With the help of the freely available educational [Bedtime Math](http://bedtimemath.org/apps/) (<http://bedtimemath.org/apps/>) app, parents and their first-grade children were given a daily math story problem they could solve together. These stories were fun, even silly, to capture both the parents' and the children's attention.

In [research published this week](http://psycnet.apa.org/record/2018-48187-001) (<http://psycnet.apa.org/record/2018-48187-001>), we found that the use of the Bedtime Math app had a lasting benefit for the students and their parents, particularly for those mothers and fathers who battled math anxiety.

For families that didn't do Bedtime Math, the fear the parents felt about math translated to lower math achievement for their children — so much so that the children of these math-anxious parents were quite behind in school, learning what equated to nearly five fewer months of math from first to third grade. But when math-anxious parents integrated Bedtime Math into their routines, their children learned just as much math as children from less anxious families.

## Kids succeed in math if parents think they can

Here is the bad news. We didn't succeed in lowering parents' math anxiety. Parents were just as anxious about math whether they did Bedtime Math or not.

Even so, Bedtime Math did change how parents valued math for their children — parents were more confident that their children could succeed in math. This boost in parents' confidence helped explain increases in their kids math achievement.

Considering how vital math is to the future of employment, the way children feel and perform in math in their early childhood could have serious repercussions throughout both their academic and professional lives. Fields related to science, technology, engineering and math have grown more than 24 percent from 2005 to 2015, and they are expected to expand an additional [8.9 percent by 2024](https://www.commerce.gov/sites/default/files/migrated/reports/stem-jobs-2017-update.pdf) (<https://www.commerce.gov/sites/default/files/migrated/reports/stem-jobs-2017-update.pdf>). And math will play a huge part in these future career paths.

They say practice makes perfect. Though perfection was never the end goal in helping parents and kids with math, one thing is certain: Practice does make progress. By creating an environment in which math can be fun for kids and parents, we can shape the future for the better. We can make parents more confident in their children's math ability, which as it happens translates into higher overall math achievement for their kids. We can create a generation of students that think math is for them.

And that's exactly the type of nursery rhyme 2018 needs.

*Sian Beilock*, (<https://sianbeilock.com/about.html>), president of *Barnard College*, is (<https://barnard.edu/>), a cognitive scientist specializing in the brain and body factors influencing human performance. Follow her on Twitter: [@sianbeilock](https://twitter.com/sianbeilock) (<https://twitter.com/sianbeilock>).

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