

Can changing the way we think about Maths give learners the boost they need to succeed?

Issued by [Oxford University Press](#)

22 Apr 2024

April is Health Awareness Month in South Africa, providing an opportunity to underline the integrated nature of well-being and educational achievement among schoolchildren and students.

Focusing on STEM (Science, Technology, Engineering, and Mathematics), where Mathematics serves as a gateway subject, Oxford University Press South Africa (OUPSA) acknowledges the impact of positive thinking and affirmation in Mathematics to help boost learners' confidence. Nurturing such a growth mindset from a young age, sets learners up for success and resilience in all aspects of their lives.



The latest *Trends in International Mathematics and Science Studies (TIMSS)* confirms that mathematics is not a strong subject for South African learners.

The study points out that among 64 countries, South Africa ranked third from the bottom in primary school level scores. Based on recent years' National Senior Certificate (NSC) examination results, fewer than 20% of all our learners pass mathematics annually, meaning that 80% either don't take pure Mathematics as a subject or ultimately fail it.

Of this 20%, many who take mathematics-related subjects in their tertiary studies also fail these. If Carol Dweck's [Harvard Business Review article](#) likens a "growth mindset" to "[I]ndividuals who believe their talents can be developed (through hard work, good strategies, and input from others)," how could it influence our learners' mathematics performance?

"While a growth mindset can have different interpretations, the concept inherently incorporates considerations of well-being from multiple perspectives," says Michelle Sephton, Mathematics and Sciences publisher at OUPSA.

The Oxford English Dictionary defines "well-being" as the "state of being healthy, happy, or prosperous". When considering the role of well-being in school performance, particularly in mathematics, anxiety and disengagement often

arise from poor well-being among many learners.

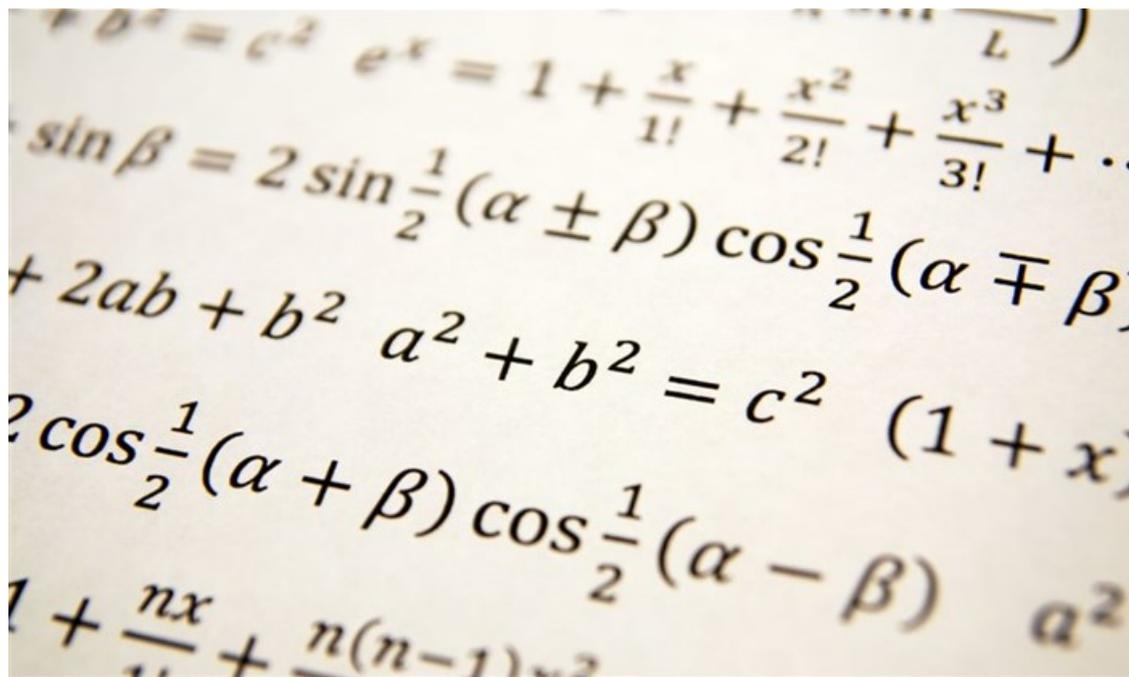
A 2020 study titled “Feeling Good and Functioning Well in Mathematics Education: Exploring Students’ Conceptions of Mathematical Well-Being and Values” suggests that there is a need for a better understanding of how to apply well-being in subjects.

“It’s no secret that many of our learners struggle in mathematics, but can their performance improve by changing our approach as teachers and parents?” asks Sephton.

Internationally, Oxford University Press (OUP) recognises that students who are happy and healthy are more likely to continue with and be successful in their academic studies. Their approach is multifaceted, integrating educational materials, teacher training, and community engagement to inspire a love for mathematics that transcends the classroom.

“Mathematics is a subject that triggers a strong emotional reaction in many: feelings of inadequacy, failure and even fear,” says Sephton. “There are several facets to wellness in mathematics: one of which is how we think about Maths and our self-talk around it. This not only holds for children, but for teachers and parents too.”

“A mind shift can begin at a very early age. The way parents speak about the subject at home can provide opportunities to engage with mathematical concepts outside the classroom, thus making maths real and showing its usefulness in everyday life (something learners often ask). At the same time using positive and affirming language can shape the way children experience mathematics. In this way, parents can grow their children’s ability to do well in mathematics.”



Here are four parent-child tips to support a (mathematical) growth mindset:

1. Make maths matter every day. Integrate mathematics into your family’s daily activities so that it’s easy (and maybe even unavoidable) for your child to engage in mathematics. This can range from including them when measuring ingredients for a recipe, budgeting for a family outing, talking about and calculating time, or incorporating mathematical puzzles and quizzes during game nights.
2. Be your child’s maths buddy. Supporting your child’s improvement in mathematics may require your active participation. This will involve overcoming your own fear of mathematics and turning it into an activity where you both can “figure it out” together. If your child starts explaining mathematics to you, it’s a sign of them gaining independence in this subject.

3. It's okay to make mistakes. Often, your child's hesitance stems from a fear of failure. Help them understand that making errors in calculations is a natural part of the learning process and that being open to criticism is a good quality. Mastering how to correct these mistakes offers a deeper level of understanding and demonstrates growth.
4. Use affirmation. Instead of just celebrating your child's correct answers, make it a point to cheer them on their effort – and not their intelligence or right answers. Words such as “I'm proud of you for not giving up”, and “the more you practice, the more I can see you improve.” Highlight their capacity to analyse their own methods and self-talk around their thinking, by encouraging them to say things like “It's okay. I will try again,” and “I am going to figure this out,.” or “Plan A didn't work. I will try Plan B”⁵.

When we struggle it feels easier to tune out and decide that mathematics isn't for us, but by taking the small steps highlighted above, it is possible to change the way your child perceives mathematics and change their narrative around mathematics: from one where it is a subject to fear, synonymous with failure, to one that builds their confidence and sense of achievement. This will spill over into other areas of their school career – positively affecting their mental health and setting them up for success in later life.

Health Awareness Month in April provides a platform to consider the pertinent connection between mental health and educational success. The challenges faced by South African learners demand a concerted effort to address the symptoms and the root causes of these challenges. There is no one single solution, but parents, educators, policymakers, and community leaders are encouraged to unite in support of holistic educational practices that also acknowledge the intrinsic value of the (frequently neglected) mental health and wellness of our children.



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