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Maths Anxiety in Adult Returning Learners

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What is Maths Anxiety?
Maths anxiety is a phenomenon studied for over 60 years (Dowker, Sarkar, & Looi, 2016). It can be defined as "feelings of tension and anxiety that interfere with the manipulation of numbers and the solving of mathematical problems in ordinary life and academic situations" (Richardson & Suinn, 1972, P.551). Hembree also notes that this emotion is unpleasant, is directed toward the future, and is out of all proportion to the threat (Hembree, 1990). Historically, the focus for such research has been on younger learners. The research reported here is instead concerned with adult student returners, specifically focussing on cohorts of Access to HE students.

What can be done to reduce maths anxiety?
Dr Stephen Covey once said, "If I were to summarize in one sentence the single most important principle I have learned in interpersonal relations, it would be this: Seek first to understand, then to be understood." (Covey, 2004, p.237) Understanding of this concept may give us more of a focus when we try to analyse what the students go through as they attempt to engage with mathematics. (Dowker, Sarkar and Looi, 2016, p.9) note that it is important to understand the attitudes and emotions that children and adults work through if we are to 'remove important barriers to learning and progress in this subject'. Dweck (2007) asserts that if students realise that maths anxiety is normal and widely accepted as a debilitating state; then they will be that much more able to challenge and defeat their negative feelings in pursuit of maths proficiency. Developing a growth mindset is also critical to success.

My Findings so far
Firstly, the extent to which mathematical anxiety exists in the Access students was investigated using the Maths Anxiety Scale (MAS, Betz, 1978). I found 81% of my students experienced some degree of maths anxiety over the three-year period between 2019 & 2022. In the 2019 cohort, 68% were Visibly Anxious, 13% Anxious but not Visibly and 19% Not Measurably Anxious. The anxiety levels were approximately the same for the next two years of data collection - 80% of students were 'maths anxious'.

What next?
Over the last three years, other interventions have also been trialled and assessed, interviews and focus groups conducted, and aspects of 'Maths resilience' investigated. The results from the surveys, interviews and focus groups all lead me to believe that maths anxiety can be reduced and students don't need to choose their future careers based on 'whether there's maths in the course - or not'.

After the presentation.
Concerned But Positive before the presentation which changed to 59% compared to just 10% after the presentation. There were 43% were encouraging: 45% were feeling anxious before the presentation.

Does Maths Anxiety Really Exist?
We may all have, family members, friends and students who we've heard stating:
- I can't do maths;
- I feel sick whenever I get to my maths class;
- I hate maths;
- Maths doesn't bother me - I just avoid it.

We may have more anxiety in our classroom than we first perceive - in my case around 80% of students report maths anxiety at various levels over a 3 year period. Often hearing words used by my students to describing their anxiety such as: Anxious, Scared, Failure, Terrified, Unsure, Hate, Confused & Awful

Before & After The Presentation
The differences in maths anxiety prior to and following the presentation were encouraging: 45% were feeling anxious before the presentation and compared to just 10% after the presentation. There were 43% who were Concerned But Positive before the presentation which changed to 59% after the presentation. 12% were confident prior to the presentation but that increased to 31% after participation in the presentation.

References