

The numbers do not add up for mathematics homework, according to a new study

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Supporting kids with math homework is a common afterschool activity. But beyond the basics, new curricula and teaching strategies are making it harder for parents to help and it's taking a serious toll on children's

confidence and learning.

In a [study](#) from the University of South Australia, researchers have found that [mathematics](#) homework can sometimes cause more harm than good.

Exploring how homework policies and practices affect families, researchers found that mathematics homework could inadvertently affect a child when it often:

- was too difficult for a child to complete independently, and/or with the support of a parent
- required significant support from parents and seeped into family time
- resulted in a [negative experience](#) for the child and their parent, leading to [negative associations](#) with mathematics and potentially students' disengagement from the subject
- generated feelings of despair, stress, and negativity among parents who were unable to help
- made students feel inadequate when they struggled with the work.

UniSA researcher Associate Professor Lisa O'Keeffe says such negativity around mathematics has broad implications.

"Homework has long been accepted as a practice that reinforces children's learning and improves academic success," Assoc. Prof. O'Keeffe says.

"But when it is too complex for a student to complete even with parent support, it raises the question as to why it was set as a homework task in the first place. We know that parents play a key role in supporting their children with schooling and homework. When children need help, their

parents are often the first people they turn to.

"But many parents are unsure of the current mathematics strategies and approaches that their children are learning as these have changed a lot since they were at school. Like many things, mathematics teaching has evolved over time. But when parents realize that their tried-and-true methods are different to those which their children are learning, it can be hard to adapt, and this can add undue pressure. When children see their parents struggle with mathematics homework, or where mathematics homework becomes a shared site of frustration for families, it can lead to negativity across generations.

"For example, we might hear adults saying things like, 'I wasn't very good at math, so my child won't be either.' Negative interactions with mathematics, and negative discourses like these can lead to reduced confidence, reduced self-efficacy, and can negatively affect children's resilience, persistence, and ultimately their inclination to continue with mathematics."

Any decline in STEM subjects such as math can have long-term impacts for Australia's future. Statistics show that fewer than 10% of students are studying a higher level of math, with math capabilities declining more than 25 points (15-year-olds in 2022 scored at a level that would have been expected of 14-year-olds, 20 years earlier).

Co-researcher, UniSA's Dr. Sarah McDonald, says the research also identified gendered biases.

"Our research showed that it was overwhelmingly mothers who were responsible for managing children's homework. And they often experience frustration or despair when they were unable to understand the math problems," Dr. McDonald says. "When mothers find math hard, there is concern that this may demonstrate to their [children](#),

especially their girls, that this is not an area in which they would naturally excel.

"The last thing teachers want to do is disadvantage girls in developing potentially strong mathematical identities. We need a greater understanding of homework policies and expectations.

"The experiences of the families in our study do not support the often-quoted claim by researchers that that [homework](#) has potential non-academic benefits such as fostering independence, creating positive character traits, developing good organizational skills, or virtues such as self-discipline and responsibility."

More information: Lisa O'Keeffe et al, Mathematics homework and the potential compounding of educational disadvantage, *British Journal of Sociology of Education* (2023). [DOI: 10.1080/01425692.2023.2240530](#)

Provided by University of South Australia

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