

TALKING POINT:

HOW DOES MATHS ANXIETY AFFECT MATHEMATICS LEARNING?

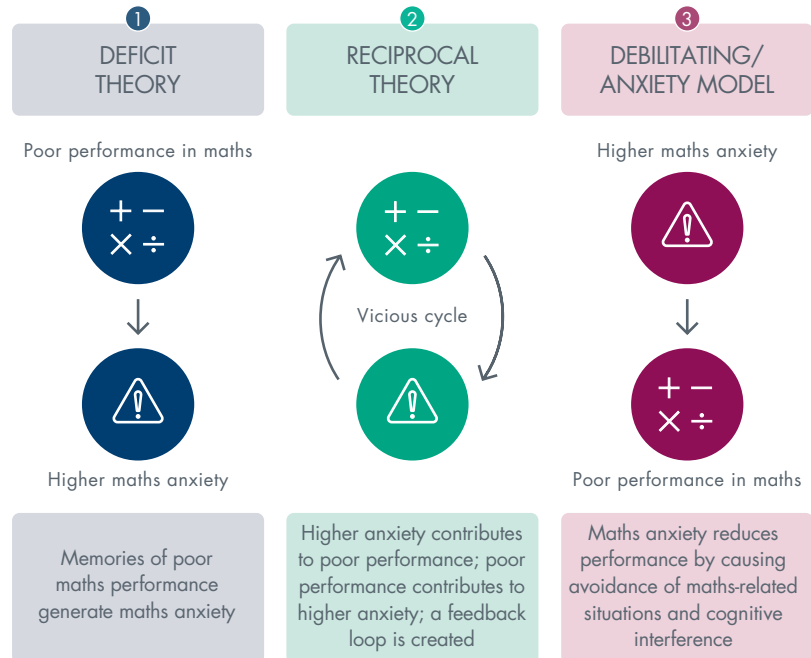
'For someone who has math anxiety, the anticipation of doing math prompts a similar brain reaction as when they experience pain — say, burning one's hand on a hot stove'

Sian Beilock

'interventions are easier and less painful if they take place before mathematics anxiety has set in'

Ann Dowker

THREE POSSIBLE THEORIES ON MATHS ANXIETY AND MATHS PERFORMANCE



Adapted from ideas in Carey et al (2014)

IN SUMMARY

- Maths anxiety is associated with poor maths performance and the two could form a feedback loop
- Maths anxiety may be both mental and emotional; intervention should consider both aspects
- Maths anxiety appears to affect a significant proportion of school and university students at all ages, as well as adults; girls report it more than boys
- Maths anxiety affects working memory; addressing the anxiety and providing strategies to control it may be effective
- Teachers who experience maths anxiety may transmit it to pupils
- Use of manipulatives when planning may help to reduce maths anxiety for teachers

1

Maths anxiety is defined as a 'debilitating emotional reaction to maths' by the Nuffield Foundation¹; other experts suggest it has both a cognitive and an affective dimension³. Maths anxiety correlates with measures of more general anxiety, but cannot be reduced to either general anxiety or text anxiety³ and is not simply a proxy for low mathematics ability^{7,12}. There is a negative correlation between maths anxiety and performance on maths tests², which has been explained by maths anxiety causing both avoidance of mathematical tasks and disruption of working memory^{2,3}. Researchers do not currently agree as to which theoretical model might explain the link between maths anxiety and maths performance (see infographic) – whether the link is one-way, or a cycle.⁴

IMPLICATIONS: Pupils with maths anxiety may avoid maths tasks and experience cognitive disruption, which could form a feedback loop with poor maths performance

Maths anxiety may have both a cognitive and affective dimension; intervention should consider both aspects

