'Maths Anxiety': Isn’t it just a dislike for learning mathematics?

Heidi Kirkland explores ‘Maths Anxiety’ and offers some recommendations for ways forward.

I began teaching 2 years ago and whilst I realise that continued experience, learning and reading will help me expand my awareness of a range of educational issues, I was surprised that I had never heard the term ‘Maths Anxiety’ until my first year of teaching.

Within my Keystage 2 class there was one pupil that struck me as different. Every time our mathematics lessons began, as soon as he realised that our English lesson was going to be transformed into mathematics, he began to sweat. He showed avoidance. I could see the worry and the sheer panic in his eyes. A panic that he would be asked to discuss mathematical ideas; he became a shell of the boy he was a lesson ago and I did not know what was causing this.

Delving into a mass of research, I realised that he was experiencing a degree of ‘Maths Anxiety’, described as “a feeling of tension, apprehension, or fear that interferes with Maths performance” (Ashcraft, 2002). Existing literature has identified physiological symptoms of ‘Maths Anxiety’ such as an increased heart rate, lightheadedness, increased perspiration and clammy hands (Blazer, 2011), as well as psychological indicators such as feelings of helplessness, worry and a fear of not being able to cope during mathematics lessons (Cemen, 1987). These symptoms are wide-ranging and can impact learners at varying degrees and at varying stages in their life, yet any level of anxiety experienced can create negative, debilitating consequences in the future (Ashcraft, 2002). And I recognised all these symptoms in the boy I described above.

With symptoms ranging from mild to severe and without a particular age of onset, it is no wonder that ‘Maths Anxiety’ is not often identified within the primary learning environment (Plaisance, 2009). Importantly, research has argued that teachers can be complicit in creating ‘Maths Anxiety’ through their attitudes and behaviour (Furner & Berman, 2004) and that this can stem from their own anxiety about mathematics. If teachers are anxious, negative, or use rote behaviourist methods in their mathematics lessons, ‘Maths Anxiety’ is likely to be increased and could become a cause for concern, impacting pupils throughout their schooling career (Scarpello, 2007).

With such an important, and perhaps negative, impact upon pupils, teachers need to be aware of what ‘Maths Anxiety’ is, how to identify it and how to alleviate levels, rather than hinder pupils’ progression and enthusiasm for mathematics.

I asked myself whether teachers could identify ‘Maths Anxiety’ within their classrooms and whether they had experienced learners with ‘Maths Anxiety’ during their career. When I asked a former colleague what he thought ‘Maths Anxiety’ was, his response was “Isn’t it just a dislike for maths?”. This made me question how children with ‘Maths Anxiety’ are catered for if teachers are not aware of the extent to which this can impact them, or do not know what the causes or symptoms of ‘Maths Anxiety’ are.

I decided to explore ‘Maths Anxiety’ for my Masters thesis and sent a questionnaire to teachers in the UK who had been teaching for 5 years or less in the primary sector. 107 teachers responded. This is what I found.

What is ‘Maths Anxiety’?

Nearly half the respondents (42%) identified ‘Maths Anxiety’ as “a feeling of tension, apprehension, or fear that interferes with mathematics performance”, however 1 in 5 thought that this would be mainly linked to taking tests and the same proportion agreed that the anxiety was linked to an unwillingness to learn mathematics.

I was unsettled by the responses that ‘Maths Anxiety’ results from an unwillingness to learn mathematics or due to an upcoming mathematics test. Extensive studies have identified the difference between ‘Maths Anxiety’ and ‘Test Anxiety’ (Spielberger & Vagg, 1995). This view can see the problem as rooted in the pupil. If teachers see the problem as internal to the pupil will they take a back seat when trying to resolve this issue? Or perhaps they simply assume it cannot happen to children who achieve well or try their hardest to learn? This seems to me to be disconcerting and judgemental, and may prevent teachers from finding resolutions for individual pupils.
I wanted to gain a better idea of what primary school teachers thought ‘Maths Anxiety’ actually was using their own words. I received a wide range of answers, which I was able to arrange thematically. The key themes were:

A - Fear (41%)
B - Avoidance (17%)
C - ‘Test Anxiety’ (22%)
D - Dislike for mathematics (8%)
E - Poor attitude towards learning (7%)
F - Other (12%)

As you can see 58% of the responses identified ‘Maths Anxiety’ as either related to fear (41%) or avoidance (17%). Both have been empirically and subjectively associated with ‘Maths Anxiety’ (Ashcraft, 2002), leading to the suggestion that over half of the participants would identify these traits as ‘Maths Anxiety’.

More worryingly for me 22% described ‘Maths Anxiety’ in a manner, that categorised their responses as ‘Test Anxiety’. If teachers identify ‘Maths Anxiety’ to only occur during tests, it is unlikely that they will be able to successfully intervene to help a pupil make progress. Similarly, this may mean that a child with ‘Test Anxiety’ is not catered for, due to a teacher identifying this as ‘Maths Anxiety’.

8% identified ‘Maths Anxiety’ as a dislike of mathematics. Pupils with ‘Maths Anxiety’ may not enjoy mathematics due to the effect it has upon them, yet this does not mean that they do not enjoy mathematics itself, nor have the capability to do so. Identifying ‘Maths Anxiety’ mainly as a dislike of Mathematics will undoubtedly lead to a negative spiral that pupils, parents and teachers cannot break out of. It will become a self-fulfilling prophecy that the pupil will not enjoy mathematics.

7% described ‘Maths Anxiety’ in line with a poor attitude towards mathematics. Again, this highlights that all teachers are not aware of what ‘Maths Anxiety’ means to a learner, nor how to identify it. 12% of responses could not be themed, creating the ‘Others’ category. However, these responses did not describe ‘Maths Anxiety’ effectively, again indicating a lack of understanding regarding the phenomenon.

Reflecting on the responses to the questionnaire, the following questions are asked and need to be investigated further:

- Are teachers aware of ‘Maths Anxiety’ in their own classroom?
- How can teachers decrease levels of ‘Maths Anxiety’ if they are unaware of what it actually is?
- How can we raise awareness of ‘Maths Anxiety’ in primary schools in the UK to ensure no child suffers debilitating consequences in their schooling career?

I want to close this article with my own suggestions, which are reflective of my own learning and experience pathway, the results of the questionnaire and how I personally feel this issue can be tackled. I hope that ‘Maths Anxiety’ can be discussed in a positive and constructive light. This should aid the Government in improving the UK’s position in international league tables based upon mathematics achievement and more importantly ensure that all learners are able to enjoy and succeed in mathematics’ lessons.

**Recommendations**

- Initial teacher training providers could ensure that ‘Maths Anxiety’ and its causes, symptoms and intervention strategies are discussed during the training course. Improving all teachers’ awareness of ‘Maths Anxiety’ will help teachers identify it successfully before it becomes detrimental to a pupil.
- If a pupil is identified as having ‘Maths Anxiety’, a member of the Senior Leadership Team should observe this pupil within lessons to determine whether this decision is supported, or perhaps whether it is an alternative, unidentified issue. Identifying a pupil with ‘Maths Anxiety’ who is not actually suffering can have negative, long-term effects.
- If a child is found to be experiencing any degree of ‘Maths Anxiety’, they should complete the ‘Maths Anxiety’ rating scale.
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(MARS-E; Suinn, Taylor & Edwards, 1988) to help teachers identify the strength of ‘Maths Anxiety’ experienced and effective, personalised interventions.

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References


A Metric Paper Puzzle

Something to send your children home with when you’re introducing Pythagoras’ Theorem. (They should be familiar with surds and the length:breadth ratio of a metric paper sheet.)

By cutting or folding A4 sheets, make two squares, one with 6 times the area of the other.

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